MultiWatch
March Against Syngenta
edition 8

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Monsanto's Swiss Twin Unmasked

Unless otherwise indicated, texts have been translated and adapted from German by Margret Powell-Joss, Oban, Scotland.

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Prologue to March Against Syngenta

Dismantling the pesticide mafia with agroecologically based social movements

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Agriculture accounts for the major share of human use of land. Pasture and crops alone take up one third of the earth's land area. A large share of the 15 million square kilometers under crops correspond to large-scale industrial monocultures that consume huge amounts of water and energy. When the petroleum dependence and the ecological footprint of industrial agriculture are accounted for, serious questions emerge about the social, economic and environmental sustainability of modern agricultural strategies. Intensification of agriculture via the use of high-yielding crop varieties, fertilization, irrigation and pesticides impact heavily on natural resources with serious health and environmental implications. The external costs reach every year billions of US$.

Monocultures are heavily dependent on pesticides due to their ecological and genetic homogeneity and consequently high vulnerability to insect pests, diseases and weeds. Pesticide use has increased considerably over the past 35 years, with recent growth rates around 5% in some regions. In 2007 about 2.4 million tons of pesticides were used worldwide, corresponding to an annual value in the global market of about US$ 39 billion; today the value is in excess of US$ 50 billions. In the U.S. alone, more than 500,000 tons of pesticides are used annually, with indirect environmental impacts (on wildlife, pollinators, natural enemies, fisheries, water quality, soil contamination, etc.) and social costs (human poisoning and illnesses), which also account for costs that run into the billions of U.S. dollars each year. On top of this, hundreds of species of arthropods have developed resistance against the different types of pesticides, which have therefore been rendered useless to chemically control such pests.

More harmful pesticides are usually produced and sold by chemical corporations headquartered in developed countries, such as Syngen-

ta. The principal customers for pesticides are developing countries, which are forced by globalization to engage in agroexports at the expense of their national food security. Many of the pesticides are banned in developed countries but provide an extensive market for agrochemical companies, especially in countries with bad environmental protection standards. The intensity of pesticide use in less-developed countries has increased substantially during recent decades, and particularly in countries with higher levels of foreign capital penetration led by the pesticide mafia.

It has been estimated that a maximum of 10% of pesticides applied reach the target pests, leaving the bulk of the pesticides to move directly into local ecosystems thus leading to loss of biodiversity and the contamination of soil, water and the general environment.

In fact, due to their mobility, many pesticides can have ecological impacts beyond land-based ecosystems. (i.e: impacts on ocean ecosystems). In January 2007, the National Oceanic and Atmospheric Administration (NOAA) showed that Syngenta's herbicide atrazine negatively affects marine phytoplankton. These microscopic organisms serve as food for other organisms such as clams and oysters. Atrazine's impact on this critical member of the marine foodweb has dramatic and irreversible effects on marine life including damage to commercially important shellfish and finfish populations as well as sea mammals (whales), of which many are already threatened or endangered.

In 2007, about 36,000 tons of atrazine were applied in the United States, three quarters of it to corn in the Midwest. Atrazine is prone to run off fields and contaminate water supplies thus affecting a number of animal species. In particular, atrazine inhibits the production of testosterone and induces estrogen production, upsetting the balance between these two hormones. The result is demasculinization and feminization. This effect of atrazine has been observed in fish, amphibians, reptiles, and mammals.

Since pesticides reach water and food sources on which humans depend, many agrotoxins have been linked to a number of health problems, including neurologic and endocrine (hormone) system disorders, birth defects, cancer, and other diseases. In the U.S., the average child between the ages of six and eleven carries unacceptably high

levels of the organophosphorus pesticides, chlorpyrifos (an insecticide) and methyl parathion (a herbicide), both of which are known to have neurotoxic properties. Several ecologists and epidemiologists have studied the effects of atrazine. Research on humans shows that it seems to act as an endocrine-disrupting chemical, meaning that it can block or mimic hormones; some human studies have suggested that atrazine may harm fetuses and reduce men's sperm quality.

Herbicides are the only pesticides whose use is increasing globally. This increase is linked to the demand of herbicides from herbicide resistant GMO crops which in 2014 occupied 1.8 million square kilometers. By 2019 the area devoted to transgenic crops was expected to increase to 2.8 million square kilometers. By creating crops resistant to their herbicides, biotech companies can expand markets for its patented chemicals.

In Brazil as the soybean area rapidly expands, so does the growth in pesticide use. While Syngenta and other biotech companies claim that one application of Roundup (a herbicide on the base of glyphosate) is all that is needed for whole season weed control, studies show that in areas of transgenic soybean there is more than one application. In the U.S. the use of glyphosate went up from 18,900 tons in 2000 to 81,000 tons in 2007, and at the time of writing, glyphosate use in the U.S. had reached in excess of 100,000 tons. Roundup is applied on most areas occupied by soybean fields.

The continuous use of herbicides such as glyphosate, atrazine and others leads to weeds that develop herbicide resistance. Given industry pressures to increase herbicide sales, acreage treated with broad-spectrum herbicides is expanding, exacerbating the resistance problem. As the area treated with herbicides expands, the increased herbicide use will result in weed resistance. In the Argentinian Pampas, 16 species of weeds, among them two species of *Verbena* and one species of *Ipomoea*, already exhibit resistance to glyphosate. Current emergence of Johnson grass resistance put the whole industrial agricultural complex on alert. After over 60 years of use, many target weed species have become atrazine-resistant. No other herbicide has produced such dramatic effects on the evolution of weeds. In South America, there is a tendency of farmers to increase herbicide rates or to resort to other herbicides like 2,4-D to overcome glyphosate

weed resistance, thus increasingly becoming victims of a 'pesticide treadmill'.

In the last twenty years, the best agricultural lands of Latin America have been put into production of transgenic crops (mainly soybean, maize, cotton and canola) by large-scale producers closely linked to foreign investors. Foreigners now control millions of hectares of prime agricultural and ranching lands in Paraguay, Bolivia, Brazil and elsewhere. This land-grabbing process poses several socio-economic challenges. Foreign control over land and resources for industrial agriculture is undermining regional and national food security. While food imports maintain domestic price stability and satisfy increasing urban demand, they compete with domestic production, in particular that of smallholder farmers, leading to their expulsion and compounding the concentration of people in cities. Meanwhile, the great majority of the profits obtained by foreigners in the commercial agricultural sectors are repatriated to their country of origin – as in the case of Syngenta to Switzerland.

There is no doubt that humanity needs an alternative agricultural development paradigm, one that encourages more ecologically, biodiverse, resilient, sustainable and socially just forms of agriculture, under the control of small farmers in alliance with organized solidarious consumers. A more radical transformation of agriculture is needed, one guided by the notion that ecological change in agriculture cannot be promoted without comparable changes in the social, political, cultural and economic arenas that determine agriculture.

In the end, the new crisis is just a new face of the old rural crisis derived from the almost total control of the food system by transnational capital aided by neoliberal programs implemented by many governments. The basis for new, alternative systems is the myriads of ecologically based agricultural styles developed by at least 75% of the 1.5 billion smallholders, family farmers and indigenous people on 350 million small farms which, controlling 20–30% of the arable land, account for no less than 50% of the global agricultural output for domestic consumption. The majority of the world's peasant farmers tend small diversified farming systems which offer promising models for promoting biodiversity, conserving natural resources, sustaining yield without agrochemicals, providing ecological

services and remarkable lessons about resilience in the face of continuous environmental and economic change. When these farmers adopt agroecological approaches via farmer to farmer networks, or supported by local governments or NGOs, studies show that millions of rural households benefit from increased food diversity and security. Promoted agroecological practices lead to 50–100% increases in food-crop production per hectare, without using high external inputs.

Organized peasant and indigenous based agrarian movements such as the Via Campesina consider that only by changing the export-led, free-trade based, industrial agriculture model of large farms can the downward spiral of poverty, low wages, rural-urban migration, hunger and environmental degradation be halted. These movements embrace the concept of food sovereignty, which constitutes an alternative to the current mainstream thinking on food production. The concept behind food sovereignty contrasts the neo-liberal approach that believes that international trade will solve the world's food problem. Instead, it focuses on local autonomy, local markets and community action for access and control of land, water, agrobiodiversity, etc., which are of central importance for communities to be able to produce food locally. The concept of food sovereignty implies a shift in the role of subsidies aiding the dumping of northern food surpluses in poorer countries, towards a system of land reform given peasant and family farmers access to land and supporting vibrant rural economies. This requires policies that prioritize national-regional-local food security above the production of exports and dependence on imports. It also requires a shift away from hi-tech, intensive monoculture agriculture dependent on high levels of pesticide use, and transgenic crops, and towards the promotion of agroecology. These themes provide a unique platform for NGOs such as MultiWatch, Greenpeace and others to support the work of farmer organizations fighting against multinationals that are destroying their landscapes and livelihoods aided by out-of-control trade liberalization.

In addition to the pesticides and GMOs that agrochemical companies like Monsanto and Syngenta trade all over the world, low prices are another key enemy of farmers. If farm gate prices continue to drop even while consumer prices rise, this is because the main force dictating low prices to farmers is the same one that dictates high prices

to consumers: the monopoly control exerted over the food system by corporations like Nestlé, Cargill, Archer Daniels Midland, Louis Dreyfuss Group and Bunge. This means that breaking up these monopolies by enforcing antitrust laws nationally and globally is a key step toward ensuring that farmers can earn a living on the land and consumers can have access to affordable, nutritious and healthy food.

Moving towards a more socially just, economically viable, and environmentally sound agriculture will be the result of the coordinated action of social movements in the rural sector in alliance with civil society organizations that are committed to supporting the goals of farmer movements. Concerted action is needed so that multinational companies and government officials feel the impact of environmental, farm labor, animal rights and consumer lobbies, pressuring them to ensure that all countries retain the right to achieve food sovereignty by developing their own domestic farm and food policies, policies that respond to the true needs of farmers and all consumers, especially the poor.

In summary, to reduce hunger and poverty and conserve biodiversity, "Greening" the green revolution by only targeting the elimination of pesticides and GMOs will not be sufficient. Unless the root causes of hunger, poverty and inequity are confronted head-on, progress in dismantling the corporate controlled food systems will be limited. There is a general belief that the alternative agriculture movement is an homogenous block and one that stands united in its challenge against industrial agriculture. Despite differences, if the majority converge with peasant movements under the banner of agroecology and food sovereignty, the counter-movement opposing the corporate food regime will be strengthened. On the other hand, if the majority align themselves with either neoliberal or reformist projects such as organic farming for export, fair trade, etc, which do not challenge the corporate food regime, the results will be disastrous for the peasantry and poor consumers.

A critical debate and dialogue is essential to move forward with the alternative agriculture movement, especially if the goal is to promote a truly alternative agricultural path. Only a strong counter-movement can open possibilities for transformation of the current unjust food system.

16 July 2016

Editors' Introduction

'Feeding the planet, energy for life' was the handle for the Expo Milano 2015 World Fair in Italy. As its main sponsor and partner in the event, the government of the Swiss city of Basel chose Syngenta, whose headquarters are in Basel. In response, a small regional group of activist members of Swiss NGO MultiWatch, decided to take a closer look at Syngenta. Far too little has been known about the Swiss biotech and agribusiness giant, despite the fact that it has occasionally made headlines. Given the profiling intentions that lurked beneath Syngenta's endorsement by Switzerland's third largest city, we urgently needed to do our research and plan our first public protests.

Monsanto, the U.S. biotech and agribusiness titan, has been the target of worldwide protest activities for some time. Meanwhile, Syngenta, its fiercest competitor, has usually managed to stay out of the limelight. That needs to change.

Our book, *March against Syngenta* (original title, *Schwarzbuch Syngenta*), documents the results of our investigations. It gives voice to critics from many areas of expertise. It contributes to global protests and resistance against Syngenta. We chose the title as a call for people to stand up against Monsanto's Swiss twin. Syngenta is a company that has used the mantle of progressive environmentalism, humanitarianism – even of philanthropy – to disguise aggressive business practices that threaten fundamental human rights to life, health and adequate food, and have had a disastrous impact on animals and the environment. So far, those responsible for Syngenta's behaviour have countered most of the criticism levelled against them with propaganda and whitewash. With appalling arrogance, they have denied and refused to tackle grave problems. The overview provided here is our attempt to redress the balance.

Syngenta is one of the world's largest agribusiness companies. But the word 'agribusiness' does not apply to the entire farming and agricultural sector. Rather, it applies to large transnational corporations that draw exorbitant profits from controlling the sector. As one of the

key players in this ugly game, Syngenta forms part of the 'pesticide treadmill' that Prof. Miguel Altieri warns against in his Prologue to *March against Syngenta*.

By the time of writing, however, Syngenta had come under great pressure and it remains to be seen how it will deal with the challenges ahead, and what changes we will see in 2016.

MultiWatch celebrated its tenth anniversay in the autumn of 2015. For over ten years, the NGO has kept a close eye on whether or not Swiss multinationals comply with human and labour rights in the Global South. MultiWatch relies on committed activists. MultiWatch takes courage from international solidarity, and is part of a global movement that keeps close watch on large corporations. MultiWatch contributes and shares critical information; the NGO provides substantiating evidence and updates analyses. For over ten years, MultiWatch has engaged and worked closely with individuals and other NGOs in campaigns against violations perpetrated by Swiss global corporations: Nestlé, Holcim, Glencore – and now Syngenta.

In April 2015, a few days before the launch of Expo Milano 2015, MultiWatch Basel held *Agro statt Business*,[1] a conference that examined Basel's 'unholy alliance' with Syngenta, and levelled a wide range of criticism against Syngenta. Over 500 people attended *Agro statt Business*. They listened to presentations and testimonies, and joined in lively debates. Participants' hearts went out to our invited guests – delegates who had travelled far to share their experience. They were Syngenta trade unionists from Pakistan; Syngenta critics from Kauai in Hawai'i; and an activist from Paraguay. Their stories take pride of place in *March against Syngenta*. They – and their communities all over the world – urgently require our continued, unflagging support. If things are to change for the better, we must persevere in our active engagement.

Part One of the book, *March against Syngenta*, is dedicated to the stories told by our international guests. Together with several other examples, their stories highlight the sometimes disastrous impact of Syngenta's activities in various regions in the world and in various sectors of the global economy. Accounts from Syngenta's critics and activist opponents debunk the company's propaganda.

We would like to emphasise that this analysis of Syngenta's prac-

tices is a work in progress. So far, too little is known about conditions at Syngenta's sites in China and northern America, and about a slew of industrial issues and disputes. We will address some of them in Part Three using examples from Pakistan, the UK and Switzerland.

In Part Two of *March against Syngenta*, we analyse the context in which this usually rather discreet global company has conducted its highly questionable activities.[2] Part Two addresses and analyses the company's history, structure, ideology, strategy and lobbying activities, and its shareholders. We also address Syngenta's products, including crop seeds and pesticides; the company's market power and patents, and its heavy involvement in a form of industrial agriculture whose success is measured almost exclusively in terms of capital returns.

In Part Three of *March against Syngenta*, we make the case of the urgent need to push back and strengthen resistance against Syngenta's activities. We examine working conditions at Syngenta's many sites, and who has stood up for improvement. Next, Part Three seeks to establish why and how – rather than helping to create food sovereignty – companies like Syngenta push their farmers and growers into the greatest possible dependency on their products. Part Three also traces where and how resistance has sprung up through people who have have organised themselves to defend their own alternative ways. The groundswell of criticism of Syngenta's kind of business practices has been gathering pace. MultiWatch is proud to be part of a lively and colourful international movement that refuses to leave the task of 'feeding the planet' to global capitalism. It is part of a global movement that is beginning to take global food issues back into its own hands.

Outstanding demands are listed at the end of *March against Syngenta*. 'Marches against Monsanto and Syngenta' are taking place all over the wold to create even wider public awareness of these demands. On the occasion of Basel's first such 'March against Monsanto and Syngenta' on 23 May 2015, some 1300 mostly young demonstrators assembled outside Syngenta's headquarters to protest against a company most of whose profits and sales are generated by pesticides. The rally was held in protest against a company that claims to improve food security while many of its highly toxic pesticides are being

applied in ever larger quantities, poisoning people and the environment, and at least partly responsible for rapid biodiversity decline.

Companies like Sygenta tend to prefer people to be dependent, subjugated, submissive, and deprived of their rights. If Syngenta achieves its goal of taking even greater control of crop seeds, it will further increase its already considerable power. *March against Syngenta* illustrates how those who have been affected by Syngenta and similar global titans challenge this kind of future. The counter-movement against the corporate food regime is growing stronger because – just as Miguel Altieri's Prologue encourages us to do – we, the people, are confronting head-on the root causes of hunger, poverty and inequity by converging with peasant movements under the banner of agroecology and food sovereignty.

Looking back on over a year of campaigning, MultiWatch feels quite proud of what has been achieved so far. It is to be hoped that our book, *March against Syngenta*, will help focus and underpin the demands made by the international movement against global agribusiness.

Acknowledgements

March against Syngenta is the collaborative result of research carried out by members of MultiWatch and other individuals who were very generous in lending their valuable time and support in terms of discussion, writing and rewriting. Chapters without explicit attribution to individual authors were written collectively by the Basel regional group of MultiWatch. We are deeply grateful to our generous authors who wrote critical contributions specifically for this book. For his Prologue, we owe a special debt of gratitude to Prof. Miguel Altieri. A big thank-you to our friends who produced translations into German, and to Sandra Ryf, our copy-editor and proofreader of the German original version of this book. We would also like to thank Leonie Rösler for her illustrations in the German version of the book, *Schwarzbuch Syngenta*.[3] Silvio Meessen and Léon Bricola of Basel's Origami Design collective deserve praise for their sterling design of the physical book in German, and Margret Powell-Joss for her editorial and translation work on the English version that you are now about to read.

Dedication

March against Syngenta is dedicated to the memory of Keno, a trade-union leader in MST, Brazil's Landless Workers Movement, *Movimento dos Trabalhadores Rurais Sem Terra*. Keno was brutally murdered in 2007 by armed members of a private security firm employed by Syngenta.

Our search for evidence against Syngenta starts here.

Basel, 31 January–31 July 2016

Notes:

1 Translator's note: *Agro statt Business* stands for 'Agri(culture) rather than Business'.

2 Rumours of a take-over of Syngenta were making global headlines at the time of writing.

3 MultiWatch, eds. *Schwarzbuch Syngenta – Dem Basler Agromulti auf der Spur.* edition 8, Zürich, April 2016; illustrated paperback (in German). ISBN 978-3-85990-283-1, 315pp. Order from MultiWatch: http://www.multiwatch.ch/de/p97002169.html

Translator's Comment

MultiWatch, a small group of highly dedicated activists in Basel, Switzerland, and their co-authors from all over the world deserve the greatest respect for the years of research, discussion, writing and revision that went into the German original book – *Schwarzbuch Syngenta* – published in spring 2016. It is an important book, a handsome publication, and a true labour of love.

It has been an enormous joy and privilege to be involved in this project. As their translator and occasional copy editor, I have done my best to convey their words and thoughts as accurately as possible. Unsurprisingly, the English version is a different book not least because it attempts to adopt an English-language perspective. Additional notes and comments should clarify local circumstances to readers in English-speaking countries and beyond. Wherever possible, source references originally published in English have been consulted and quoted, sometimes at greater length. I would like to express my heartfelt thanks for feedback received from various authors and, in particular, from one unstinting and immensely helpful MultiWatch member. You know who you are.

References and links to websites in English in the extensive bibliography were accurate at the time indicated. Any linguistic and typing errors and omissions in the English version are mine. Feedback and corrections will be gratefully received at translator AT powelltrans DOT ch.

May I dedicate this book to the millions of women, children and men who toil and struggle to live and work in often unspeakable conditions. I do hope the book will make a positive difference!

July 2016, Margret Powell-Joss, Oban, Scotland

Postscript, 6 February 2016: ChemChina's offer and the latest round in Global Agropoly

On 28 April 2015, the editors of this book stood in the pouring rain outside St. Jakobhalle in Basel, Switzerland, the venue of the annual shareholder meeting of Syngenta. Members of MultiWatch were accompanying two people – Gary Hooser from Kaua'i, Hawai'i, and Imran Ali from Pakistan – who were about to address the Syngenta shareholders.

As the members of the lofty Syngenta board walked past our symbolic GM crops, we were unaware that the night before they had declined a takeover bid by Monsanto, their U.S. competitor. The media would report the fact only on 1 May 2015. Afterwards, we posted regular updates about further takeover bids on our website and facebook page; our media reviews kept our sponsoring organisations in the picture.

The unfolding drama spoke volumes about capitalism today. The ups and downs in Syngenta's negotiations with Monsanto were reflected in the value of its shares. Hedge funds came on board and left; speculators toyed with Syngenta shares. Months of discussions ensued, apparently about share values, i.e. the premium for Syngenta shareholders. While this aspect continues to be relevant, it is far from the only important criterion. No-one, however, seemed to take the slightest interest in agriculture and in Syngenta's products, let alone in global food security, or in the fate of Syngenta's workers.

From May 2015 until the time of writing, we collected around a thousand press clippings on the issue of a Syngenta takeover, none of which said a single word about GM seeds or pesticides. It has been a lesson in the functioning of capitalism: what really matters to capitalists is short-term gain and profit – the world around them does not seem to exist.

However, what happens at the headquarters of transnational companies like Syngenta is more than merely the assembly and re-assembly of global value chains. These companies also participate in the global finance industry, whose priority are mergers and acquisitions.

Itself the result of such a merger, Syngenta has been conducting takeover negotiations ever since. In a game in which any specific products or areas of commercial activity are of secondary interest, it is only logical that the aggressor should now be absorbed in its turn. What does matter, however, is profit maximisation, i.e. the realisation of the value created by the production of goods, and the absorption of global added value in order to establish private monopoly income. Speculators and large-scale investors make wins and losses on the stock exchange. Having for some time held out the prospect of higher profitability, Syngenta found itself unable to follow through, prompting big investors to demand tougher action. During the countless takeover talks, not one voice, however, spoke on behalf of Syngenta's workers; not one statement was made on behalf of Syngenta's victims.

It is likely that some shareholders lost out when, in 2015, the Syngenta Board rejected bids by Monsanto and China National Chemical Corporation (ChemChina). An association of small-scale shareholders was established. In view of a continuing sluggish economic climate and poor prospects in Argentina and Brazil, which are two of Syngenta's key threshold countries, large shareholders seriously began to reconsider their positions. Their conclusion was that expectations were low, at least in the short term; returns on equity were on a downward trend; and market positions looked rather fragile. Their concerns were conveyed to the Syngenta Board in unmistakeable terms. Michel Demaré, since 2013 Syngenta Chairman of the Board, deplored the fact that his company lacked an anchor shareholder who could provide a degree of stability in troubled times. When the merger of Syngenta's major competitors Dow and DuPont was announced in November 2015, the media and self-styled agrochemical experts talked of consolidation. It was unclear for quite some time whether Syngenta would be among the 'absorbers' or the 'absorbees'. Every possible configuration was discussed; the media claimed that everyone was talking to everyone.

Meanwhile, MultiWatch were writing this book. The question was whether to wait for the outcome of this 'takeover bazaar' to become clear. Despite its Swiss roots and its headquarters in Basel, Syngenta is no longer a Swiss company, but company is owned by large U.S. and British interests, as our own analysis of Syngenta shareholders

has shown. We therefore came to the conclusion that the ChemChina takeover would constitute a shift of capital to China, primarily from the U.S., and that little would therefore change in our fundamental analysis and critique of big biotech, multinational agribusiness companies and industrialised capitalist agriculture.

As it happens, the ultimate deadline for contributions to the book had been set for late December 2015; the very last contribution reached the editorial team on 20 January 2016. Although many questions remained unanswered and the public had yet to hear of any final decisions, we would be able to include some of the January 2016 events. On 2 February 2016, however, which was the day before Syngenta AG presented its annual report, the news spread that the Syngenta Board had unanimously accepted ChemChina's latest bid, which was higher than the previous one.

Our readers will understand that the analyses and the aim of political interventions made in this book will inevitably have to be adjusted as time passes. In other words, this bBlack Book has a certain shelf life. The editors therefore decided to publish the book as it stood before the ChemChina takeover bid, which is why more has been written here about Monsanto than about the Chinese company. All the same, we felt it appropriate and necessary to add some essential considerations about ChemChina. Hence this postscript.

While ChemChina's attempt to acquire Syngenta came as no surprise to MultiWatch, at the time of writing, however, it remained to be seen whether the takeover would actually go through. In particular, the acquisition of 67% of Syngenta's share capital looked likely to pose quite a challenge, and to present a considerable obstacle. After all, the share price had been increased significantly, to CHF 480 (Monsanto's offer had been between CHF 430 and CHF 450; in autumn 2015, ChemChina had offered CHF 449). Moreover, uncertainties remained regarding European and U.S. authorities, primarily the U.S. Committee on Foreign Investment, who might yet demand disinvestments. On the other hand, negotiations had taken this uncertainty into account, and considered both this issue and the possible withdrawal of either ChemChina or Syngenta to be manageable risks. Nevertheless, relations between the world's large economic blocs continued to pose any number of imponderables.

Reflected in its figures for 2015, Syngenta continued on a downward trend, which had already become evident in the figures for the third quarter. Turnover was down by 11% to US-$ 13.41 billion. The company tried to offset falling sales volumes by increasing prices; a strategy that only succeeded in part. Nett profit fell by 17% to US-$ 1.34 billion, whereas EBITDA profit increased slightly, from 19.3 to 20.7%. However, this was still a reduction in absolute figures of around US-$ 100 million, allegedly due to currency effects. Also, it may be assumed that various announcements made by U.S. ratings agencies that they were reviewing the company's ratings worried the Syngenta managers. At the time of writing, Moody's had already announced that they were considering a downgrade if Syngenta was bought by ChemChina, an unrated company.

These facts and figures aside, however, what has been at stake is Syngenta's top market position. Bayer has been catching up in the pesticide market; Monsanto and Dow/DuPont may yet forge ahead of Syngenta in the seed market. In a deal with Monsanto, Syngenta would have come a clear second after the U.S. giant. By contrast, ChemChina seems to provide greater autonomy, at least for the time being, as well as greater opportunities for growth, especially in China, but most likely also in Africa, where higher volumes of investment are to be expected.

The mid-term perspective, however, looks different. A knowledge transfer to China is likely; various European and U.S. production sites may well be scaled down; even R&D may be transferred to a new main location in China. Great caution is therefore advised when it comes to any assurances that jobs will be safe, and of a five-year period of grace on any restructuring. As long as there are no publicly accessible, written multi-year undertakings and commitments, we must assume that – depending on how the business develops – restructurings and downsizings will occur just as they have so far. Only, what will be directly at stake will no longer be shareholder values but primarily the strategic interests of Chinese capital, which itself is becoming increasingly globalised, reflecting a shift to new global centres of accumulation led by Silicon Valley and the Pearl River Delta.

Syngenta's unsatisfactory business results made it all but impossible for the company to succeed on its own. Its large shareholders

exerted pressure to increase the takeover price, which will enable them to pocket exorbitant returns. That was the only they could cash in big-style, which is why, for months, they had been wanting to sell the business. Its major investor Black Rock, for example, stands to make half a billion Swiss francs from the sale of all of its Syngenta shares to ChemChina. At the time of writing, however, indicating caution and scepticism on the part of investors, the share price had yet to increase significantly.

Who is ChemChina? Officially known as China National Chemical Corporation, ChemChina is a fast-growing Chinese state business. With more than 140,000 staff on its payrolls, including 48,000 employees outside China, it achieved a turnover of US-$ 45 billion in 2015. That is more than three times the Syngenta turnover for the same period. The Syngenta deal would constitute a new dimension – both for Chinese capital and, of course, for ChemChina, which offered to acquire Syngenta for the sum of over US-$ 43 billion (CHF 43.7 billion). If ChemChina's previous acquisitions were paltry by comparison – US-$ 9 billion for Pirelli, and just under US-$ 1 billion for KraussMaffai, they nevertheless held strategic significance. This is particularly the case with regard to ChemChina's participation in Mercuria, the Geneva-based commodities trader. It looks like ChemChina is being given any means necessary to join the top fifty global chemical companies, sooner rather than later.

What likely impact will the takeover have? By no means is this a consolidation but a regrouping of the oligopolies that rule the market for seeds and pesticides. The Big Six have been reduced to the Big Five – ChemChina/Syngenta, Dow/DuPont, Monsanto, Bayer and BASF. Yet again, the three largest companies will see their market shares increase significantly. By purchasing Syngenta, ChemChina will very likely push its way to the top position. It will also enjoy the best opportunities for growth, at least by comparison. It remains to be seen whether another coalition will emerge, one that might result in an oligopoly of merely the Big Four, or even the Big Three.

Such ongoing adjustments in the agrochemical sector will lead to an extreme concentration of power that presents a great risk to humankind. It is perfectly conceivable that Chinese, U.S. and European capital interests will very quickly divide the seed and pesticide

markets among themselves. While Asia currently shows the highest growth rates, Africa is expected to follow rapid suit. After all, the seed and pesticide conglomerates are planning to invest their global capital in order to extract the continent's real value as rapidly as possible. By purchasing the Syngenta shares, ChemChina has undergone a sudden transformation into a global player intent on accelerating the development of industrialised capitalist agriculture. In a discourse that again focuses on China's limited agricultural land, and on the ever increasing challenge of feeding its growing population, the implication is that Chinese state capital – based not only on China's vast foreign exchange reserves, but also on the renminbi (aka yen) as the new global currency, and on China's extremely powerful state-owned banks – must engage in global activities to be successful. As a consequence, many more companies will be acquired; the need to secure commodities will be ongoing; China will continue to expand its industrial activities, and will also need to expand its land and water reserves on an ongoing basis – which is not the least of our concerns.

Those in control of food production are in control of mankind. With its pesticides and patents on plants, Syngenta has become one of the world's most significant exponents of unsustainable agriculture. If Syngenta is absorbed by ChemChina, a state-controlled Chinese company, there is a very real and present risk that highly toxic agrochemical substances will be distributed even faster, and that highly problematic agro-genetic engineering technologies will expand ever more rapidly, both in China und across the whole world.

At this point in time, little is known about the situation in China's agroindustrial plants, or about Chinese farmers' struggle against expropriation and environmental degradation. In co-operation with other NGOs, MultiWatch will do its utmost to reduce this information deficit.

Owing to the negative ecological impacts of big biotech (GMO) and agribusiness, more and new pesticides will be applied; and – more importantly – new transgenic seed will be developed. All the while, the contradictions inherent in capitalist production will increase, exacerbating disparities and injustice worldwide. At the same time it is likely, however, that the alternative, i.e. agroecological agriculture, will gain ground, and that resistance will grow against the imposition

of the capitalist model on rural communities. While such a transformation is conceivable, it remains to be seen whether it can be implemented, or whether mankind is facing the toughest-ever resource allocation conflicts.

There is cause for hope if the many arms of resistance can reach out to each other to work together on a joint strategy towards the common goal. Even now, there is no doubt that many key decisions will be made in China. That is where, despite a scarcity of information, we do know that the fiercest class struggle has been simmering among workers that continue to be governed by the state-controlled unions of a Communist Party undergoing a slow transformation.

However, there is also no doubt that the number of millionaires and billionaires are increasing faster in China than anywhere else. One of them is Ren Jianxin (57), ChemChina's conciliatory President and General Manager of impeccable manners. With close ties to the Party, Ren appears to enjoy considerable economic leeway. He is also aware of the fact that China's technologies are still lagging a little behind, and that technology needs to be acquired elsewhere. As China is coming to the end of the stage of bringing more tech into the country, however, the point is to enhance its global position and to achieve a larger share of the global added value. In other words, it's all about business as usual.

With regard to Syngenta's workers, there is no guarantee whatsoever that they will remain in employment even if there are not going to be any substantial changes in the short term. The threat of job cuts always looms; the farmers must expect further price increases. No consideration has been given in the takeover negotiations to the interests of agriculture, nor to global food security, nor to worried Syngenta staff. Some employees in Basel felt that a sale to ChemChina might bring somewhat greater security than if Monsanto were to acquire Syngenta. No-one, however, was willing to make a forecast for the longer term.

At the time of writing, ChemChina was a state-owned company. It is therefore likely that Syngenta shares will disappear from the stock exchange, and that the company will publish less information, no matter how much it asserts the contrary. The public will find it a greater challenge to find out what is happening behind the closed

factory and laboratory doors. Unless, that is, the company changes its strategy, which is exactly what MultiWatch has been calling for.

Having kept a critical eye for the past eighteen months on the Basel-based multinational, MultiWatch has been inspired by the Syngenta takeover to draw up the following list of demands:

- Assurances must be given in writing that the jobs of all Syngenta employee will be safe for at least five years, not only in Switzerland but across the world.
- Full union rights must be granted and are to be implemented at each and every Syngenta-related production plant, including any in China. Any existing restrictions, some of them serious, are to be lifted with immediate effect.
- It is high time for Syngenta's internal Code of Conduct and Corporate Responsibility standards to be globally enforced and implemented. In particular, the external (independent) monitoring of the labour conditions imposed on seed-producing farmers must be upheld.
- Independent international observers must be given free access to Syngenta-related factories and production plants across the world, including China.
- A universal ban on Paraquat must be enforced. Throughout the southern hemisphere, the application of Paraquat by untrained and unprotected farm labourers jeopardises human health and puts lives at risk. Paraquat use must not be allowed to expand in the aftermath of the Syngenta takeover.
- The new agrochemical giant must provide substantial information on how it is developing. Full transparency is required on its labour conditions, use of products, on any ecological issues that may arise, and on the focus of current and future research.

At this point, we can only speculate about the future. It is conceivable that ChemChina will fail to achieve its goal of owning 67% of Syngenta's shares. Albeit rather unlikely, it is also conceivable that Syngenta will be sold to an even higher bidder even though the billions that secure both parties against a withdrawal would need to be

included in a new offer. There is also the potential risk of conflicts with U.S. authorities – either regarding products of strategic value; or due to the trial plots on Kauai'i and at the Research Triangle Park in North Carolina. These are just some of the questions that will be answered in the near future.

Ultimately, however, we of MultiWatch are in no doubt that these kinds of mergers follow a capitalist logic, and clearly demonstrate the power of global capitalism. It is a power that exacerbates rather than solves humankind's most pressing and most urgent problems.

Part One: Syngenta on the World Stage

Part One of this book examines the dramatic impact of Syngenta's global activities. In the first chapter, Marianne Spiller relates how an activist of Brazil's Landless Workers Movement, *Movimento dos Trabalhadores Rurais Sem Terra* (*MST* in Portuguese, came to be murdered. If Syngenta's trial plots for pesticides and genetically modified (GM) seeds on Kaua'i, Hawai'i, have caused no deaths, their impact on the health of the local population has been very negative indeed.

The way Syngenta has been treating most of its workers at its pesticide plant in Karachi, Pakistan, is particularly outrageous. There, labour conditions are scandalous; many workers have been denied their fundamental rights. To see for himself, Markus Spörndli accompanied union leader Imran Ali on his job. Reporting on the influence on Indian agriculture by big multinationals, including Syngenta, Deepak Kumar focuses on the debt-bondage of small-scale farmers and on cases of pesticide poisoning among rural workers.

Elizabeth Bravo examines Latin America's vast sugar-cane, soybean and banana monocultures. To Syngenta and other big biotech companies, these territories have been creating bonanzas – with devastating impacts on local populations and on the environment. In 2012, Paraguay's elected President Fernando Lugo was deposed on slender pretexts in a parliamentary coup. While no evidence has been found of direct Syngenta involvement, Yvonne Zimmermann outlines the many ways in which Lugo's impeachment has benefitted big agribusiness, first and foremost.

In her analysis of Africa, Silva Lieberherr outlines how big agribusiness has been 'developing' the continent – and generating revenue. With its huge investments, Syngenta has been at the forefront of these activities; the company has been attempting to change seed legislations by means of Public Private Partnerships.

While Syngenta has been particularly proud of its 'Golden Rice' project, Paul Scherer warns that, although we know little about the risks involved, the development, patenting and production of this GM variety has been designed to control global rice production. The

chapter by Yves Zenger of Greenpeace examines the Global Bee Decline chiefly caused by the unrestricted application of pesticides containing neonicotinoids, which have been banned in some parts of the world.

Martin Forter has investigated toxic waste deposits in the Basel area, the unresolved hazards presented by these 'legacies', and Syngenta's attempts to reduce their high remediation costs, or simply transfer them to the taxpayer.

The two contributions that conclude the book place Syngenta even more firmly in the dock. François Meienberg of the Berne Declaration reports on the NGO's intensifying protest campaigns based on its thorough research into the company. Finally, Florianne Koechlin examines the Global Agriculture Report, officially known as the *International Assessment of Agricultural Knowledge, Science and Technology for Development* (*IAASTD*), roundly rejecting Syngenta's approach to improving global food supply.

The murder of MST Activist Keno

Brazilian union leader murdered by private security company protecting an experimental GMO site owned by Syngenta Seed

By Marianne Spiller, psychologist, Brazil

The tragic death of Valmir Mota de Oliveira, a leading MST activist known as Keno, has long been on my mind. Keno was murdered at one of Syngenta Seed's experimental GMO sites in Paraná state, Brazil, in 2007. Two years later, I was among many people taking part in a memorial service held at the site. More recently, I visited the victim's widow and other survivors of the massacre.

MST, Brazil's Landless Workers Movement, *Movimento dos Trabalhadores Rurais Sem Terra*, was officially founded in 1984 against a backdrop of extremely unequal land ownership. While continuing to agitate for the full implementation of the long-overdue land reform, MST's hard work over three decades has nevertheless won official title for more than 400,000 families who live in more than 2000 settlements.[Einleitung]

Historical background

Until 2008, Syngenta owned 122 hectares, or 0.47 square miles, of land in Santa Tereza do Oeste, Paraná. The area is located a mere 4 kilometres, or 2.5 miles, from Iguaçu National Park, a protected area that, in 1986, was declared a UNESCO World Heritage Site for its unique biodiversity. According to Brazil's environmental legislation, it was illegal to establish any non-native plants within a 6.2-mile buffer zone (10 kilometres) of the park. In 2005, however, local family farmers discovered that Syngenta had secretly been conducting illegal experiments with genetically modified (GM) soya on the site. *La Via Campesina*, the International Peasant Movement of which MST is a member, publicly denounced the fact at the 2006 U.N. Convention on Biological Diversity in Curitiba, Brazil. Brazil's national Environment Protection Agency IBAMA proceeded to fine Syngenta for one million reais, or Euro 386,000, or CHF 500,000. At the time of writing,

however, the Swiss Agro-Biotech transnational company had yet to pay the fine.

An already tense situation was made worse when Syngenta was also found to be conducting GE maize experiments on its site. The inhabitants of a nearby MST settlement, which had been there long beforehand, were in great fear that their native maize varieties would be contaminated by Syngenta's GE maize.

In March 2006, hundreds of farmers living in the camp therefore decided to take their protest further by occupying the Syngenta site. They were able to hold out on the site for almost a year before Syngenta obtained an eviction order. However, the evicted farmers rebuilt the *Terra Livre* camp along one of Brazil's important national roads next to the Syngenta site.

The Governor's decree, and more occupations

Roberto Requião, state governor of Paraná at the time, was incensed by the events: he signed a decree of intent to expropriate the Syngenta GM research site, which was then re-occupied by the MST farmers. However, through its alliances with the Rural Society and other groups representing large landowners and commercial agricultural producers in western Paraná, Syngenta succeeded in overturning the governor's decree. Forced to vacate the site again, the MST farmers withdrew to their camp.

Some months later, MST farmers observed that Syngenta was preparing the soil for a new sowing of GM seeds.

On 21 October 2007, around 450 MST farmers returned to occupy the site for a third time. At 6am, they encountered six armed security guards from *N. F. Segurança*, a security company hired by Syngenta, near the guard hut at the entrance. Having disarmed and sent the guards away, the workers found more weapons in the guard hut. They could also see the guards talking to police officers some distance away.

As the morning progressed, an *N. F. Segurança* guard approached the guard hut, gesticulating with his raised gun and shouting that he and his colleagues would return to kill all MST farmers, who then withdrew to the camp that was being set up, in order to brew coffee and prepare lunch.

At about 12:20pm, two men drove up in a vehicle to the entrance area, where they again shouted death threats at the MST farmers, after which some MST leaders installed themselves in the guard hut to observe the situation.

The attack

Another vehicle suddenly appeared. Armed gunmen jumped out, immediately opening fire on the farmers in the guard hut. One of them managed to escape during the attack; he ran to the nearby Olga Benário settlement, where he was able to inform the MST lawyer of the attack.

Following the second vehicle, a bus stopped in front of the entrance gate, disgorging more than forty screaming and heavily armed N.F. Segurança gunmen in black. In the ensuing chaos, they encircled the farmers in the camp, firing at them from all sides.

During an attack that lasted some ten minutes, Keno was executed at point-blank range with nine shots to the chest. The 34-year old left behind a widow and two young sons. The militiamen also attempted to execute another person. Down on her knees, the woman raised her gaze to face her murderers. As she did so, one of their bullets went through her right eye; another one got stuck in one of her lungs. Isabel do Nascimento de Souza was taken to hospital in a serious condition; several other farmers also sustained injuries.

F. N. Segurança also suffered a fatality. A police investigation came to the conclusion that he was most likely shot by a member of the *N. F. Segurança* squad, several of whom had entered the fray in small groups after him.

N. F. Segurança

Far from being a legal, regular security firm, *N. F. Segurança* is an armed militia that has acted through a front company. N. F. Security has come into conflict with the law for illegal use of firearms on several previous occasions.

N. F. Segurança has collaborated with two extremely aggressive

After their eviction from Syngenta's test fields in November 2006, MST activists temporarily set up their camp nearby

associations of large landowners and commercial agricultural producers in western Paraná, the Rural Society of the Western Region (SRO) and the Movement of Rural Producers (MPR). Prone to violence, these groups have resorted to all kinds of means to keep landless workers from their properties, or to drive them away.

This militia had been hired by Syngenta to respond within the hour, in the event of another occupation, to drive the occupiers away – whatever the cost.

The aftermath of Keno's assasination

The criminal acts provoked a global tsunami of outrage and protests. The ambassador of Switzerland in office at the time apologised to Valmir Mota de Oliveira's widow. Together with more than 200 other social and non-governmental organisations, Amnesty International protested emphatically and publicly against Syngenta. The extent of the protests and uproar caused the Swiss transnational company to vacate the site.

Syngenta executives met with the state governor to negotiate a handover of its GM research site to the state. The governor demanded – and obtained – from Syngenta the withdrawal of each and every court action against the state. Moreover, Syngenta eventually donated the site to the state of Paraná.

The governor decreed the transformation of the Syngenta site into a research centre for agro-ecological agriculture and a production centre for traditional seeds, managed by IAPAR, the Paraná State Agronomical Institute. Since then, family farmers have been able to obtain seeds free of charge. During the 2009 memorial service held at the new Valmir Mota de Oliveira ('Keno') Agroecology Research Centre, I also received the gift of a bag of traditionally-produced seeds.

Legal actions

Two different lawsuits, a civil action and a public prosecution, were brought to court in 2010. The human rights organisation, *Terra de Direitos*, brought a civil action against Syngenta with the aim to identify the multinational as the client of the criminal organisation, *N. F. Segurança*, and to obtain compensation from Syngenta for the

victims, for Keno's widow and children, and for the woman who has become unable to work due to the serious injuries sustained during the 2007 attack. Moreover, the public prosecutor brought charges against the head and nine employees of *N. F. Segurança*, one large landowner representative as well as eight MST members.

Both the public prosecutors, the judges and the juries were locals. Due to their close ties to large local landowners, politicians and companies, most of them were susceptible to corruption. Little surprise, then, that Syngenta was neither named nor accused as *N. F. Segurança*'s client, and that the victims, i.e. the MST farmers, came to be seen as the perpetrators. Worse still, prosecutors and judges have embraced the general tendency to criminalise social movements, and have little time for land occupations. The judiciary has almost invariably taken sides with the powerful landowners and their armed militia.

The sentence

It was therefore a positive surprise when news broke in November 2015 that Judge Pedro Ivo Moreiro, of the 1st Civil Court of Cascavel, had found Syngenta guilty, ruling that the transnational company should pay compensation to Keno's family and to Isabel do Nascimento de Souza for the moral and material damage it had caused. The judge found that 'to refer to what happened as a confrontation is to close one's eyes to reality, since […] there is no doubt that, in truth, it was a massacre disguised as repossession of property' (*Terra de Direitos* **2015).**

In defence, Syngenta had insisted on its claim that the 2007 attack had been the result of a confrontation between militiamen, i.e. *N. F. Segurança*, and members of *Via Campesina*. The transnational company attempted to shirk its responsibility and obscure its instrumental part in the massacre, stating that 'more than protection of farm properties, it is clear that the militia's [*N. F. Segurança's*] objective was to defend an ideological position contrary to that of the MST.' However, in his sentence the judge recognised that the 'bad choice in outsourcing security services, as well as the indirect funding of illicit activities, is a factor that generates civil liability' (*Terra de Direitos* 2015).

Although, at the time of writing, Syngenta was expected to appeal against the verdict, the judgment is nevertheless of great significance, both to the victims and their legal counsels, and to social movements.

The struggle for land reforms

In the aftermath of the military dictatorship in 1985, Brazil adopted a constitution that allows for the expropriation of large land holdings that either do not fulfill a social function or are considered unproductive.

Brazil's Constitution of 1988 allows for the expropriation of large land holdings that either do not fulfill a social function or are considered unproductive. The purpose is to integrate the land in land-reform measures. In its struggle to obtain land for new settlements, this is the legal and political basis for Brazil's Landless Workers Movement, MST. Countless comrades – men and women – have died for the cause. A statistic concerning murders and land-related conflicts compiled by the Pastoral Commission of Land (*Comissão Pastoral da Terra*, CPT) of the Catholic Church found that, in the context of 1,307 land-related conflicts, 1,723 people were murdered in the past thirty years. People dedicated to the cause, including priests and nuns, environmental activists and unionists as well as a few politicians, were among the victims. Sadly, therefore, Valmir Mota de Oliveira's murder is not an isolated case.

The Swiss Responsible Business Initiative provides an opportunity

These days, gigantic global corporations including the likes of Syngenta, Monsanto and Nestlé take their decisions as though they were part of a parallel, global government that stands above and beyond the grasp of our countries and our governments. This may explain why Syngenta deliberately disregarded Brazil's environmental legislation, refused to pay the fine, and – at the time of writing – had failed to pay any compensation to the victims of the tragedy of October 2007. But how much longer can these giant companies continue to do business in total disregard of ethics and justice?

Empty shell casings. After Keno's assassination and the violent eviction of MST activists from Syngenta's test fields

In this context, a ray of hope comes from the Responsible Business Initiative, which was launched in Switzerland in April 2015 by a broad coalition of aid agencies, environmental and human rights organisations with the aim to amend the Swiss Federal Constitution to ensure that

> Swiss companies are compelled to integrate the protection of human rights and the environment in their business practices … [and] take effective measures to combat potentially negative impacts …, companies are required to report transparently on the violated rights that they have identified, as well as the related measures taken. In order to ensure that all companies carry out their due diligence obligations, Swiss corporations should also be made liable [according to Swiss law and regulations] for human rights abuses and environmental violations caused by companies controlled by them

– even if such companies are not located or registered in Switzerland (Swiss Business Initiative 2015).

At the time of writing, it was not yet clear whether or not the requisite number of signatures would come together, let alone whether the new instrument would be ratified in a national referendum. Whatever the outcome, the Responsible Business Initiative is already a milestone in Swiss human rights policies, and represents a great opportunity.

From a long way away and with my warmest wishes to Switzerland, I would like to close with a few words attributed to Che Guevara: 'Those in power can destroy one, two, or even three roses, but they will never be able to hold back spring.'[1]

Note:

1 Translator's note: Pablo Neruda: *Podrán cortar todas las flores, pero no podrán detener la primavera.*

Syngenta trial plots on Kaua'i – anything but Paradise

Social activist Malia Chun lives in Kaua'i, next to Syngenta's trial plots. In her eyes, Hawai'i continues to be occupied by the U.S. as agrochemical giants including Syngenta have taken over from large landowners and their sugar plantations. Chun is one of many opponents to the trial plots that Syngenta has established in Kaua'i – and she is one of the corporation's victims. As an educator, she speaks Hawai'i's ancient language and is deeply familiar with the history of Hawai'i. Many centuries before the Europeans arrived, the tropical archipelago was settled by Polynesians and Tahitians who lived off the land and fished the sea without destroying the environment. The arrival of James Cook and his ships, however, not only brought western colonialism, but diseases that almost wiped out the Native population. Hawai'i has become a land of immigrants. With grandparents who hail both from Hawai'i and the Philippines, Chun is no exception.

Imperialism on Hawai'i

As a result of the enactment in 1848 of a new land distribution act – the 'Great Mahele' – in the Kingdom of Hawai'i, many Hawai'ians lost claim to their land and were driven out. The Mahele also created the conditions for the burgeoning plantation economy by allowing early capital to accumulate when tenant farmers were separated from their primary means of production. In 1850, when the Kuleana Act – a 'law of masters and servants' – came into force, the vast majority of Native Hawai'ians lost their entitlements and forced labour was legalised. From the same year, foreigners were allowed to hold land titles when the Alien Land Ownership Act was passed. As land and labour were commodified, islanders were forced to work on plantations. Hundreds of thousands of agricultural labourers were imported from China, Japan and other Asian countries, including 50,000 Chinese from 1852 until 1887; 200,000 Japanese from 1885 until 1924; and 113,000 Filipinos and Filipinas from 1909 until 1930 (Wikipedia Sugar_plantations_in_Hawai'i; Hawaiian Roots).

White plantation owners introduced a system of racial segregation, which allowed them to keep wages low and to cause division among labourers. White racism also strengthened the dominance of agrarian capitalism. In 1890, 75% of the land was in the hands of white businessmen. Well into the twentieth century, the Hawai'ian Islands were controlled by the powerful white families of the 'Big Five'.

In 1893, wealthy white Americans deposed the queen of Hawai'i; the following year, with U.S. support, Hawai'i was declared an independent republic. The relationship between the new republic and the U.S. was dominated by the free sugar trade underpinned by racism and forced labour. In 1989, during the Spanish-American War under U.S. President William McKinley, Hawai'i briefly became a U.S. colony. It was only in 1954 that universal suffrage was introduced. In 1959, Hawai'i became the 50th state of the United States of America (Wikipedia, History of Hawai'i).

The decline of the sugar industry and the arrival of the agrochemical giants

The sugar industry destroyed Hawai'i's ecosystem, not least due to the extensive use of DDT. In the short term, the cheap and effective insecticide, which was discovered in 1939 and used to combat Dengue fever, was a great success. It was only much later that its detrimental long-term effects manifested themselves: once it has entered the food chain, the endocrine disruptor interferes with reproduction and accumulates in (animal) body fat; likely to be a human carcinogen, DDT was banned in the U.S. in 1972. It was DDT that initially brought Hawai'i into contact with Geigy, one of Syngenta's Swiss parent companies.

As sugar production was boosted in other countries took, the Hawai'ian sugar industry was abandoned in the 1980s. The dominant 'Big Five' began to develop tourism as an alternative while agrochemical giants leased or bought up the sugar barons' estates. As early as 1968, the Trojan Seed Company, now owned by Monsanto, opened its first seed research facility on Maua'i Island. Also in 1968, a maize research centre was opened on Kaua'i Island by Pride Seeds/NK, a company eventually acquired by Syngenta. In 1972 Pioneer Hi-Bred and Funk Seeds made their first appearance – Funk Seeds was later

acquired by Ciba-Geigy, which has since been incorporated into Syngenta (State of Hawai'i 2013).

After the decline of the sugar industry, a few local jobs became available at facilities operated by the agrochemical giants. Currently, the five large corporations – Syngenta, Monsanto, DuPont Pioneer, Dow and BASF – employ approximately 2,000 staff on the islands of Kaua'i, Oahu, Maui and Molokai; the workers generate an annual turnover of US-$ 230 million.

In recent years, the U.S. Department of Agriculture has issued increasing numbers of permits to agrochemical giants in Hawai'i for growing drugs with genetically altered plants, also known as 'biopharming'. Local residents wishing to find out what is being tested on those plots, however, have faced many obstacles. As early as July 2003, a little over six months after Dow and DuPont Pioneer were fined for not segregating regular maize fields from genetically modified (GM) maize cultivated in their agricultural biotechnology trials, environmental groups sought a court order to obtain access to records held by the Hawai'i State Department of Agriculture concerning field trials of GM crops (Choi 2003). The people in the community of Kaua'i were angered by the absence of stringent legislation that would require full disclosure of GM crops and pesticide use (Azambuja 2013).

Poisoned Paradise

Among Hawai'i's inhabited islands, Kaua'i lies furthest to the north; its surface area amounts to 1430 sqkm, or roughly the area of all the public parks in England and Wales (Urban Parks Forum 2011). Nowhere else sees higher annual rainfall; its biodiversity is impressive. These days, the residents of Kaua'i depend on tourism, on agrochemical giants, and on the U.S. military that operates the world's largest missile test range here.

Four agrochemical corporations – Syngenta, BASF, DuPont Pioneer and Dow – occupy vast tracts of arable land in the western part of Kaua'i Island. Syngenta, on its 1,600 hectares, an area equivalent to 100 average-size Swiss farms, has been testing genetically modified (GM) varieties of maize and soya developed in its laboratories in North Carolina. Mark Phillipson, Lead, Corporate Affairs for Syngenta-Hawai'i, states that Hawai'i 'makes a good place [for the likes

of Syngenta] because the companies can plant 365 days a year, so they can get 3-4 plantings per year, which speeds up the plant breeding process. Hawai'i also has a "coordinated framework of regulatory process, agricultural land available, irrigation infrastructure, and the skilled workforce that sugar and pineapple plantations helped develop."' (Phillipson 2015; paraphrased by Cooney, 2012). In other words, in a situation of accelerated development of GM seeds, costs can be kept down and companies can respond quickly to market forces. In 2007, Ray Riley, Syngenta Seed's Global Head of Corn and Soybean Product Development, noted that Syngenta's 'expansion of product development operations in Hawai'i and Puerto Rico has put [product development] on a fast track' (Grainnet 2007).

So far, the one GMO property that has been of the greatest interest to the agrochemical giants is their pesticide tolerance. To assess their impact on its maize and soya varieties, Syngenta has been using vast quantities of very diverse pesticides on its test fields. Local residents concerned about 'pesticide drift from the GMO seed plots' have observed the almost daily use of pesticides; a recent investigation found that 'the GMO seed companies on Kauai annually apply more restricted-use pesticides[1] – such as chlorpyrifos – per acre than farms in most states in the mainland. The amount of restricted-use pesticides applied on Kauai is 10 times greater than the national average.' (Ludwig 2014b).

An analysis of government pesticide databases has shown that far larger amounts of highly toxic pesticides have been applied to Kaua'i GMO test fields than the average use on most U.S. farms. According to a *Cascadia Times* report, the 'four transnational agribusinesses that are experimenting with genetically engineered crops on Kaua'i have transformed part of the island into one of the most toxic chemical environments in all of American agriculture.' (Koberstein 2014).

However, as it is against their corporate practice, agrochemical businesses refuse to reveal any information about activities on their test fields, leaving the authorities and any residents who live near the plots, including those operated by Syngenta, in the dark about the locations, quantities and types of chemicals applied. It is therefore a challenge to establish direct links between the usage of agrotoxins

Waimea, Kauai. Syngenta test fields adjoining a hospital and a school where pupils repeatedly fell ill after pesticide spraying

and their impact, both on human health and on the environment. The *Cascadia Times* report also notes that 'the chemical companies might be violating federal rules about the application of the restricted-use pesticide products on Kaua'i', insofar as their application is prohibited whenever gusts of wind are stronger than 17 kmh or 10 mph. Given the windy climate on Kaua'i, 'it's a rare day when […] heavily-used toxic chemicals can be applied to the test fields without the wind blowing them right into somebody's face' (Koberstein 2014) – or into schools and water courses, for that matter.

In the process of testing new genetically engineered (GE) crops, Syngenta, BASF, DuPont Pioneer and Dow have been using vast quantities of their own restricted-use pesticides: 'Research and experimentation through open-air testing by biotech agrochemical companies on Kaua'i [required a total of] more than 18 tons of 22 different restricted-use pesticides in 2012.' (PAN 2013).

On Kaua'i, Syngenta has been spraying the herbicide S-metolachlor, which is an active ingredient of Syngenta product, 'Dual'. S-me-

tolachlor is highly toxic to aquatic organisms, which is why Switzerland has prohibited its use in the vicinity of any rivers or other bodies of water. The Swiss agrochemical giant has also been spraying two more of its products, i.e. the weedkillers atrazine and paraquat, which have long been banned in Switzerland, not only for reasons of human and animal health but also to protect the environment. Banned in Europe, atrazine is notorious for being a suspected endocrine disruptor. Paraquat is known to be highly toxic in many different ways.

On their test plots on Kaua'i, the biotech corporations have also been experimenting with the combined effects of pesticides. Because little – if anything – is known about the possible cumulative effects of pesticides on human health and on the environment, such tests pose additional risks (Hooser 2013).

Jeopardising the health of thousands of Kaua'i residents – especially children

Waimea, a small town on the west side of Kaua'i, is encircled by the agrochemical giant's test fields. This is where Malia Chun lives with her two daughters. In 2006, after spraying had occurred on Syngenta-owned test plots, many children and teachers at Waimea Canyon Middle School fell sick with nausea, breathing difficulties and violent vomiting, and sending 'at least 10' for emergency-room treatment. (Leone 2008). There is no minimum buffer zone; the distance between the school and the test fields is less than 100 metres, or about 100 yards (PAN 2013).

Little surprise that, in January 2008, a mere two years later, another 12 people had to be admitted to the emergency room following another spraying incident. 'Over 200 residents of Waimea Valley […] filed [a class action] suit claiming negative impacts from pesticide laden dust blowing into their homes and onto their bodies.' (Hooser 2013). Many children suffer from asthma. At a meeting in Basel, pediatrician Dr. Jim Raelson raised concerns about severe birth defects, in particular the incidence of complex heart defects in newborns that is approximately ten times higher than the national average. At the same meeting, Marine biologist Fern Rosenstiel, a Kaua'i native, spoke movingly of a friend of hers who had a baby with an abdominal wall defect through which part of its small intestine protruded. It was

a key moment that prompted Ms Rosenstiel to join the movement opposing Syngenta and the other four agrochemical giants (Hooser, Chun, Rosenstiel 2015).

The biotech corporations responded as expected to local concerns and criticism, i.e. by supplying communities with new police vehicles, and by opening bank accounts for each pupil with a credit of ten US-Dollars each. Moreover, Syngenta boldly blamed Stinkweed (*Cleome gynandra*), a common plant that occurs locally. At least, Syngenta also abandoned the test plot right next to Waimea School. However, in close proximity to other schools and hospitals, biotech corporations blithely continue to spray and 'greenwash' their activities. Syngenta's Mark Phillipson, for example, continues to claim that 'nearly 7000 studies […] have demonstrated atrazine is safe to use.' (Phillipson 2015).

Atrazine has leached into Kaua'i's water supply and the tourist industry has been growing increasingly anxious, both about environmental toxins and the general state of the environment. 'Biologists estimate over 50,000 sea urchins died last year in near shore west-side waters.' (Hooser 2013).

A community fights back

Following the incidents at Waimea School, the Hawai'i State Teachers Union took legal action to obtain 'a temporary injunction to stop Syngenta from spraying pesticides in the field next to Waimea Canyon Middle school.' (Woodhouse 2015). In summer 2013, public hearings were held on the matter. Malia Chun and other pesticide victims sought the support of Democrat Gary Hooser,[2] a former estate agent and one of the seven-strong Kaua'i County Council, the island's parliament and legislative. Hooser made the local cause his own. On 26 June 2013, he and co-sponsor Tim Bynum presented Draft Bill 2401. The ordinance was designed to authorise 'the county to govern the commercial use of pesticides and genetically modified organisms'; it also called for 'a 500-foot pesticide-free buffer zone around public areas' such as schools and hospitals.

The first council hearing lasted 18 hours. In an attempt to occupy all the public seats, the agrochemical giants had mobilised their staff. By then, however, over one thousand locals had gathered to defend

Message from a unionist and state retiree in Kaua'i:
'My support of Councilman Hooser's Bill 2491 on GMO pesticide disclosure, is in no way attacking any of the laborers or ordinary field workers; they are just trying to support their families. My questions and concerns are aimed at the corporate owners of the 5 GMO firms, the big shots making billions. My concern is a labor advocate's point of view.
My ancestors, like many of those that work in the GMO fields today, came from the Philippines to work on Hawaii's sugar plantations, and I'm definitely proud of that – we came to labor on the land that was unfortunately stolen from the Native Hawaiians [...].
We're tied together by the land, and together we waged some mighty battles with the rest of Hawaii's multi-racial working class for unions that would bring us dignity. We won, because we didn't let the owners divide and conquer us.
I'm a state retiree from the Department of Human Services (DHS) and HGEA member with the retirees unit – I still have to work part-time as a home healthcare aide to support my family, my two adult daughters work in retail and in restaurants, while my wife works very hard as a nurse's aide and hotel worker.
So I'm not telling anyone that I hope they lose their job for the health of Kauai – having no job to support your family is the most stressful and unhealthy situation to be in. [...] Because of my own experiences I don't take being unemployed lightly [...]
As a wage worker, I fully support Bill 2491, having full disclosure of all pesticides used. My concern is two part, Number 1 – for the field workers and those that are involved in the spraying – are they fully protected and informed on all pesticides being used[?] For the wage workers, can they support a family on the pay and benefits they receive? Will they get fired if they speak up about working conditions or even if they inquire about the full effects of the pesticides used? If they try to organize a union to fight for their interests – will they get fired or disciplined? Are the owners, top management and stockholders of these 5 GMO compaies living next to these sprayed fields like the workers?
And number 2 – these are mostly working class communities that are being affected by pesticide spraying, and many of these folks, just like my family, are living from pay check to pay check, just trying to survive – they can't just pick up and leave. Full disclosure on the uses of these pesticides and their effects must be honstely made to everyone. I feel this right to know is a basic human right. [...]' (Catania 2013)

their right to health; many of them had spent the previous night outside the Council building to be sure of a seat. On 9 September 2013, 4000 demonstrators demanded that Kaua'i County Council approve 'Right-to-know Bill' 2491. Having voted down the Mayor's veto, the Council accepted Hooser's proposal and the bill became Ordinance 960. It was Kaua'i Council's first ever piece of legislation drafted to protect the health of its population. Sadly, though, it was not going to last.

The empire strikes back

Syngenta, BASF, DuPont Pioneer and a Dow Chemical affiliate mobilised their staff in protests and challenged Ordinance 960 in court, arguing that 'the local ordinance illegally pre-empted state laws regulating pesticides.' In the eyes of the corporations, their activities were 'sufficiently regulated by [Honolulu] state and [U.S./Washington] federal laws'; they also claimed that 'Kauai County [had] overstepped its jurisdiction in attempting to infringe on their business'. Moreover, the agrochemical giants argued that 'disclosing their pesticide regimens would force them to reveal "trade secrets" and put them at risk of "commercial espionage"' (Ludwig 2014a). On 23 August 2014, U.S. Magistrate Judge Barry Kurren ruled in favour of the agrochemical giants (Ludwig 2014b).

In Hawai'i, several counties have attempted to apply local legislation to protect their communities against GMOs and pesticides. By contrast, Syngenta, Monsanto et a. have been pushing back aggressively to shift jurisdiction back to Hawai'i State, if not U.S. federal level, throwing large sums of money at their campaigns. It has been reported that they spent over USD 50,000 on attempts to influence congressmen and congresswomen in 2014, and that, during the 2012 elections, Monsanto and Syngenta provided USD 700,000 in funding to Hawai'ian senators (Wilce 2014).

Of course the U.S. government wants to stop any pushbacks from regions wishing to pass legislation against environmental degradation inflicted on them by capitalist industries, especially where the damage is severe. Those in power tend to 'transfer' any risky practices and processes that may have a negative health impact to areas with deprived populations and slight political influence.

The small Hawai'ian island of Kaua'i is one such example. Its population is to be deprived of its legal and political rights. Demanding the re-instatement of Ordinance 960, Kaua'i County has appealed against Judge Kurren's ruling. However, until the ordinance is struck down, Syngenta and other agrochemical businesses are at liberty to pursue their GMO and pesticide-cocktail experiments right next to schools and hospitals.

Most legal battles are fought over many years. Most likely, Malia Chun's children will long have left Waimea Canyon Middle School by the time Ordinance 960 is – perhaps – implemented. But the social activists in Kaua'i are not giving up.

In spring 2015, grassroots campaigners sent a four-strong delegation including Malia Chun to Switzerland to share their experiences at the MultiWatch conference, *Agro statt Business* (Agri[culture] rather than Business). The group also met MPs from Basel and, at the 2015 Syngenta shareholder meeting, demanded from Syngenta a moratorium on pesticides in Kaua'i that have long been banned in Switzerland, as well as a substantial expansion of the buffer zone between Syngenta test fields and sensitive public areas. So far, however, there has been no change and Syngenta's disrespectful business model continues to trample on the Kaua'ians rights to health and life.

Will Puerto Rico suffer the same fate as Kaua'i?

In Puerto Rico, Syngenta and Monsanto operate the same kinds of test fields as in Hawai'i. In 2005, 5413 of all U.S. test plots were located in Hawai'i; 3483 in Puerto Rico; 5092 in Illinois, and 4659 in Iowa. Puerto Rico is similar to Hawai'i both in terms of its tropical climate and legal frameworks. Here, too, large sugar plantations were succeeded by agrochemical giants. Puerto Rico's constitution limits the area any Puerto Rican farmer may own to just 500 acres. However, Bayer, Syngenta, DuPont Pioneer, Dow and others violate the constitution while receiving the same tax exemptions given to bona fide local farmers (Repeating Islands 2011).

As in Kaua'i, there is a Puerto Rican protest movement against agrochemical giants, Monsanto in particular (see CorpWatch 2013). The local parliament intends to impose more strict and stringent regulations concerning trial plots. Monsanto in Puerto Rico uses the same argument that Syngenta has put forward on Kaua'i, which is that local parliaments have no jurisdiction on how best to protect the health of their communities and of their land.

Kauai – Food Justice Summit in January 2016. International solidarity outside Syngenta's fenced-off test site. Delegates from Malaysia, Nigeria, Mexico, United States and Switzerland – including a MultiWatch activist – support the fight in Kauai against global agribusiness companies

Notes:

1 Restricted-use pesticides are 'chemicals that have potentially negative impacts on the environment or on human health, and can only be applied by licensed professionals.' (PAN 2013)

2 Democrat Gary Hooser is the former State Senate Majority Leader in the State Parlament of Hawai'i. Having resigned his Senate seat to run for the office of Lieutenant Governor of Hawai'i, he was defeated in 2010. He currently serves on Kaua'i County Council.

In the Belly of the Chemical Beast: Hawai'ian Activists Confront Syngenta on Its Home Turf

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By Mike Ludwig (/author/itemlist/user/44659), Truthout | Report

http://www.truth-out.org/

I first met (http://www.truth-out.org/news/item/20170-on-the-front-lines-of-hawaiis-gmo-war) Malia Chun in late 2013, in front of her home on the Hawaiian island of Kaua'i, where she pointed between the houses across the street to a nearby field where the agrichemical giant Syngenta tests and produces genetically engineered corn treated with a considerable amount of pesticide.

I met up with Chun again a year and a half later, this time in Syngenta's front yard in Basel, Switzerland. After a short ride through winding, medieval streets on the city's famously punctual public transit, we took pictures outside the tall office building that serves as Syngenta's global headquarters, where a security guard told us we had no chance of getting inside without an employee escort. Unimpressed, Chun asked two university students sitting nearby if they were familiar with Syngenta. The students said they knew that Syngenta sold pesticides, and that a few weeks ago, demonstrators had hung a sign from the building in protest of chemicals thought to harm bees.

"Are you from Greenpeace?" one of the students asked.

The Kaua'i delegation joins activists from the Basel-based anti-globalization group MultiWatch at a protest outside of a Syngenta shareholders conference. (Photo: Mike Ludwig/Truthout)

"No", Chun replied. "I am from Hawai'i."

Traveling with a small delegation from her island, Chun came halfway around the world to confront Syngenta as both a mother and a practicing teacher of Native Hawaiian culture. Chun and others in her community suspect the pesticides may be responsible for an uptick in health problems such as asthma and birth defects, including several cases where babies were born with their intestines outside of their bodies. "As far as pesticide exposure goes, it's most harmful to children, both born and unborn", Chun said. "It's also a direct desecration of our culture."

"As far as pesticide exposure goes, it's most harmful to children. It's also a direct desecration of our culture."

For the past three years, a growing coalition of activists and civic leaders on Kaua'i has been battling Syngenta and three other agrichemical companies – BASF, DuPont Pioneer and Dow AgroSciences – over toxic pesticides the companies spray as they field test and produce genetically engineered seeds, which are also known as genetically modified organisms or GMOs. The four companies spray thousands of gallons of pesticides labeled "restricted use" by the United States Environmental Protection Agency (EPA) at their farms and test plots on Kaua'i each year. At least five of the 22 restricted-use pesticide formulas used on the island contain chemicals that have been banned in Switzerland due to environmental and human health concerns, but are perfectly legal in the United States as long as they are applied by licensed workers.

In November 2013, after a year of fierce public debate that galvanized an anti-biotech movement on Kaua'i and divided (http://www.truth-out.org/news/item/20256-on-the-front-lines-of-hawaiis-gmo-war-part-two) an otherwise tight-knit island community, the Kaua'i County Council passed Ordinance 960, a law aimed at regulating restricted-use pesticides at a local level. The four companies, along with a local coffee producer, would have been required to observe buffer zones around schools and hospitals, publicly disclose the pesticides they use, and notify neighboring communities about when and where the chemicals would be sprayed, so, as Chun says, "we can close our windows." An environmental impact study would have

been conducted to determine if the pesticides are impacting local ecosystems and contributing to a suspected uptick in birth defects and other health problems in neighborhoods near the agribusiness fields on Kaua'i's west side.

"It's a small law", said Gary Hooser, a county councilmember [sic] who authored Ordinance 960 and traveled with Chun to Basel. "Just tell us what you are spraying, and don't do it next to schools."

However, the four agrichemical companies, which compete with each other in global markets and consider the details of pesticide applications and experiments on their GMO test plots to be proprietary and confidential, joined forces and filed a lawsuit challenging Ordinance 960 shortly after it passed. In 2014, a federal judge ruled that state law preempts any local pesticide regulation and threw out the law (http://www.truth-out.org/news/item/25868-hawaiis-gmo-battle-federal-judge-strikes-down-Kauais-pesticide-regulations). Kaua'i County is currently appealing the ruling with the help of environmental groups, raising crucial questions for any local community attempting to set ground rules for global agribusinesses.

Hooser said that agribusiness officials told him they did not oppose Ordinance 960 because it would be difficult to comply with the law; they were simply worried that any successful effort to establish local regulations would set a precedent that could be duplicated by other communities. Multinational corporations don't want to comply with a patchwork of local regulations on top of those already enforced by national governments, and despite heavy political pushback (http://www.civilbeat.com/2014/12/biotech-group-spent-historic-7m-against-maui-gmo-farming-moratorium/) from the industry, anti-GMO momentum did indeed spread across the Hawaiian islands. The county governments on Maui and Hawaii's Big Island followed Kaua'i's lead and passed their own ordinances focused more on blocking GMO cultivation than regulating pesticides. Those laws were also thrown out in court after legal challenges from the industry.

Banned in Switzerland but not the US

I joined Chun's delegation from Kaua'i at a conference on Syngenta hosted by MultiWatch (http://www.multiwatch.ch/), a Basel-based activist group that keeps tabs on Swiss multinational corporations.

A security guard looks on as Hawaiian activist Malia Chun poses in front of Syngenta's global headquarters in Basel, Switzerland. (Photo: Mike Ludwig/ Truthout)

If MultiWatch and its allied organizations (http://www.attac.org/en/overview) are any evidence, then the anti-globalization movement, which challenges the international trade policies that allow corporations and rich countries to openly push their agendas on the poor, is alive and well in Switzerland.

Switzerland is one of the world's wealthiest countries, and in 2013, the average Swiss adult had more wealth (http://www.swissinfo.ch/eng/average-swiss-wealth-hits-record-high/37080808) than adults living in any other country in the world. A Swiss union organizer told me that one of labor's biggest challenges is "organizing white-collar workers" who just don't seem to understand the concept of solidarity. In 2014, Switzerland held a referendum to establish the world's highest minimum wage at $ 4000 Swiss francs a month, the equivalent of about $ 25 an hour, but voters rejected the proposal. (The cost of living is also high, and at one point on the trip I paid about $ 7 for lip balm at a popular pharmacy.) Like Syngenta, many large, multinational corporations keep central offices – not to mention bank accounts – in Switzerland, providing high-paying jobs and tax revenues to the Swiss while doing their dirty work anywhere else.

"Basel is a world away from Kaua'i, where Syngenta carries out controversial practices that are considered illegal in Switzerland."

Syngenta employs 2500 people across Switzerland and maintains the image of a good corporate citizen in its hometown of Basel. That

image is so good, in fact, that Syngenta was chosen by city officials to represent Basel at the 2015 World's Fair in Milan. The theme this year is "Feeding the World, Energy for Life", and the company says (http://www.syngenta.com/global/corporate/en/news-center/news-releases/Pages/150408.aspx) that its exhibition in the Swiss pavilion will highlight "the challenges of food security and showcase the importance of innovation and partnership in the development of sustainable agriculture solutions." MultiWatch and other groups say Basel should be ashamed, and are petitioning to have Syngenta replaced.

Basel is a world away from Kaua'i, where Syngenta and the three other agrichemical companies carry out controversial practices that are considered illegal in Switzerland. Swiss voters approved a five-year moratorium on GMO crop cultivation in 2005, and the national parliament has voted twice to extend the moratorium, which will be reconsidered again in 2017. Open-air tests of new GMO seeds that have yet to receive government approval were banned in Switzerland and other European countries years ago, but Syngenta and other companies continue to perform them regularly in Hawai'i.

Virtually all biotech seeds have spent time in development in Hawai'ian fields, where agrichemical companies can take advantage of long tropical growing seasons to test and develop new crop varieties. Since the late 1980s, Hawai'i has hosted more open-air field tests of experimental GMO crops than any other state in the United States, according to an analysis of government data (http://www.centerforfoodsafety.org/files/pesticides-in-paradise_abridged-final-med_87557.pdf) by the Center for Food Safety (CFS). Most of the GMO crops tested on Hawai'ian islands are genetically engineered to tolerate herbicides sold along with them, and only a few contain traits to enhance nutritional value or disease resistance.

Open-air field trials are also held in the sprawling fields of the US Midwest, but an island has much less space for agriculture than, say, Nebraska, so field trials in Hawai'i are much more densely concentrated. CFS contends that Hawaiian residents are therefore more likely to live within close proximity to a field (and thus, more likely to be impacted by pesticide drift) than rural residents on the mainland. The inbred corn varieties grown for seed breeding require more pesticides because they are more vulnerable to pests than varieties

grown for food stocks, and testing herbicide-resistant crops obviously requires the chemicals designed to go with them. Corn farmers in the Midwest typically spray pesticides in the spring and early summer, but Hawaii's long growing seasons require more consistent chemical applications throughout the year. Kaua'i seed corn is treated with 17 times more restricted-use insecticides than corn grown on the mainland, according to CFS.

Syngenta and the three other companies on Kaua'i applied about 3000 pounds and 2100 gallons of restricted-use pesticides over the past 16 months, according data voluntarily supplied by the companies to a state-run database. The data does not include herbicides and pesticides such as glyphosate that are not labeled "restricted-use", so the total amount of chemicals sprayed on Kaua'i GMO plots is likely much higher. Earlier estimates, based on restricted-use pesticide sales on Kaua'i from 2010 and 2012, the only data publicly available at the time, suggest that up to 18 tons of restricted-use pesticides are used on Kaua'i every year.

Syngenta's Toxic Legacy

Syngenta is the global leader in pesticide sales and the major manufacturer of paraquat and atrazine, two of the world's most popular and controversial herbicides. Atrazine (http://www.panna.org/resources/specific-pesticides/atrazine) is considered an endocrine disruptor (http://www.niehs.nih.gov/health/topics/agents/endocrine/) and a possible carcinogen that can cause reproductive problems, and the chemical is known to persistently contaminate water. Paraquat dichloride (http://emergency.cdc.gov/agent/paraquat/basics/facts.asp) is a toxic chemical that is highly poisonous to humans and has been linked to endocrine disruption and Parkinson's disease. Both chemicals are banned in Switzerland and the European Union, but agribusiness firms on Kaua'i purchased more atrazine and paraquat than any other restricted-use pesticide from 2010 to 2012, according to government records released to Councilman Hooser.

The Kaua'i delegation took their concerns about Syngenta and its chemicals to three of Basel's local lawmakers, who admitted that Syngenta pays a lot of taxes to keep its headquarters in the city. (Multi-Watch activists said the company spends a good amount supporting

politicians as well.) After hearing Chun and Hooser describe Syngenta's behavior on the west side of Kaua'i, the lawmakers agreed that the company should be held to the same standards abroad as it is at home. They conceded, however, that there is only so much a local government can do. As members of the progressive Green and Social Democratic parties, they could pass a resolution in solidarity with Kaua'i, but it would not attract enough votes to pass the 100-member county parliament.

Controversies over chemicals are nothing new in Basel, and the local lawmakers knew exactly what the Hawaiians were talking about when they said "atrazine" and "paraquat.". Ciba and Geigy, two Swiss chemical companies that merged in the 1970s to become a predecessor of Syngenta and the pharmaceutical giant Novartis, helped turn Basel into a center of chemical engineering and manufacturing for much of the last century. Syngenta's parent companies also have a corporate rap sheet a mile long.

"They came in looking like the shining knights. Nobody asked questions until people started getting sick."

After World War II, Geigy introduced the world to DDT, the now-infamous star of Rachel Carson's *Silent Spring* that was really good at killing mosquitos – and poisoning the rest of the environment at unprecedented levels. In 1976, documents from a Ciba-Geigy toxicology lab revealed that the company's researchers paid six Egyptian children between the ages of 10 and 18 about $10 to stand in a field and be doused by its patented insecticide Galecron in an effort to satisfy a request from the Egyptian government for information on potential health effects. The children immediately became ill, and Egypt rejected the chemical because it would cost farmers too much to use it safely. Ciba-Geigy's presence in the United States became notorious in the 1980s and early 1990s after its facilities contaminated sites in New Jersey (http://www.nytimes.com/1984/07/29/nyregion/waste-inquiries-set-at-chemical-plant.html) and Alabama (http://www.epa.gov/region4/superfund/sites/npl/alabama/cibageicpal.html) with hazardous chemicals, and a class-action lawsuit (http://www.thefreelibrary.com/NOTIFICATION+PROGRAM+BEGINS+FOR+PESTICIDE+SETTLEMENT-a015835956) forced the company to

spend US-$ 45 million on treatment and compensation for workers who handled Galecron in Louisiana.

In 1986, a chemical fire erupted at a chemical plant in Basel operated by Sandoz, a company that would later be absorbed by Ciba-Geigy. Water used to fight the fire became contaminated with toxic pesticides and other chemicals and ran into the Rhine River (https://news.google.com/newspapers? nid=2519&dat=19861111&id=YkZiAAAAIBAJ&sjid=NXcNAAAAIBAJ&pg=1525,1332129&hl=en), obliterating fish populations in France and Germany for hundreds of miles downstream. A day earlier, a Ciba-Geigy facility in Basel had accidentally dumped 100 gallons of atrazine directly into the Rhine.

The Rhine River spills ignited angry protests (http://www.nytimes.com/1986/11/12/world/anger-along-the-rhine-grows-after-chemical-spill.html) in Basel and across the region, where newspapers and graffiti artists compared the spill to the nuclear disaster in Chernobyl that occurred earlier that year. Chemicals like paraquat, atrazine and Galecron are no longer used in Switzerland and neighboring countries. Ciba-Geigy, however, continued to sell Galecron to the United States and countries in Latin America for a decade after it was removed from the European market in 1976, just as its descendent Syngenta continues to sell atrazine and paraquat across the world today.

Becoming GMO Ground Zero

Malia Chun opened her presentation in Basel with a traditional Hawai'ian chant called an "oli", an art form used to preserve oral histories and traditions for generations. She went on to explain that Hawai'i hasn't always been ground zero for GMOs.

Chun said that her Polynesian ancestors settled on the Hawai'ian islands some 1300 years ago, where "they didn't just survive, they thrived." Native Hawai'ians' system of agriculture relied on sustainable techniques that were efficient enough to feed three times the island's current population. Today, Chun said, an island like Kaua'i would run out of food within a few days if cargo ships stopped showing up at the port.

When Europeans arrived in Hawai'i in 1778, plantations – established by wealthy colonizers, settlers and missionaries on stolen land – began to forcibly replace the traditional agricultural system. Diseases

introduced by foreigners drastically reduced (http://indiancountrytodaymedianetwork.com/2014/01/18/native-history-cook-explores-hawaiian-islands-devastates-population-153146) the Native Hawai'ian population, and immigrants from East Asia and across the Pacific were brought in to work the fields. By 1898, an insurgency fueled by US citizens had toppled Hawaii's indigenous monarchy and the islands were annexed by the United States. Some indigenous activists still consider the US occupation of (http://truth-out.org/archive/component/k2/item/93315:hawaiis-legal-case-against-the-united-states) Hawai'i to be illegal.

For years, Hawaii's lush agricultural zones churned out pineapple and sugar cane for export instead of food to feed the island's inhabitants. However, the plantations closed in recent decades, Chun said, leaving prime agricultural land barren, watersheds depleted and many Native Hawaiians out of jobs. That's when Syngenta and the other agrichemical companies showed up. "They came in looking like the shining knights, you know, providing jobs for these displaced workers," said Chun, who comes from a community where biotech agriculture is a major employer. "Nobody asked questions until people started getting sick."

"As the biotech seed industry has grown, so have concerns over the potential impacts of the pesticides."

The production of hybrid and GMO corn and soy seeds for export has surpassed taro, sugar cane, pineapple and other tropical crops to become Hawaii's top agricultural commodity. From 2006 to 2012, the value of Hawaii's commercial biotech seed industry increased by 46 percent to about $146 million annually, according to the Hawai'i Crop Improvement Association, a group that represents the agrichemical companies. The Center for Food Safety points out that 91 percent of the GMO crops field-tested in Hawai'i are varieties of corn and soy, not niche crops like papaya and banana that one would expect to find growing on a tropical island.

As the biotech seed industry has grown, so have concerns over the potential impacts of the pesticides. Studies show that people working and living in agricultural areas where heavy pesticides are used suffer notably high rates of cancer and other health problems, with agri-

cultural workers and children bearing the brunt of the impacts. In Chun's community, children have been rushed from their classrooms near Syngenta's fields to the hospital with symptoms of pesticide poisoning, only to have

Syngenta blame the air pollution on a noxious weed. Doctors in Chun's community say they have noticed upticks in birth defects and asthma cases, and researchers suspect that atrazine may be contributing to the decline of a coral reef off Kaua'i's north coast. Yet without data on pesticide applications and GMO experiments, which the companies prefer to keep confidential, it's difficult to prove any definite links.

"They keep telling us, 'prove it, prove it', but they don't tell us how to prove it without disclosure", Hooser said.

Confronting Syngenta

The Syngenta shareholders conference in Basel fell on a cold and rainy spring morning, not the best weather for a protest. I asked Chun how she was feeling as MultiWatch activists set up a mock GMO test field in front of the conference building. "I'm feeling, I guess it's a bit surreal," Chun said. "We fought so hard and long and now we are here, in the belly of the beast. I'm really excited. Actually, we never dreamed we would have this opportunity. I know that knowledge will come to us."

Old chemical and manufacturing buildings line the French banks of the Rhine River across from Basel, Switzerland. In 1986, a chemicals released during a fire and accidental spill in Basel contaminated the Rhine River, killing fish for hundreds of miles. (Photo: Mike Ludwig/Truthout)

Paul Barrett, Syngenta's top public relations officer in Basel, stood outside the conference getting an earful from Fern Rosenstiel, the environmental consultant and bartender from Kaua'i who served as the third member of the delegation and helped spark the protest movement that inspired Ordinance 960. Barrett seemed slightly flustered as he pardoned himself and briskly walked away.

"We take very seriously our responsibility toward Kaua'i's natural environment and the communities where we're based," Barrett told Truthout later in an email. "We operate within the laws and regulations of the US federal government and Hawai'i state authorities."

Barrett said Syngenta always notifies nearby residents before spraying chemicals and only sprays near schools after hours, but Hooser said that doesn't go far enough.

"They only notify some of the residents, and if someone is visiting the area, driving through the area or working in the area, they have no way to know that these pesticides are being applied," said Hooser, who added that all schools are utilized after hours for community meetings and after-school programs, and pesticide residues can build up on school grounds regardless.

Barrett said Syngenta participates in the Agricultural Good Neighbor Program, a voluntary program announced by the governor's office in coordination with the agrichemical companies as Ordinance 960 was passed into law. The program establishes voluntary buffer zones between pesticide spray areas and facilities like schools and hospitals, but they are smaller than the buffer zones that would have been established by Ordinance 960. Syngenta and other participants also voluntarily provide data on restricted-use pesticide applications to a state database and notify neighboring property owners within 1000 feet of a spray zone beforehand, but only to those neighbors who are registered with the program.

"Do not spray chemicals in my community that you cannot spray in your own community."

Hooser said the voluntary program is "woefully inadequate" compared to Ordinance 960, which would have required the companies to warn the public about sprays and disclose more detailed information on potential impacts, including data on the herbicide glyphosate

(http://www.truth-out.org/news/item/29946-rounding-us-up-and-exposing-us-all-to-cancer), which doesn't carry the restricted-use label.

Who is holding Syngenta to its word when it comes to its obligations under the voluntary program? State inspectors, Hooser said, show up to the company's 4000-acre facility about five times a year, and the nearest EPA office is in San Francisco.

Hooser called Syngenta's commitment to the program "disingenuous" because the company only volunteered to observe buffer zones and disclose data after Ordinance 960 was passed into law. If Syngenta takes its responsibility to Kaua'i seriously, he said, the company wouldn't spray chemicals that are illegal in its own country in the first place.

Having bought a share beforehand, Hooser and Rosenstiel went inside the shareholders meeting and signed up to speak in order to highlight this double standard. With a few minutes at the podium, Hooser asked the shareholders to imagine living in a community where toxic chemicals that are banned in Switzerland are sprayed in the fields around homes, hospitals and schools on a daily basis. Imagine, he said, living in a community where doctors at one rural hospital estimate that they are seeing birth defects at a rate 10 times the national average.

"So, I am asking you with great respect, withdraw the lawsuit from the County of Kaua'i, honor and comply with our laws, and treat us with the same respect, the same dignity, and the same protections that you give the people of Switzerland," Hooser said. "Do not spray chemicals in my community that you cannot spray in your own community."

(In an email to Truthout, Hooser later clarified that he expressed his own views at the conference and not the views of the Kaua'i County Council at large.)

Hooser's speech brought a round of applause from the shareholders. Meanwhile, security guards escorted Rosenstiel out of the conference because she was recording the event with a video camera, which was apparently against the rules.

The fate of Ordinance 960 and the questions that still linger for parents like Chun are perfect examples of the impacts that global trade can have on a small community. If a controversial practice or

chemical is banned in one country, multinationals like Syngenta can simply find another with looser laws and perhaps some people in need of work. If local governments try to hold them accountable, the corporations can use all their wealth and power to push back, arguing that they are already subject to the rules set by national governments.

Global trade also inspires global resistance. Activists in Switzerland are currently gathering signatures for a ballot initiative (http://konzern-initiative.ch/de-quoi-il-s-agit/texte-initiative/?lang=fr) that would amend the Swiss constitution to require multinationals headquartered there to exercise "due diligence" in meeting international environmental and human rights standards, and give victims of human rights abuses the ability to seek damages in Swiss courts if they don't. Across the globe, farmers and activists are exploring alternatives to industrial agriculture and challenging the idea that chemicals and GMOs are required to feed the world.

Before joining the movement on Kaua'i, Chun could not have imagined she would have to travel halfway around the world to fight for the children playing in her own backyard. She told me we cannot rely on governments to protect us from massive corporations that know no borders, and activists must stand up in local communities across the world while recognizing that the fight for justice is bigger than any individual issue. Activists from different parts of the world can learn from each other, and Hawaiians have important knowledge to share.

"We need to practice the ethic of *aloha āina* – to have a profound love and respect for the land and all life that embodies it, to see ourselves as collective stewards of this earth", Chun said.

Syngenta workers in Pakistan – a ten-year struggle

On 15 January 2015, Syngenta Pakistan held a company event at the canteen of its pesticide factory in Karachi to celebrate its strong increase in sales the previous year, which for the first time exceeded US$ 100 million. But there was an éclat: unionist Umar Khan stood up to ask company managers when the workers would be paid their promised bonuses of one month's wages. When it became clear that Syngenta was not going to keep its promise, the company's permanent workers walked out in protest.

There are two classes of workers at the Swiss global agribusiness giant's pesticide production plant in Pakistan (which does not employ women): there are the permanent workers or employees, and then there are the contract workers. A Collective Bargaining Agreement, which has been re-negotiated every two years by the Syngenta Employees Union Pakistan, protects the permanent workers, who are a kind of relict from the pre-neoliberal era, when – at least to some degree – multinational corporations complied with Pakistan's progressive labour law, and when government establishments in particular complied with statutory provisions (Ahmad 2010; see IRO 1969:Section 'Industrial Relations').

Weak even before 1990, Pakistan's union movement was further undermined during the 1990s, which is when 80% of all public enterprises were flogged off to the private sector in the context of Structural Adjustment Programmes imposed by the World Bank and the International Monetary Fund. The sell-off led to massive labour market de-regulation, and to the removal of some core areas of labour protection. Since then, multinational corporations have largely employed non-unionised temporary workers, whose continuous employment is illegal according to Pakistani labour law. To prevent companies from using such disenfranchised, low-wage workers, the law stipulates that, after 90 consecutive days of employment, or when they have been employed for 180 days in one calendar year, temporary workers must be given permanent contracts.

It is scandalous that the last time the company voluntarily employ-

ed a permanent worker seems to have been in 1986, when it was still Ciba-Geigy. Without the efforts of courageous unionists, only 32 of today's 350 Syngenta workers in Pakistan would be on permanent contracts.

Moreover, at Syngenta Pakistan, labour conditions are vastly different for permanent and temporary workers ['temps']. The Collective Bargaining Agreement stipulates that permanent staff working 40-hour weeks earn around 40,000 rupees, or around 337 euros per month, both in wages and supplements. Temps, however, are paid only the statutory minimum wage of 13,000 rupees per month (around 110 euros, or 40 euro cents per hour) for an average of 66 hours over a six-day week. They are further disenfranchised insofar as they are not protected against dismissals and have no social security, not to mention sick and holiday pay. At the Syngenta plant, they are not even allowed to use the canteen. As an illustration of cost of living, by 2015, the global food crisis had caused the price for Pakistan's staple food, a flatbread loaf called 'roti', to shoot up to 12 rupees from 2–3 rupees in 2007; local unions estimated that a family living in Karachi required a minimum monthly income of 25,000 rupees.

The Pakistani affiliate of the agribusiness giant headquartered in Basel, Switzerland, practices wage dumping at the bottom end of the scale of a kind that contrasts starkly with the princely salaries paid at the top. The local union reported that Syngenta Pakistan's Managing Director took home a monthly 1.5 million rupees, or 12,645 euros, and that other senior executives earned around half that sum, excluding luxuries such as the expensive vehicles at their disposal. Despite the fact that the regional Head of Operations was already paid 127 times more than workers on the shop floor, 2014 management bonuses were again very generous. To make matters worse, the permanent workers who left the party in protest in January 2015 had yet to receive the promised bonuses. Nor are temporary workers invited to company events; they would not even dream of receiving bonus payments.

Syngenta Pakistan's ambitious goals are clearly founded on the exploitation and extremely precarious situation of its temporary workers. After ten years of tremendous average annual growth of 15%, the plan has been to increase turnover to US$ 300 million by 2020,

with a targeted annual growth rate of 20%. A reminder of this magical number had been painted in gaudy colours on a wall in the manager's office (WoZ 2015).

Syngenta in Pakistan

'Syngenta pesticides started its business operations in Pakistan in 1972 and are today the single largest company (among 500 pesticide companies) with 22% market share' (Riaz 2010:17). Imported from India Gramoxone, Syngenta's trade name for paraquat, a highly toxic herbicide,[1] has generated substantial sales for Syngenta Pakistan. Most other Syngenta pesticides for Pakistan are produced at its pesticide manufacturing plant in Karachi.

'Syngenta seeds started its advisory service in 2003 [...], currently only provides only hybrid seeds and has achieved around 45% share in the tomato, cucumbers and squashes market' (Riaz 2010:18), which places the company at no. 3 in terms of seeds. 'The company used to supply its products through a network of traditional dealers. Facing several problems with this system the company [launched] its own franchise system called *Naya Savera* (new dawn)' (Riaz 2010:17 – emphasis by Riaz). Syngenta Pakistan uses a highly complex franchise system involving hundreds of franchise outlets who are the only ones authorised to sell Syngenta products (Riaz 2010:17, passim).

The struggle to regularise temporary workers

On 22 December 2010, long-standing union leader Imran Ali, 55, a father of four, was dismissed from Syngenta Pakistan with immediate effect. A highly intelligent, deeply committed and pugnacious unionist, Ali was first hired in 1982 to work at the Financial Department of the company then known as Ciba-Geigy Karachi. Until Ali became an active unionist in 1992, he had presided over the its leisure club.[2] When Novartis the merger of Ciba-Geigy with Sandoz created Novartis, Ali as the Secretary General of the Novartis Employees Union (NEU) was empowered to re-negotiate the Agreement every two years. In 1997, the NEU registered as a national union in Pakistan. When another merger created Syngenta [in 2000],[3] Ali was re-elected to lead negotiations on behalf of the Syngenta Employees Union Pakistan and, since 1995, has signed nine collective bargaining agreements. The Union is a member of the Pakistan Federation of Chemical, Energy, Mines and General Workers Union (PCEM), with a total membership of 20,000. PCEM President Imran Ali has represented

the federation in international associations including IndustriALL. Domiciled in Geneva, Switzerland, the global union IndustriALL 'represents 50 million workers in 140 countries in the mining, energy and manufacturing sectors' (IndustriALL 2016).

For ten years now, Ali has made it his top priority to fight for contract workers' rights. It was in 2005 that he and his colleagues first urged Syngenta to comply with Pakistan's labour law by regularising a large number of its 250 contract workers. The managers initially signalled their willingness to negotiate. In 2008, however, and despite very good business results, permanent employment was denied even to contract workers who had been emploed by Syngenta for many years.

The decision triggered an industrial dispute that has led to several hundred dismissals, producing stacks of court files. On 2 June 2008, the Syngenta Employees Union Pakistan wrote to the factory manager, demanding 'that the workers be given all legal rights and benefits who have been deprive[d] under the pretext of category of temporary and contract workers although they are performing their duties on permanent job[s] and posts' (CBA/SEU 2008). Syngenta's response was to weaken and disrupt the union by scapegoating the union and by targeting it with wide-ranging, professional activities.

The union first took legal action against Syngenta in 2008 for the company's failure to regularise its contract workers. At the time of writing, the union had filed a total of sixteen lawsuits: each one of them had been upheld by the court.

As the Swiss company's subsidiary refused to issue written contracts to its contract workers, the initial challenge was to prove that they were in fact employed by Syngenta. Moreover, the company for many years contested the union's right to organise and legally represent contract workers (4 January 2010, letter seen by the author). Syngenta has therefore been in clear breach of the freedom of association enshrined both in international law and in Article 17 of the Constitution of Pakistan, as well as its own Code of Conduct (see Box).

Karachi, Pakistan, about 6:30pm. Workers leaving the Syngenta manufacturing plant where pesticides are produced for Pakistan's growing agricultural market

Eventually, the Union managed to file a complaint with the local labour court, demanding the permanent employment of 52 contract workers.

Syngenta responded with two new legal strategies. Not only did the wealthy company refuse to accept any of the court judgments, by lodging appeals, or simply ignoring them, it also hired Shahid Anwar Bajwa Law Associates, one of Pakistan's most expensive law firms and industrial consultancies, with numerous banks and multinationals among its corporate clientele. Syngenta's lawyers were to prepare legal attacks against the unionists, and to provide the best possible representation in court. Arguably the law firm's greatest assets were its expertise in the field and the fact that Shahid Anwar Bajwa has also been a judge at Sindh High Court (Sindh High Court 2015), which is where the case of the temporary workers will end up once the local labour court and the National Industrial Relations Commission (Pakistan), or NIRC, have dealt with Syngenta's appeals.

From 2010, alongside its ongoing court cases, Syngenta also began to undermine union demands by restructuring its production processes and installing a second shift. Everyone on the new night-shift was a temporary worker, and all of them newly hired by a contractor rather than by Syngenta. This did not, however, prevent the company from verbally instructing each new temporary worker not to join the union. With the exception of the 52 claimants, all temporary workers were dismissed from the day shift, leaving only those 52 and permanent employees on the shift. As a result, virtually the entire production process was transferred to the night shift. It looks like the

Syngenta's Code of Conduct – a lot of 'hot air'

Syngenta's Code of Conduct states that it 'complies with all labor laws, national and international codes and conventions and is committed to upholding the principles set out in the Universal Declaration of Human Rights and the International Labor Organization's core conventions. We recognise employees' rights to become members of relevant labor unions and/or other employee organizations and bargain collectively. Workers' representatives are not discriminated against [...]. We do not use forced, bonded or compulsory labor and refrain from any form of exploitative child labor practices' (Syngenta Code of Conduct 2009/2015:29).

strategy was not only to intimidate the workers, but also to limit the impact of any future strikes.

Professional union busting

On 18 December 2010, the unionists achieved their first success when the labour court ruled in favour of the union which had demanded that 52 contract workers should be given permanent employment. The Swiss company's affiliate filed an immediate appeal. It also escalated the situation on its production site by launching a direct attack on its workers.

On 22 December 2010, just four days after the union's success in court, Imran Ali told the author that he was called in to see 'Rizwana Mujeeb, Head of HR, Mishir Ahmed Jafry, Manager Person and Syed Saeed Kahlil, Manager Information [who] forced him to sign papers of resignation'.[4] As Ali refused to put his signature on a blank piece of paper,[5] his employers 'directed security guards[6] already available to […] throw him out of the factory premises'.[7] It was on 23 December 2010 that Ali 'learned of his dismissal from the plant reported in the local Daily Jang newspaper' (IndustriALL April 2015). The premeditated, scandalous actions by the Swiss Company's Pakistan affiliate must also be seen in the context of negotiations that were to bring a new Collective Bargaining Agreement in January 2011.

On 24 December 2010, the day after Ali learnt about his illegal dismissal, three army vehicles with twenty Pakistan Rangers (see Box) drove up to the gates of the Swiss agrochemical giant's pesticide manufacturing site in Karachi, after which they patrolled the site for a whole week. The company evidently feared a strike or some other kind of industrial action; trained troops in full battle gear were part of its strategy of physical intimidation and repressive prevention.

When questioned in court in August 2012, however, an employee from Syngenta's Personnel Department declared under oath that Imran Ali was the only person in the company to have been dismissed in the context of this 're-alignment'. The witness also stated that Ali's performance had never given cause for complaint.[8] However, in a letter to IndustriALL dated 26 August 2014, Syngenta headquarters in Basel claimed that the 'redundancy occurred in view of an ongoing global re-alignment of Syngenta's IT function[9] and followed due pro-

Pakistan Rangers

In their totality, the Pakistan Rangers (PR) are a paramilitary force of 100,000. While under the direct control of Pakistan's Ministry of the Interior, the PR are an operational arm of the Pakistan Army; they are tasked with maintaining law and order, 'securing important monuments and guarding national assets in all major cities of Pakistan', including Karachi, Lahore and Islamabad, in major crises. Around 12,500, almost half of the total force of the PR (Sindh), are deployed to Karachi. The PR, who also have an Anti-Terrorist wing (RAT), participated in numerous special military operations along with regular army units, for example in Jammu and Kashmir in 1999; the PR (Sindh) also provide the Pakistan Army troops for Special Police Units in UN peace-keeping missions in Kosovo and Haiti (Pakistan Rangers at Wikipedia).

cedures'. The corporation was still upholding the claim at the time of writing (IndustriALL 2015b).

As well as dismissing the plant-level union leader and calling in the paramilitaries, Syngenta Pakistan also gradually began to transform the Union, attempting to create a new 'yellow union' with close ties to the company management. Aggressive pressure was put on the Union's eight Managing Committee members. Moreover, they were openly offered material advantages such as cars and other privileges. When four of them caved in, the workers split into two union factions, one under the leadership of Imran Ali, who in 2010 was the Secretary General of the Syngenta Employees Union, while the other, 'yellow' faction was led by Mr. Hamidullah,[10] who in 2010 was the President of the Union.

By the time Ali realised what had happened, all of the union's assets, which had been intended to fund ongoing legal costs had been appropriated by Hamidullah, who immediately attempted to use them to establish a new union, an attempt that been prevented by legal means until the time of writing.

During the 2011 union election campaign, the management-favoured yellow faction filed a legal suit against Ali's candidacy. Again, the court ruled in Ali's favour. Although he received threats, and was offered compensation if he dropped his charges, Ali did not change his course (WoZ 2015), and subsequently was re-elected as the Union's Secretary General.

In the meantime, the court had also declared Ali's dismissal to be 'unfair labour practice' and that Ali had always been fully entitled to all his union rights, instructing Syngenta to continue his salary payments. Syngenta Pakistan, however, yet again ignored the court ruling, forcing Ali to battle on unpaid as he had done since early 2012.[11] The intense strain took its toll on the unionist who, on 30 June 2013, suffered a heart attack in his union office, and was subsequently bedridden for three months.

Although the court threw out Syngenta's aggressive top-down class struggle, the management-induced split among the workers caused the unionists to fear a defeat if they called a strike. With reason: before now, terrorism charges have been brought against, and heavy prison sentences imposed on striking workers in Pakistan (Solifonds 2015).

On 25 November 2013, the members of the Syngenta Employees Union and 52 courageous temporary workers celebrated an historic triumph when the High Court of Sindh in Karachi ruled that Syngenta must 'award permanent employment status' to its temporary workers. However, in a display of arrogance 'worthy' of a mighty global company's dealings with a so-called development country, Syngenta largely ignored the ruling of the Pakistani court.

While the 52 claimants have since received a somewhat higher pay and certain supplements, their wages still fall far short of those for permanent workers, not to mention retroactive payments (see IndustriALL April 2015). At the time of writing, however, the 52 workers were still waiting for written contracts from Syngenta, and had taken their legal action to the High Court (of Sindh), demanding full regularisation including full payment of benefits and supplements.

An international scandal

Since 2011, increasingly angered by Syngenta's shameless attacks on labour rights at its pesticide factory in Pakistan, IndustriALL has been conducting a public awareness campaign in support of Imran Ali and the Union. So far, however, their actions – be they media releases, rallies outside the multinational's headquarters in Basel, letters to the CEO, or appearances at annual Syngenta shareholder meetings – have failed to elicit any concessions from the company.

In spring 2015, Imran Ali travelled to Switzerland. He had been invited to attend a major conference at the University of Basel. Ali told his story to an audience of 500 attending the Multiwatch event, *Agro statt Business*.[12]

A few days later, Ali and Kemal Özkan, IndustriALL Secretary General, spoke at the 2015 Syngenta shareholder meeting. In the presence of the company's shareholders, Özkan addressed Syngenta CEO and Chairman: 'My question to you is simple, why will you not reinstate Imran Ali and stop your ideological union busting today' (IndustriALL 28 April 2015).

On the occasion of the March against Monsanto & Syngenta on 25 May 2015, members of MultiWatch and 1,300 grassroots sympathisers expressed their solidarity by taking the Union's demands to Syngenta's Basel headquarters (MultiWatch 2015).

Unia, Switzerland's largest labour union, also urged Syngenta to respect union rights, including all the workers covered by the Collective Bargaining Agreement, and providing the same workplace health and safety to its workers in Pakistan that Syngenta workers have enjoyed in Switzerland (Unia 2015).

When Roman Mazzotta, Head Group Compliance and Trade Affairs Syngenta (CWE 2015), paid a flying visit to Karachi on 18 February 2015, he met with the unionists supporting Imran Ali. While Mazzotta heard their concerns, nothing has changed, however. Back from his trip to Switzerland, Imran Ali met with Syngenta Pakistan's Head of Human Resources: Rizwana Mujeeb told Ali that nothing would change for him in Pakistan no matter how many more times he went to Switzerland. According to Markus Spörndli, a journalist writing for the Swiss left-wing weekly *Die WochenZeitung – WoZ*, who spoke to her during his research trip to Pakistan, Mujeeb claimed that Syngenta had never violated any labour laws (WoZ 2015).

Union of the disenfranchised?

Despite Syngenta's professional efforts to dismantle the Union, the unionists and the Union itself have persevered. In 2014, the Union filed another lawsuit demanding that a further 25 temporary workers, who had been working for the company for more than two years, be awarded permanent status.[13] Yet again, Syngenta responded by dis-

missing over 100 temporary workers, including the claimants. Since then, Syngenta has employed no workers of its own but has 'outsourced' jobs to other companies. As this strategy was also thrown out by the judges, Syngenta began to outsource its entire production, for example by dismantling packaging machines and transferring them to a contractor. Again, the court condemned the company's strategy, which it had failed to discuss with the union.[14] Once more, Syngenta refused to accept the ruling. Instead, the company has spared no expense to keep its workers and unions disenfranchised and powerless. Evidently unrelated to arrogance or obstinacy, the conflict hinges on ideological principle.

In spring 2015, even the company's own lawyer, the aforementioned High Court judge Shahid Anwar Bajwa, advised Syngenta to negotiate with the union rather than carry on in litigation, the effect being that Syngenta unceremoniously took its business to another law firm.

At any rate, money never seems to have been an issue. In 2000, the Syngenta Pakistan management invested a large sum constructing an attractive three-storey office building on the plant site. In 2014, however, the management moved to premises in the Hawks Bay Road, Karachi's most expensive, exclusive business district. One can only infer that the managers wanted to put the greatest possible distance between themselves and both their workers and the pesticide factory. Management, however, cited security reasons – whatever they may be.

At the same time, the company has been forcing its least-paid workers to pay legal costs and fees which, for sixteen court cases over the past seven years, have run to 1.5 million rupees, or 12,646 euros, all of which has paid by the workers themselves.

If Syngenta has been pushing its opposition to labour unions to the extreme, other multinational corporations in Pakistan are also systematically flouting Pakistani labour legislation by mostly employing temporary workers. At Shell, Pfizer, Sanofi, Philipp Morris and elsewhere, disenfranchised temporary workers have been slogging for pitiful – if legal – minimum wages.

However, news of the Union's persistence in its struggle spreads fast. The small office the Union shares with PCEM in the back room

of a law firm has become a busy hub for workers from various corporations. For example, wanting to know more about Ali and his struggle, temporary workers 'at the oil and gas multinational Shell in Pakistan' simply dropped in and, with PCEM advice, were able to create a union of their own. In 2015, their 'two-year struggle […] ended in 300 permanent contracts for IndustriALL members' (IndustriALL 2015b).

Syngenta Employees unionists have been working to establish structures for the systematic organisation of Karachi's temporary workers in order to enforce their rights enshrined in Pakistan's labour law. This may well bring about a decisive shift in Pakistan's union movement, which has been severely weakened by dictatorships and multinationals like Syngenta that ruthlessly impose their exploitative power.

Exhaustively documented in stacks of court files and reams of correspondence between the Syngenta management and the Union, PCEM and IndustriALL, the case of Syngenta Pakistan v. Pakistan's Labour Unions constitutes a clear example of corporate bullying and worker intimidation. The case illustrates how far big businesses will go, ignoring local court rulings and imposing their own rules by calling in paramilitary troops – with impunity.

Syngenta's actions not only constitute serious violations of basic human rights, they also breach the global company's own grandiosely trumpeted Codes of Conduct that supposedly apply to each and every one of its workers and employees.

Notes:
1 Translator's note: Paraquat has been banned in Switzerland since late 1989 and was banned in the EU in July 2007. That same year, 'global sales of Syngenta's non-selective herbicides, which include Gramoxone [paraquat], rose to [US]$725 million' (Swissinfo 2007). By comparison, in 2013, Syngenta achieved global herbicide sales of US$ 1545 billion; in 2014: US$ 1445 billion; in 2015: US$ 913 million (Syngenta Annual Review 2015:47).
2 All employees automatically became members of the club. Picnics were organised, the Ciba Magazine was published and the club had a library. When Novartis was created, the club was dissolved.
3 See also Part Two, chapter 'Syngenta's genesis'.
4 Translator's note: Names according to NIRC Islamabad Camp at Karachi, No.12 (09/2012-K, Order 08-10-2015; source reference added by the translator. The German source text mentions Arshad Saeed Husain, then Managing Director of Syngenta Pakistan.
5 Scandalously and provokingly, Ali was reportedly expected to provide a blank signature, enabling any kind of future misuse.
6 Among the security guards was Syngenta's Head of Security, a retired army colonel.
7 Translator's note: Quote from NIRC Islamabad Camp at Karachi, No.12 (09/2012-K, Order 08-10-2015.
8 Witness statement, case no. 4A(109)/2010-K, National Industrial Relations Commission (NIRC).
9 The 're-alignment' project was code-named HIPPO.
10 Translator's note: A thorough web search has not led to a more exact name.
11 On 8 October 2015, the Full Bench of the NIRC, which had been dealing with the case of Imran Ali's reinstatement and salary, dismissed Syngenta's appeal, stating, 'We […] direct the appellant [Syngenta Pakistan] to make payment of all admissible dues to the respondent Imran Ali from the date of illegal termination till this day within 60 days […].' (From: NIRC Islamabad Camp at Karachi, No.12(09/2012-K, Order 08-12-2015; pdf copy available upon request) This instruction notwithstanding, at the time of writing Syngenta had paid out merely 8 of 60 monthly wages owed.
12 Translator's note: The name of the event, *Agro statt Business*, plays on the homophony of *agro-*, as in the prefix 'agri(business), and 'aggro', a colloquialism for 'aggression'.
13 Information based on information passed orally to the author.
14 On 8 December 2015, the National Industrial Relations Commission Islamabad Camp at Karachi (NIRC) ruled against Syngenta, citing the fact that the union had not been consulted. The court also directed the company to put an immediate halt to any unfair labour practices (NIRC 2015).

In Karachi with Imran Ali

We must support contract workers

Markus Spörndli, journalist, WoZ (Die Wochenzeitung)

'I have spent many days in courts; I have seen how hard it is get justice as a labourer.' Speaking to the journalist from Europe, this is how Imran Ali summed up his own experience with Syngenta Pakistan.

The Syngenta Employees Union Pakistan rents one of two office spaces at Abdul Ghaffar's small law firm in Karachi. Most of the union's industrial action is fought on the legal battlefield. It makes sense, therefore, for the union and its legal adviser to be near each other. Mr Ghaffar is actually the legal counsel for all Syngenta workers in Pakistan.

At the end of the working day and long into the night, Syngenta workers – employed, dismissed, retired – come from all over Karachi to this austere, strip-lit room. Some workers pop in for a chat and a cup of tea, others to talk about specific matters.

It is here that the Secretary General of the Syngenta Employees Union and President of the Pakistan Federation of Chemical, Energy, Mines and General Workers Union (PCEM), Imran Ali, 55, regularly swaps information with union colleagues from other companies. Most of them share similar complaints about their employers. One of the recurring topics is the fact that, for decades, contract workers have been refused regular employment.

Some years ago, having learnt how the courts work, Imran Ali began to share his expertise on how long-term contract workers can be regularised. He has been putting more of his time into advisory work since the day when Syngenta terminated his contract without notice.

On the evening of my visit, we meet with Muhammad Osman, the union secretary of K-Electric. A very large utility company, it produces and distributes electrical power for Karachi, the capital of Pakistan's Sindh province and its millions of companies and households. After

its privatisation in 2005, the number of employees quickly dropped from 12,000 to 4000. At the time of writing, regular workers had been replaced by 7000 contract workers.

Through our interpreter, Osman tells us that he and his union had approached many federations. 'Nobody helps. Nobody listens to the contract workers – not the court, not the government.' It was only when Osman got in touch with Imran Ali's PCEM that he found an open ear and someone who can now accompany the K-Electric union in a struggle to regularise the contract workers that has brought thousands of new cases to the labour court.

Union representatives from multinationals such as Shell, Pfizer and Sanofi have reported similar observations. The union secretary of U.S. oil giant Chevron noted that a mere four (4) of Chevron's 400 workers in Karachi were in regular employment.

Just before 9:30 every morning, a great many workers assemble outside the labour court where their cases will be heard. Inside, a small audience sits at the back of a white room lit by cold neon strip lights. Lawyers are getting ready along the sides. We can tell from their suits and footwear, and the amount of gel in their hair, whether they are paid by a union or a business. A bearded judge enters the courtroom, walks to the centre and sits down at a desk covered in stacks of folders. As he begins to speak, much of what he is saying is absorbed by the wall of documents in front of him; the whirr of electric fans drowns out the rest.

During the next two hours, judge Qammaruddin Borah deal with forty cases. In each separate case, a company lawyer stands to one side of the jugde's desk while a union lawyer, occasionally in the company of workers, stands to the other side. So far, only one case – filed in 2009 (!) – has been brought against a multinational company: at Chevron Pakistan, 72 contract workers are to be regularised. A young lawyer hired by Chevron explains that the senior lawyer actually in charge of the dossier has been called to appear in another court. Admonishing the young man, the judge adjourns the case to a date more than three weeks later.

The judge passes a single verdict this morning. The remaining 39 cases are adjourned, which means that a great many workers are having to wait for their wages even longer. The companies, by contrast,

fare better if their cases are tied up in the impenetrable tangles of a hopelessly overburdened legal system.

'Of course, the big companies like Chevron or Syngenta have the means to challenge the cases', Imran Ali notes, adding that some of his colleagues died before their case came to a conclusion.

At midday, after his morning in court, judge Borah sits in his office next to the courtroom. Having called for some tea, he sighs. 'Today there were only 40 files. Usually we deal with 60, 70, or even a hundred cases a day.' He tells us that the court used to receive one or two new cases a day; now it is more than ten. There are more than 3000 pending cases on his desk alone.

Not far from the labour court stand the buildings of the Directorate of Labour of Sindh province, whose population exceeds 55 million. The single-storey buildings beneath rusting tin roofs are in a derelict state. The only exception is the office of Gulfam Nabi Memon, Joint Director Labour. He is in charge of labour inspections in Karachi South District. He is also tasked with the implementation of several ILO programmes, which is why the International Labour Organisation (ILO) has provided him with two computers – the only ones in the whole department. The Directorate has just 120 inspectors whose job is to make sure that 8564 factories and 17'311 shops and service companies on the official registry comply with the province's labour laws.

'Pakistan has the best labour law in the world', Nabi says. That is not a joke. Even critics concede that Pakistan's laws are good. But implementation is a problem, Nabi concedes, adding that there far too few inspectors. He goes on to say that inspectors are not properly trained. Nepotism is rife: 'they come into service without merit because, for instance, they are a nephew of a minister.'

Imran Ali dismisses the high-ranking official's admission as not even half the truth. He claims that the people at the Labour Department 'are totally corrupted. They don't go to factories. They sign the forms without having been there. They receive gifts.'

Ali knows that companies take advantage of the fact that labour laws are rarely implemented and that compliance is not verified. So

Syngenta don't comply with laws and court rulings. Trade unionist Imran Ali is still waiting for his reinstatement and compensation

he has focused his struggle on the labour courts which he feels are less corrupt despite being overburdened and cases take far too long. In his opinion, the labour unions at the very least need to be strengthened to be better able to enforce worker's interest in court.

This is why Imran Ali demands that 'unions that represent workers of multinational enterprises should have access to the headquarters. They should have access to the courts there.'

Note:
The full original version, *Syngenta in Pakistan. Wer klagt wird entlassen*, was published in *WoZ, WochenZeitung*, vol. 41/8 December 2015.

Syngenta in India: High burdens of debt and poisonings[1]

Syngenta profits from human exploitation and tolerates human deaths by poisoning

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The Indian market for agricultural inputs is among the world's largest and continues to grow strongly. The agricultural sector has largely been market-led since liberalisation began in in 1991; the state has withdrawn more or less completely. Syngenta is among several giant multinational agribusinesses that dominate the hybrid seed and pesticide markets.

Hybrid seeds and Syngenta's '(Seed) Organizers'

Indian sales of certified seeds almost tripled in the decade to 2010. At the time of writing, about half the seed sector was in private ownership, generating a turnover of approximately 1.5 billion Swiss francs (c.1.522 billion US dollars/c.1.37 billion euros, at exchange rates in mid-March 2016). International seed companies Syngenta, Monsanto, Bayer, Dow and Advanta have cornered the cotton and maize hybrid seed markets, often through joint ventures with Indian companies, and using middlemen called '(seed) organizers'. In fact, 95% of the highly profitable hybrid maize seed production was privately owned at the time of writing.

In its report, *Procurement Price and Credit Practices in Syngenta Hybrid Seeds Supply Chain, India*, published in July 2015, the Fair Labour Association (FLA) noted that

> this investigation represents the first time the FLA has reported on the central topic of the documentary, the provision of high-interest loans to growers by organizers working for Syngenta.
> […]
> With a network of over 25,000 growers and 200 seed organizers

> spread across different states of India, Syngenta is one of the leading companies involved in production and marketing of various types of hybrid seeds in India. (FLA 2015:2,5).

The report was commissioned following the release of *Seeds of Debt* in December 2014. The documentary by Jens Pedersen addressed 'a systemic problem in the agricultural sector' (FLA 2015:2)

> about the world's second largest agro-company, Syngenta, that lends money to small-scale corn farmers in India. Farmers and Syngenta agents confirm loan interest rates as high as 50–100%, which drives thousands of farmers into poverty and bonded labour. The last two decades, more than 280,000 Indian farmers have committed suicide because of debt slavery (Pedersen 2014).

Unsurprisingly, the film commissioned by DanWatch, a Danish NGO, made headlines. However, Syngenta claimed the film made 'false allegations'. According to fairlabor.org, the company is an 'affiliate' of FLA, which is an association of 'socially responsible companies, [U.S.] colleges and universities, and civil society organizations'. Given that any assessment by the FLA of one of its own associates is actually a self-monitoring exercise by the company, its findings are necessarily of limited value.

The FLA report supports many of Syngenta's claims. It also shows, however, that some of the accusations against the company were justified, insofar as the FLA's previous annual assessments 'had highlighted several of the same issues covered by the DanWatch documentary – such as non-payment of minimum wages and child labor' (FLA 2015:2).

Despite some reservations, this particular case is an excellent example of the problematic relationship between Indian agriculture and big agribusiness.

Syngenta organised seed production during the 2013 and 2014 crop season in about 20,000 fields in the rural Indian states of Andhra Pradesh and Karnataka (FLA 2015:9) by contracting farmers or growers to produce its hybrid maize seeds under precisely specified conditions. However, rather than dealing with growers directly, Syngenta and its competitors did

> not make direct agreements with seed farmers. Instead they operate[d] through third-party agencies called 'seed organizers' or 'seed coordinators.' A 'seed organizer' is an independent businessman who mediates between the company and seed farmers (FLA 2015:8).

In recent years, more than one hundred of Syngenta's organisers in the two states have been granted more responsibility. They select growers, making sure appropriate 'inputs', including seedlings, infrastructure and working methods, are used, and also conduct 'a number of tasks that were previously performed by the growers' (FLA 2015:10). The farmers have seen their income reduced, because organisers buy the farmers' seed yields on behalf of Syngenta, and also due to

> discrepancies in the payments made by the organizers to the growers where only bi-party agreements exist between Syngenta and organizers. It was found in the latter instances that organizers were retaining a higher commission and not paying the procurement price agreed upon with Syngenta to the growers. (FLA 2015:31–32)

According to Syngenta's list of eleven selection criteria, an organiser fairly accurately fits the description of a member of the local ruling class. First and foremost, this is an individual who is 'a local influential person […], ha[s] social status to resolve conflicts [and can] mobilize resources to meet growers' needs' (FLA 2015:10–11). Organisers are evidently expected to make money, both for the company and for themselves. The Syngenta contract provides another avenue for economic gains for the local ruling class at the growers' expense.

Ahead of production, Syngenta 'fixes [both] the production target [and] the procurement price it will pay to the growers'. This creates three major problems for the growers. Firstly, Syngenta's prices are based 'on local prevailing wages' rather than on the legal minimum wage for rural workers. Most local wages are around 30% lower than the legal minimum, which already makes it difficult for growers to pay the minimum wage to their workers; Syngenta's price fixing makes this even harder.

The second problem is directly related to the organisers. The FLA report found that 'Syngenta field staff has not communicated with growers about the procurement price, leaving it to organizers to do so.' In other words, the procurement price is subject to the relative

bargaining power of both the growers and the agents, who represent the 'local influential classes'. As a result, and because growers had no way of defending themselves, 'different organizers paid different prices to their growers for the same crop and variety, with prices paid to growers generally lower than the price specified by the company.' For one type of seed, it was found that organisers paid growers between 11 and 17% less than the contractual price (FLA 2015:13).

Thirdly, the FLA reported that Syngenta estimates of growers' nett incomes were far higher than actual incomes (FLA 2015:16). Growers are rarely in a position to negotiate regional costs and wages. Therefore, if they are paid too low a price for their seed production, growers and their families are forced to limit spending on their own food. In economic terms, this means that the income of grower families often lies significantly below local wages, which are 'still below the minimum wages' (FLA 2015:16ff.). Syngenta's growers therefore make extremely low nett incomes due to the company's unilateral price fixing.

Even earlier, since 2001 in fact, 'several Indian and international NGOs have put the spotlight on child labour in the cottonseed industry in the state of Andhra Pradesh' (HRBDF [2001–]).

It was only in 2003, however, that a study on child labour in India's cotton seed industry made headlines. Commissioned by the India Committee of Netherlands (ICN), it found that while bonded labour of boys, women and men had a long history, a

> new system of employing female children as 'bonded labourers' had come into practice on hybrid cottonseed farms in south India in recent years. Local seed farmers, who cultivate hybrid cottonseeds for national and Multinational Seed Companies, secure the labour of girls by offering loans to their parents in advance of cultivation, compelling the girls to work at the terms set by the employer for the entire season, and, in practice, for several years. These girls work long days, are paid very little, are deprived of an education and are exposed for long periods to dangerous agricultural chemicals (Venkateswarlu 2003; see also BBC 2003).

Although Syngenta was only inirectly involved in hiring children, the employment of child labourers breached the company's own Code of Conduct. The scandal reportedly prompted Syngenta to take 'remedi-

al actions'. Eventually, however, 'Syngenta sold its global cotton seed business in 2005' (FLA 2006, 2008). All the same, this is yet another example of how Syngenta profits from systematic exploitation of farmers and their often young (girl) children.[3]

Who is in charge of seed conservation? The 2002 Syngenta Affair

The future of agriculture and our food security crucially rely on the conservation of domesticated (plant) species (so-called land races), not least for future use in research and development. Of particular significance is the conservation of seeds *in situ*, that is on farms and agricultural businesses themselves. State-funded seed conservation infrastructure can also help safeguard the fair and sustainable use of genetic resources (Swaminathan 2009).

The preservation of genetic diversity is too important to be placed in the hands of the private sector, whose interest lies only in preserving varieties that are likely to yield immediate economic gains. By contrast, the whole point of a gene bank is to preserve biodiversity – and strains that may become useful as conditions change – even if doing so does not yield any immediate gain. In the 1970s, the late agricultural scientist, Dr. R. H. Richharia, India's most senior rice scientist, had painstakingly gathered over 19,000 strains of local rice cultivars. He eventually handed over his incomparable collection of genetic resources to the Indira Gandhi Agricultural University (IGAU) in Raipur, Chhattisgarh. In 2002, the university decided to sell its rice germplasm collection to Syngenta for use as a genetic pool in its own rice research. However, a large number of small-scale farmers and environmentalists (as well as some scientists) opposed the transfer of the priceless into the hands of a multinational company. Stung by the criticism – even the *Times of India* called Syngenta a 'biopirate' – the company withdrew from its controversial research collaboration with IGAU (Lutringer 2009).

Paraquat: highly hazardous and highly profitable

Syngenta's other big moneyspinner in India is just as controversial as its seed business. It is the production and distribution of pesticides, including paraquat, a highly hazardous and toxic substance. Despite world-wide protests and resistance, paraquat is still widely used in India– as it is in many other developing countries, and continues to be one of Syngenta's most important products although it has been banned in Switzerland and 31 other countries.

On its paraquat website, Syngenta claims that 'when used in accordance with manufacturers' recommendations, paraquat can deliver

safe, effective weed control, generating social and economic benefits, while protecting the land for future generations' (Paraquat Information Center 2016).

A small empirical field study, *Conditions of Paraquat Use in India*, by Dileep Kumar, was published in 2015. Its purpose was 'to document the use of paraquat dichloride in India and associated health and environmental impacts caused by its use.' The study used a small sample of 73 male and female farmers and agricultural workers, as well as some retailers and local authorities, 'in eleven study areas across six States (Andhra Pradesh, Arunachal Pradesh, Assam, Madhya Pradesh, Telangana and West Bengal)' (Kumar 2015:9). The paper brought highly alarming facts to light.

A few weeks after this report was published, a coalition of NGOs published *The facts about pesticides in Punjab: users speak out. Report on Bayer and Syngenta submitted to the United Nation's Panel of Experts on Pesticide Management* (ECCHR 2015). Both studies were crystal clear on the fact that the safe application of highly hazardous pesticides is completely illusory in India. Here are three of the most important reasons why this is so.

The first issue was related to paraquat selling, distributing and storage practices. Although Syngenta is the largest producer of the pesticide, it is distributed in India by various producers under 14 different brand names. Paraquat was being used on 25 crops even though it had only been approved for use on nine crops by the Central Insecticide Board and Registration Committee (CIBRC). In other words, producers illegally recommended the use of paraquat on cultures for which the product had not been approved. Also in breach of legislation, paraquat was sold 'in plastic carry bags and refill bottles', which – moreover – were not properly disposed of by most respondents of the Kumar study. In terms of storage, '78% of the respondents reported that they store[d] paraquat inside their homes, mostly in the general store room and veranda or along the lower edges of the roofing of the house' (Kumar 2015:23).

User awareness and information was another serious issue. About half the respondents 'bought paraquat without label and instructions' (Kumar 2015:22). Even if a label did exist, many respondents were unable to read the instructions, either because they were illiterate,

or because the font was too small, or because instructions were not written in their language(s). Safety instructions were often inadequate for people who had received 'no proper information nor training on the use of paraquat'. Agriculture offices or pesticide retailers provided 'neither proper information nor training' (Kumar 2015:6). Two plantation workers spraying paraquat 'did not know whether they had been exposed or not' to the toxic product (Kumar 2015:26).

Protection was a further issue highlighted in the studies. 76% of Kumar's respondents 'reported that they [were] not using any protective measures while handling paraquat'; very few of the respondents were even aware of the existence of recommended personal protection equipment (PPE), which was used only by a minority. At any rate, the mostly poor farmers and agricultural workers could neither afford to use or buy PPE. Their most common piece of equipment was a simple knapsack sprayer, which easily spring leaks that were seldom repaired straight away, often for lack of relevant skills or know-how. Over half the respondents 'continued to work in sprayed fields or entered a sprayed field immediately after spraying, for work, without wearing protective equipment' (Kumar 2015:6).

These findings reflect the sorry state of agriculture in India.

The FAO *International Code of Conduct on the Distribution and Use of Pesticides*, adopted in November 2002, states:

> Pesticides whose handling and application require the use of personal protective equipment that is uncomfortable, expensive or not readily available should be avoided, especially in the case of small-scale users in tropical climates (FAO 2002, Art.3:5).

Any company that attempts to shirk its responsibilities, offering facile recommendations instead, is in breach of the FAO Code of Conduct; such companies knowingly and deliberately expose people to substantial health risks.

Syngenta's arguments echo excuses offered by the arms lobby claiming innocence at the death of people killed by their weapons. Syngenta's claim that its product is 'safe when used in accordance with [the] manufacturer's recommendations' is cynical to the extreme.

Dependency and suicides

In India the continual rise of cultivation costs has squeezed farmers' profit margins. In combination with a lack of social security, market-price fluctuations can wipe out what slender profit there might have been, especially if the sales price of their products has dropped. The result is that many farmers end up being unable to pay for production inputs such as seeds, fertiliser and pesticides, and are forced to take out loans. The banking system that was once created specifically for the poor has been almost completely dismantled. This means that more and more farmers have had to rely on private or informal money lenders (and their annual interest rates of starting at 24% and as high as 60%). Syngenta ostensibly has made attempts to prevent this by providing interest-free loans to farmers in the context of its seed programme. However, as it may take months for the farmers to receive such loans, they are still forced to take out loans elsewhere and many of them are driven into a debt spiral. While the documentary Seeds of Debt alleged that some of Syngenta's own organisers were handing out loans at usurious interest rates, the FLA, which claims that respondents did not consider a 24% interest rate as exorbitant, reports no such complaints (FLA 2015:28).

In actual fact, however, Syngenta is part of a capitalist, neo-liberal agricultural system that causes indebtedness. The company claims to revolutionise India's agriculture with its allegedly highly efficient, but at the very least highly cost-intensive systems that require farmers not only to make annual purchases of new seeds and buy ever more pesticides but also to engage in continuing further education – at their own expense. One example is Syngenta's 'fully integrated offer', which the company began to develop for crops including rice in 2011. The 'solution' not only includes treated and hybrid seeds, 'crop protection' (aka pesticides), 'seedcare' (aka fertiliser), but also a mechanical seed drilling system to reduce the workload, and educational support 'to address the increasingly complex challenges facing farmers' (Syngenta Solutions). According to Peter Hody, a financial journalist, the company promises a production increase of 60%, which can only be achieved, however, if conditions on the ground are ideal, and if plenty of capital is available. Hody quotes analyst Patrick Rafaisz[4] who attended a Syngenta presentation of its 'integrated solution' for rice to investors:

> There are some obstacles to be overcome – price obstacles. Because, while Syngenta seed is significantly more productive, it is also significantly more expensive. 'The promoters have to invest a great deal of time in a farmer to persuade him that his investment and switching to the Syngenta product will be worthwhile', says Rafaisz, who was present in India (Hody 2012).[5]

If farmers are sceptical towards Syngenta's new technologies on principle, as the analyst claims, their hesitation is well founded. If their substantial investments fail to produce the promised profits, the farmers are left alone with their debts.

Farmer indebtedness has been widely reported to be linked to Indian farmers committing suicide; pesticides are often involved in areas where highly hazardous and toxic products are registered and quite easily accessible. 'In the year 2012 alone, around 2500 farmers committed suicide in Andhra Pradesh' (FLA 2015:28).

According to a study published in 2010 by Andrew H. Dawson et

Malwa region, Punjab, India. Farmer spraying pesticide without protective clothing. It's a common sight

al, which calls for the regulation of pesticides to be based on human toxicity,

> Suicide and deliberate self-harm using pesticides is a major but under-recognised public health problem in the developing world. Each year 250,000–370,000 thousand people die from deliberate ingestion of pesticides. […] the World Health Organization (WHO) now recognizes pesticide poisoning to be the single most important means of suicide worldwide (Dawson et al 2010).

Dawson's study also shows that targeted pesticide restrictions can significantly reduce pesticide deaths 'without decreasing agricultural output'. A possible reason for the reduction in deaths by intentional or unintentional exposure to pesticides or pesticide ingestion is that hospitalised patients may be saved if the toxicity of the substance is reduced (Dawson 2010).

People wishing to commit suicide often use paraquat dichloride, which can be lethal even in a small quantity. Parquat is 'the most lethal pesticide, killing 42% of patients' (Dawson 2010, BD 2012).

Indian farmers committing suicide by pesticide respond in this drastic fashion to disastrous agricultural policies that benefit the likes of Syngenta. Many deaths could be prevented, however, if lethal pesticides were less widely available. If Syngenta could at last accept and comply with a world-wide ban on paraquat, which has long been banned in its home country, the company would make a contribution, at the very least, towards the prevention of suicides. However, Syngenta seems hell-bent to avoid competitive disadvantages and sales losses – whatever the cost.

Notes:

1 This chapter reflects the author's personal opinions. The text was heavily edited by MultiWatch prior to its publication in German. The present text is a free yet accurate rendering into English.

2 The Foundation for Agrarian Studies is a charitable trust based in India and established in 2003. Its major objectives are to facilitate and sponsor multi-disciplinary theoretical and empirical enquiry in the field of agrarian studies in India and elsewhere in less-developed countries.

3 Translator's note: The ICN report found that children aged 6–14 years 'constitute about 88% of [the] total labour force'; 78% of those children are girls (Venkateswarlu 2003:11).

4 Analyst with Vontobel Bank, a small private bank with roots in Switzerland.

5 English by MPJ; original German: Das Geschäft hat seine Hürden – Preishürden. Denn das Syngenta-Saatgut ist zwar deutlich ertragreicher, aber auch viel teurer als das in Indien handelsübliche. "Die Verkäufer müssen viel Zeit in einen Bauern investieren, um ihn davon zu überzeugen, dass sich die Investition und das Umstellen auf das Syngenta-Produkt lohnt", sagt Rafaisz, der in Indien dabei war.

Syngenta's Latin American networks

Pesticides and genetic manipulation for non-sustainable agriculture

Elizabeth Bravo, Coordinator, Network for a GE-free Latin America (Red por una América Latina Libre de Transgénicos, RALLT), 15 *August 2015*

As a global enterprise, Syngenta has expanded its influence across the entire planet. Latin America is of particular importance because the past decades have seen the region being transformed into an agribusiness emporium. The elongated shape of the Latin American Continent has allowed a great diversity of climatic and vegetation zones, ranging from tropical to glacial/polar, with a wide range of crops and cultivation systems to evolve. Syngenta has therefore divided the continent into three sub-regions, i.e, Brazil, the Caribbean and Central-American Andes, and the southern parts of the continent. They roughly correspond to Latin America's three major zones of agro-biodiversity. As will become clear, Syngenta s interventions in each one of these regions have taken advantage of long established plantation economies.

Syngenta Brazil – bitter sugar

Owing to Brazil's vast commercial plantations,[1] the country is a veritable paradise for any agribusiness company (USDA 2015). Generating 70% of Syngenta sales, Brazil was the world's largest consumer of agrotoxins at the time of writing,

Syngenta is no exception. Its production plant for insecticides, herbicides and other agrotoxins destined for Brazil itself as well as the *Cono Sur*, or the 'Southern Cone'[2] is located in Paulínia, in the state of São Paulo, and sugar-cane is among the company's major business interests in Brazil. Owing to the booming agrofuel market, ethanol in particular, the cash crop has seen a remarkable increase in recent years, with Brazil's share in global ethanol production at 23%, and at 48% for all of the sugar that circulates in global markets (ISOSugar 2012).

In Brazil the area for sugar-cane cultivation has been increasing year on year. In the fastest growing central southern region, 585 million tons of sugar cane were processed in 2015, or 2.6% more than in 2014 (El País 2015).

The Brazilian sugar-cane/ethanol complex with its millions of hectares of sugar-cane plantations, consumes millions of tons of agrochemicals each year in a network of plants and factories where sugar or ethanol are processed applying increasingly cutting-edge methods. If bacteria now convert sugar into alcohol, bioengineered enzymes will do so in the near future. Syngenta has been involved at various levels of the production chain.

One of Syngenta's strategies has been innovation through licenses and patents, as well as alliances and acquisitions. In this context, and in association with New Energy Farms,[3] the company has developed *Plene*, a new 'nursery solution' for the commercial production of sugar cane for biomass as an energy source (New Energy Farms 2015). Designed 'to develop an innovative planting system for sugar cane in Brazil', the system introduces a whole range of chemicals for seed preservation, vegetative growth regulators, agrotoxins to prevent plant diseases, fertilisers and new technologies for the propagation of seedlings and seed reproduction (Syngenta Annual Report 2014).

Syngenta also stands to profit from another essential element in the Brazilian sugar-cane/ethanol complex, i.e. the emergence of 'weeds' and their rigorous eradication. The company promotes its herbicide, *Paraquat*, to facilitate a cultivation system known as 'no-till farming', whereby weeds are suppressed by aerial application of herbicides (fumigation) rather than tillage. A single machine is able to distribute seed across thousands of hectares of land. Therefore, no-till farming both favours and requires vast areas of monocultures at the same time. Other Syngenta products used in Brazil include the herbicides *Dual Gold*, *Gesapax* and *Callisto*; the insecticide *Actara*, and *Moddus*, a growth regulator.

Syngenta has recently been making significant investments in enzymes, synthetic biology and bioengineering to achieve the direct transformation of sugar-cane cellulose into ethanol. As the Syngenta slogan says, 'the combination of crop genetics and chemistry […] allows us to develop and evaluate future products'.[4] In February 2010, Syngen-

ta 'signed a long-term collaboration agreement with the Institute of Agriculture of Campinas (IAC) of the São Paulo Agribusiness Technology Agency, a research entity of the Department of Agriculture and Supplies of the state of São Paulo'. The agreement gives Syngenta 'access to a set of genotypes from the IAC Sugar Cane Program, allowing the company to accelerate its [*Plene*®] sugar cane research and development activities. […] The agreement also allows the company to accelerate other research activities in sugar cane', involving technologies such as the *SugarBooster* gene and gene stacking (Syngenta 2010). Not only does the agreement give Syngenta substantial control over this cash crop, it also shows how public-sector institutions subsidise the transnational private sector.

Sygenta in Southern Latin America:
United Soybean Republic

Argentina is the world's top exporter of soybean oil and soybean flour, and comes third in terms of exports of actual beans. In 2002–2003 U.S. soybean exports were overtaken by those from Latin America's Southern Cone where, at the time of writing, 480,000 sqkm or over 185,000 sqmi of land were under soybean cultivation.[5] Rapid expansion in recent years has not only displaced cattle ranching but also other crops such as cotton (in Paraguay and El Chaco/Argentina), wheat, maize and rice. The accumulation strategy related to this cash crop has caused massive deforestation as well. An immense green soybean desert now extends across the once vast natural and fertile grasslands (*pampas*) that were well suited to extensive cattle farming as well as temperate monocultures such as wheat and other cereals.

In 2014, Syngenta achieved soybean-related sales in excess of 3 million US dollars, of which 83.3% were generated through the sale of pesticides, the rest from the sale of seeds. The company's star product was *Elatus*, a fungicide against soybean rust. Intensive soybean cultivation has caused the (invasive) fungus to get out of control and Latin American soybean growers have sustained substantial losses.

According to the School of Agriculture of the University of Buenos Aires (FAUBA), soybean rust currently constitutes the most feared and destructive of all (crop) diseases in the Americas.[6] At the same time, however, it has also generated huge profits for the companies that

produce fungicides. Syngenta's 2014 results show a direct correlation between the increase in fungicide sales and its launch of Elatus™ in Latin America (Syngenta 2014 Full Year Results).

By far the largest proportion of all the soybeans produced in the Southern Cone is genetically modified for glyphosate resistance. Monsanto claims 'intellectual property' rights to most of the *Roundup Ready* soybean seeds (commercial name: *RRSoybean*). The continuous application of glyphosate in RRSoybean plantations has created another problem, which is the rise of invasive species that have developed herbicide resistance, so-called superweeds. However, these superweeds have also created a new source of income for Syngenta. In the Southern Cone, the company has launched *Centinela*, a technical assistance programme that monitors the spread of diseases such as soybean rust, keeps growers informed about emerging superweeds, and makes recommendations about herbicide and fungicide applications. The recently launched *Centinela* App is 'an ideal tool […] that allows growers to view [relevant] information in real time and in any location' (Centinela Syngenta 2015).[7]

In Argentina, where 'weed resistance is spreading [and] increasing glyphosate resistance is resulting in a more complex weed management challenge', Syngenta has deliberately reduced its sales of glyphosate. Instead, the company has been marketing formulations containing non-selective herbicides alongside selective herbicides for use on soybeans, such as *Fusilade*® max and *Flex*®, as well as *Dual Gold*®. The company has maintained sales of the non-selective herbicide *Gramoxone* (Syngenta Annual Review 2014).

2008, that was the year in which Argentina and Brazil approved Syngenta's GM maize. Since then, the company has introduced several transgenic maize varieties (such as [Agrisure] Viptera). However, the soybean is its largest revenue generator in the region. Syngenta entered the Argentinian soybean market when it acquired SPS, the national seed institute, or *semillera nacional SPS*, in late 2008. Subsequently, it was only logical for the company to launch its 'treated soybean seed' ranges, *Plenus* and *Plenus Avicta*, which incorporate fungicides, insecticides, microbiological inoculants and growth-promoting chemicals and microorganisms; *Plenus Avicta* seeds also contain a so-called integrated nematicide seed treatment that is not

available for purchase in any other form.[8] In 2012, Syngenta boasted that 'the integrated *Plenus* offer is growing well in Argentina where it now accounts for around three quarters of the portfolio' (Syngenta 2012 Full Year Results).

In Brazil, Syngenta has cornered at least 20% of the market in glyphosate-resistant GM soybean seeds, which it markets as *Soja-Syn[NNNN]-RR* (Syngenta Brasil). The 'offer of high-tech seeds and the new business model of IBP (Integrated Business Partners) [was] launched in 2012' (Agronews 2014).

In 2008, Syngenta's GM maize was approved in Argentina and Brazil; the company has since introduced several GM maize varieties, including its *Viptera* maize. However, its GM soybean seeds and related products generate by far the greatest proportion of its profits in this region.

Syngenta in Northern Latin America:
The Fumigated Banana Republics

Northern Latin America covers a vast area in the northern Andes, Central America and the Caribbean. Including 22 countries from Panama to Guatemala, Costa Rica, Venezuela, Ecuador and Colombia, Mexico and Peru, the area lies at the confluence of three major centres of crop origin known as the Amazonian, Andean and Mesoamerican Vavilov Centres,[9] and therefore arguably boasts the greatest crop diversity on the planet. Syngenta's headquarters for the region are in Panama. In cultural terms, maize is the most important plant; the crop features prominently throughout the agricultural and religious year, and is celebrated by all Andean and Mesoamerican indigenous and peasant communities.

In 2005, Syngenta began to sell its first GM maize seeds in Colombia. Since then the company has successfully introduced its yellow hybrid maize varieties to Venezuela and Ecuador, and its white hybrid maize varieties to Colombia and Central America. Located in the municipality of Yumbo (Cauca Valley, Colombia), Syngenta's production unit for white and yellow hybrid maize varieties as well as grain sorghum supplies the Andean Region, Central America and the markets in Mexico's tropical zone (Syngenta Seeds).

However, Syngenta's focus of interest lies on the vast tropical plan-

tations producing export crops such as bananas, coffee, pineapples, sugar cane and ornamental plants, which the company supplies with seeds and agrotoxins alike. 70% of all the bananas produced for export in the world come from the Northern Latin American region. Enormous banana monocultures require large quantities of pesticides to keep pests and diseases in check. Black Sigatoka, a fungal disease also known as 'black leaf streak', has been the most damaging and costly banana disease. Not least due to a lack of genetic diversity, the Cavendish variety is particularly susceptible. As all the shrubs are clones, i.e. genetically identical, the fungus has had a devastating impact on about half of all banana plantations. As the fungus causes premature ripening of the fruit, which narrows the period during which green bunches can be shipped to overseas markets, Black Sigatoka has had a particularly severe impact on export production. Each season, plantations are typically fumigated between 38 and 50 times. According to a Colombian report, fungicides to combat Black Sigatoka cost the country around 20 million US dollars annually, and to around 350 US dollars each year for all of Latin America.

Fungicides that combat the Black Sigatoka fungus account for between 30 and 40% of production costs, not taking into account the public health costs related to workers and neighbouring communities who have been exposed to the fumes, nor the cost of ecosystem damage. Moreover, continued fungicide use leads to resistance.

The chemical cocktail of fungicides, herbicides, insecticides and nematicides that is used to fumigate vast banana plantations has created alarming public-health situations in neighbouring areas. Adolfo Maldonado and Ana María Martínez studied the impact of fumigations in nearby banana plantations on the rural community of Las Ramas (El Salitre, Guayas Province, Ecuador), where they found a higher miscarriage rate, and an increasing rate of miscarriages than in a comparable, non-exposed community. Moreover, most of the miscarriages could be associated with exposure to certain pesticides. The researchers also found significant differences in terms of children born with congenital birth defects (26 out of 1000 children; versus 2 out of 1000 children in a non-exposed population). The most common health problems found among the people of Las Ramas were asthma, diabetes, liver damage, cancer, and renal insufficiency. Do-

mestic animals and crops grown in family gardens were also found to be affected (Maldonado/Martínez 2007, unpubl.).

Who produces the chemicals?

So, who produces and supplies these fungicides and other agrochemical concoctions? In the plantations of Ecuador, the world's largest banana exporter, DuPont's *Benomyl* was once the most widely used fungicide. When continued use led to resistance, it was replaced by *Bankit*, a Syngenta product whose main active ingredient is the (systemic) fungicide azoxystrobin, a compound that inhibits mitochondrial respiration. It is just one of many fungicides produced by Syngenta that are currently in use in Latin America's banana plantations.

Other fungicides such as *Alto* induce genetic malformations *in vitro*, according to a study by Elena Menegola et al (Menegola et al 2001), while *Bravo* and *Daconil* are toxic by inhalation and harmful if swallowed (Syngenta *Bravo*; Syngenta *Daconil Action*). The fungicide *Spyrale* is a skin irritant and harmful by inhalation or if swallowed. As it is also toxic to aquatic organisms, and as 'there are some concerns regarding [difenoconazole's] potential for bioaccumulation' (PPDB 2015), it is likely to have a negative long-term impact on the aquatic environment.[10]

Finally, to control the weeds that proliferate in banana plantations, Syngenta has been pushing its star herbicides, *Gramoxone* and *Paraquat*, as well as glyphosate, which is marketed as *Touchdown*.

Who benefits from this model?

The situation evidently benefit the multinational agrochemical companies. In Latin America, Syngenta has been expanding the capitalist model of intensive agriculture in conjunction with monocultures and the input of external resources in order to increase output, i.e. production. With its focus on technology, the model has not, however, managed to resolve the deep-seated structural economic and social problems that have been causing widespread hunger. On the contray, the model favours the expansion of large-scale commercial agriculture, thereby marginalising small farmers and landowners and exacerbating inequality.

As Syngenta expanded its business and increased its profits in Latin

Guatemala is just one of many Latin American countries where Syngenta has a strong presence

America, 'poverty still affects 47 percent of the inhabitants of rural areas in Latin America and the Caribbean, a rate twice that of urban areas' (FAO 2016). In 2013, around 63 million people, or more than half the rural population (53%), were living in poverty, and 36 million (30%) were languishing in extreme poverty (FAO 2013).

In the face of this dire situation, grassroots indigenous and peasant organisations, many of whom have joined the *La Vía Campesina* network, strongly reject this model of production. They demand true food sovereignty based on the agroecological production model – a model that gives full control to those who produce food; a model that allows agricultural land to produce natural, healthy food; a model that gives consumers access to food that is natural and healthy, and meets their physical and cultural needs as well.

Notes:

1 According to USDA, 9.9 million hectares, over 38,000 square miles, were under cultivation in Brazil in 2014.

2 [Translator's note: The 'Southern Cone' is a geographical region composed of South America's southernmost areas, i.e. south of and around the Tropic of Capricorn.]

3 Translator's note: 'New Energy Farms is a vertically integrated business operating throughout the whole renewable biomass supply chain. Its operations cover plant breeding, provision of planting material and new establishment techniques, through to the consolidation of feedstock supplies for projects and full traceability monitoring, including sustainability, of total feedstock supply chains.

'The management of NEF has over 20 years of commercial and R&D experience with Miscanthus and other perennial energy grasses.' www.newenergyfarms.com, 30 March 2016.

4 http://www.syngenta.com/global/corporate/en/products-and-innovation/research-development/Pages/rd-overview.aspx, 30 March 2016.

5 This is an area scarcely smaller than Germany, Austria and Switzerland combined.

6 Translator's note: Original Spanish: *…la roya de la soja* […] *constituye actualmente la enfermedad más destructiva y temida en el continente americano*.

7 Translator's note: Original Spanish: *…ver la información en tiempo real y en todo lugar, ofreciendo una herramienta ideal para tomar una decisión oportuna al momento de aplicar fungicidas e insecticidas*.

8 Plenus Syngenta Argetina. *La tecnología Plenus marca el camino para la soja. Novedades* No. 5. April 2011. Translator's note: this document no longer seems to be available online.

9 Editors' note: After Russian botanist and geneticist, Nikolai Ivanovich Vavilov (1887–1943), who introduced the notion of centres with a wide range of varieties of cultivated plants.

10 Active ingredients, *Alto:* triazole; *Bravo:* chlorothalonil; *Daconil:* chlorotalonil and acibenzolar-S-methyl; *Spyrale:* fenpropidin and difenoconazole.

Paraguay: The coup benefits big agribusiness

Agrochemical multinationals benefitted from the impeachment of Fernando Lugo, Paraguay's democratically elected President.

Yvonne Zimmermann, Solifonds

Curuguaty, Paraguay: On 15 June 2012 a violent clash involving firearms occurred during the forced eviction of landless occupiers of a soy estate. It resulted in the death of eleven peasants and six members of a special police unit. It soon emerged that they had not been shot by the squatters but by gunmen who deliberately provoked the massacre that followed (Zimmermann 2012:4). Immediately after the bloodbath, state security forces cordoned off the area and burned down the squatters' camp. Their actions destroyed evidence that might have shed light on the course of events.

Just one week after the Curuguaty Massacre, the tragedy was used as a pretext to impeach President Fernando Lugo. His impeachment trial lasted less than 24 hours and he spoke for less than two hours in his own defense before he was deposed by parliament. Actually, Lugo's presidency was doomed from the outset: the coup was, if not supported, then certainly not prevented by an alliance of big agribusinesses and landowners who had long been opposed to his attempts to reduce some of the worst impacts of industrial agriculture even without a parliamentary majority, for example by imposing restrictions on the use of agrochemicals, and withholding approval of genetically modified (GM) seeds.

Even before the coup of 2012, Paraguay's established agricultural oligarchy had made several attempts to get rid of a president whose democratic election in 2008 had put an end to their decade-long exercise of unrestricted power. Their success came in June 2012: as soon as former Vice-president Federico Franco was in office, large landowners, big agribusiness and multinational companies met with him. According to online newspaper *E'a*, a delegation member summed up the meeting saying that the new president had promised to support agroindustry, protect private ownership and to prevent land occupations (Zimmermann 2012:5).

One of the post-coup government's first actions was to grant approval for the commercial use of several genetically engineered seed varieties that had met with resistance from the Lugo administration. Numerous biotech varieties have since been approved. According to online newspaper *E'a*, six new biotech maize varieties produced by Agrotec and Syngenta were approved in April 2015 alone (*E'a* 2015).

Open doors for biotech seeds

Immediately after the coup, the new rulers embarked on a politically motivated purge among Paraguay's civil servants. In July 2012, 170 staff were dismissed from SENAVE, Paraguay's National Service for Plant and Seed Quality and Health, and replaced by Franco's own people. Its president, Miguel Lovera, who had long been a thorn in the side of (big) agribusiness, was replaced by Francisco Regis Mereles Maciel, the head of APS, Paraguay's Soy Producers' Association.

Big agribusiness had actually had SENAVE in its sights since well before the coup. Monsanto's Bollgard Biotech Cotton contains the gene of Bt (*Bacillus thuringiensis*), a naturally occurring soil bacterium that is lethal for cotton pests. It was not listed on the SENAVE seed register because the Ministry of Public Health[1] had not given its approval (Méndez 2012). Using the UGP, the Union of Producers' Agencies (of which Syngenta is a member), as a front, Monsanto therefore launched a hate campaign against SENAVE's Lovera. In October 2011, Paraguay's Minister of Agriculture and Livestock (MAG) illegally approved the Bollgard biotech cotton for commercial use.

On 7 June 2012, Monsanto's campaign entered a new round when *ABC Color*, a daily paper with close ties to the producers' union, accused Lovera of corruption. The accuser was Silvia Martínez, the wife of Roberto Cáceres, a technical adviser to various agribusinesses including UGP member Agrosán (which Syngenta had acquired for 120 million dollars in March 2011). The next day, *ABC Color* published an open letter to Paraguay's Vice-president Federico Franco. In the letter, several large landowners/agribusinesses listed '12 reasons why Lovera should be deposed'. A few days after assuming the presidency of Paraguay, Franco replaced SENAVE officials with his own people (Méndez 2012).

Following the coup against Lugo, UGP and associated agribu-

sinesses cancelled a nationwide protest they had been preparing for 25 June 2015. Strategically placed roadblocks would have closed down the country's road transport system to force Lovera's dismissal and the approval of a wide range of biotech seeds for commercial use (Méndez 2012).

Monopolised agriculture and extreme concentration of land ownership

Paraguay is a paradise for transnational agribusiness companies. Already during the Lugo administration, the conservative's parliamentary majority had made sure that such businesses would only be taxed at extremely low rates. In 2011, for example, its biotech soybeans earned Monsanto tax-free licensing fees of 30 million US dollars. Likewise, large landowners pay next to no property tax. According to the World Bank, property tax revenues amount to just 0.04%, or approximately 5 million US dollars, of Paraguay's total tax revenues. By contrast, agribusinesses generate annual profits amounting to 30% of gross domestic product (GDP), or 6 billion US dollars (Méndez 2012).

Another hugely profitable cash crop is the soybean, not least due to exports of cattle feed to the vast European market. Soybean imports by EU countries constitute 68% of the protein required to feed cattle in the agroindustry; Europe itself produces a mere 2% of cattle-feed protein (Vargas et al. 2013:40). The effect of this high demand for soybeans is the rapid expansion of monocultures in producing countries. From 1990 until 2007, the global agricultural land area increased by over 25% for soybean cultivation alone. As monocultures expand, however, the concentration of land ownership increases and land grabs grow more frequent. From 1996 until 2012, over 1.2 million hectares (over 4,600 square miles) of Paraguay's forests were cleared to make way for soybean cultivation. That is an area greater than one quarter of Switzerland, or greater than either Jamaica or Qatar.

Having lost their land to industrial-scale soybean growers, many small-scale farmers, owning between just 5 to 100 hectares, were forced to move away to try their luck elsewhere, or ended up in urban slums. Landowners are continually increasing their properties. Small

farmers continue to be displaced and pushed off their land; if they are unwilling to sell up, they are faced with threats and intimidation (Sekinger 2012:9f). While Paraguay's land area covers approximately 400,000 sqkm or around 155,000 sqmi, the area of officially registered land titles amounts to 500,000 sqkm, or 193,000 sqmi – clear evidence of illegal, organised land grabbing (Méndez 2011).

Land ownership is distributed most unevenly in Paraguay, with over 80% of arable land owned by a mere 2% of the country's population. Moreover, approximately 25% of the agricultural land is owned by large foreign landowners, Brazilians in particular. At the same time, the families of 350,000 farmers are having to try and eke out a living on the smallest plots of land; around 100,000 farmers own no land at all. As in the case of Curuguaty, they have been claiming land that was part of the country's agrarian reform, but instead went to large landowners in murky transactions (Suter 2012:13).

After the soybean, GM maize and cotton are next on Paraguay's list of cash crops whose cultivation is being encouraged on a large scale. In 2013, post-coup president Franco announced that Paraguay was to achieve production figures for biotech (or GM) maize and cotton similar to soybeans. Soon after he came to power, approval was granted for the commercial use of the following biotech maize varieties: Monsanto's *VT Triple Pro*® and *MON 810*, Syngenta's *Bt11*, and *TC1507* by Dow AgroSciences. By contrast, a project launched in 2009 demanding the legal protection of indigenous and local maize varieties has been getting nowhere.

The disastrous impact of agrotoxins

The world's highest concentration of biotech monocultures can be found in Argentina, Brazil, Uruguay and Paraguay – also known as the *Cono Sur*, or the 'Southern Cone'. This is where agrotoxins are sprayed and otherwise applied in quantities that are the highest per capita world-wide. The figures speak for themselves: the area under GM soybean cultivation in the *Cono Sur* is larger than 48 million hectares or 185,000 sqmi – eleven times the area of Switzerland, or an area larger than Cameroon; over 600 million litres or 132,000 gallons of glyphosate are sprayed here year on year.

The impact on local farming communities has been disastrous.

Apart from seeing their harvests destroyed by the large-scale spraying of this particular agrotoxin, thousands have complained of higher cancer incidence rates, more miscarriages and babies born with malformations, and of suffering from skin and neurological problems, and respiratory tract diseases. Paraguay is the world's sixth-largest producer of GM soybeans: over 13 millon litres, or over 2860 gallons of glyphosate solution were applied in its soybean monocultures in 2007[2] (GRAIN 2013a).

Silvino Talavera was just one of many victims of glyphosate and other hazardous agrotoxins. The eleven-year-old died in 2003, following exposure to a truly toxic 'cocktail' including endosulfan and paraquat. He lived with his family on a plot between two vast fields of 'Roundup Ready' soybeans in the department of Itapúa in southern Paraguay. For years, the entire family had shown severe symptoms of poisoning. When the boy's father, Petrona Talavera, took legal action

Make way for soybeans! Violent eviction of a Paraguayan peasant family, whose harvest and crop seeds were also destroyed

against his two mighty neighbours, he received death threats; his only cow was poisoned. He was also offered a large sum of money if he withdrew his complaint. It took pressure from several social organisations, and international solidarity, for justice to be granted to the family. In 2006, the Supreme Court found the two large landowners guilty; each received a two-year prison sentence. According to Petrona, however, they did not go to prison (Suter 2012:13).

Repression against small-scale farmers

Since the coup of 2012, Paraguay's peasant and landless movements have been under increasing pressure. Several of their leaders were murdered. 53 survivors of the Curuguaty Massacre were detained; they were still facing serious charges at the time of writing. By contrast, the events leading up to the massacre and the coup that followed, have not been properly investigated. And so it remains unclear what part in the coup was played by big agribusiness and big biotech companies such as Monsanto, Syngenta and Cargill. The only thing that is clear is that they have been among the beneficiaries.

Notes:

1 Translator's note: Listed seeds can be used freely across Paraguay.

2 Information added by the translator.

Big Agribusiness targets Africa

Silva Lieberherr, agricultural economist, Bread for All (www.brotfueralle.ch)

> I address myself to you, as President of the African Union, and through you to all of the African Heads of State. I ask you to explain how you could possibly justify thinking that the food security and sovereignty of Africa could be secured through international cooperation outside of the policy frameworks formulated in an inclusive fashion with the peasants and the producers of the continent (GRAIN 2012).

This is how Mamadou Cissokho, Honorary President of ROPPA, a network of fifteen of the largest West African farmers and producers organisations, addressed the President of the African Union and all African heads of state in an open letter. Cissokho criticised alliances with catchy names, e.g. the G8 New Alliance for Food Security and Nutrition, Grow Africa, or Alliance for a Green Revolution in Africa, whose mission it is to 'develop' African agriculture.

Created at the initiative of G8 countries, and of the Bill and Melinda Gates Foundation, their boards of directors include members of the economic and political elites from industrialised and participating African countries. While such alliances invariably present smallholders and marginalised farmers as key actors and stakeholders, on closer inspection, the farmers are generally expected to do as they are told, and are only rarely invited to participate in strategy development or to discuss objectives, not to mention being involved in the decision-making process regarding the appropriate use of funding, or the wording of relevant legislation. On the contrary, the united elites are in agreement on the fact that Africa's agriculture needs to be 'developed' – by themselves.

By contrast, most smallholders and marginalised farmers have rarely been given a choice. Of those small farms that still exist, most have become dependent on unpredictable world markets and/or agribusiness giants. Their often compulsory land purchases have turned large numbers of farmers into plantation workers who not only de-

pend on their extremely low wages but also on public-sector support. This requires government policies aimed not only at regional food sovereignty, but also at meeting the needs of small-scale producers.

Alliances such as the ones mentioned above, however, interpret 'development' chiefly as bonding smallholders to international markets, to production chains and global business networks. If the alliances achieve their goal, Africa will generate vast profits, particularly to the giant agribusinesses involved. In 2013, the World Bank considered Africa to have 'great potential for expanding its food and agricultural exports' in the new market climate, which 'represents an exciting growth opportunity for all types of firms' (World Bank 2013). Little surprise, then, that big agribusiness multinationals have been well represented in these alliances, and that Syngenta is at the forefront.

Syngenta's plans – steps towards 'progress'

Syngenta has had great plans for Africa because 'the future of agriculture is too important to be left to chance, hence the endorsement of the Syngenta Grain Academy by Grain South Africa and the active participation of UFS' (Syngenta 2013a). Here, the reader should probably interpret 'chance' to stand for 'people living and working in Africa'. In 2012, then Syngenta CEO Michael Mack declared that Africa had become one of their strategic growth regions and their aspiration was to contribute to the transformation of African agriculture (Syngenta 2012).

The corporation's ambitions for Africa sound impressive. Syngenta's stated 'Commitment to Africa' (Syngenta 2015c) is to build a US-$ 1 billion business by 2022 by investing over $ 500 million, including the cost of recruiting and training 700 new employees, and to reach five million farmers. The planned increase in annual turnover to US-$ 1 billion by 2022 still represents a relatively small sum when compared to Syngenta Group Sales, which in 2014 amounted to US-$ 15.1 billion. Investment risks remain significant in a business environment whose legislation – Plant Variety Protection (PVP) laws in particular – and inadequate distribution systems for pesticides[1] have not exactly encouraged investors.

Syngenta has been extremely diligent in reshaping this environment to its advantage and in extending its access to African markets. For

this purpose, alongside its involvement in the alliances mentioned above, Syngenta has also created its own foundation. The major issue identified by Syngenta Foundation for Sustainable Agriculture (SFSA) in sub-Saharan Africa[2] is the fact that more than one-hundred million smallholders work on nearly thirty million hectares of land, only one tenth of which is accessible to so-called 'quality input', i.e. seeds and pesticides supplied by Syngenta. The foundation's explicit 'aim is to help small farmers become more professional growers.' (Syngenta Foundation).

Many foundations like the Syngenta Foundation and the alliances described above promote a very specific agricultural model based on the notion that 'traditional' societies need to 'modernise'. A paper published by the Foundation describes how the corporation envisages agricultural 'development'. At the 'low end of the spectrum' are the 'subsistence-level smallholders', who will hopefully undergo the 'transformation from subsistence to commercial farm capability', the objective being to create 'semi-commercial' farmers capable of using 'advanced technologies', including 'hybrids, GM traits, modern crop protection, seed treatment and integrated solutions' – all, of course, produced and supplied by big agribusiness. 'Migration out of agriculture can happen at any stage of the progression' (Yuan Zhou 2010:4). The point is to create 'advanced' farmers who will be able to afford Syngenta's 'advanced technologies', which alone will generate profits for the corporation.

However, there are two important flaws in this development model. For one thing, industrialised agriculture of the kind that benefits Syngenta is reliant on the use of fossil energy and agrochemicals, both of which have serious impacts on the environment and on climate change. According to the NGO GRAIN, the 'industrial food system is responsible for 44 to 57% of all global GHG [Greenhouse gas] emissions' (GRAIN 2011).

Moreover, the exclusive focus on increasing production to fight hunger and malnutrition is misguided. World food production would actually feed one-and-a-half times the world population. Yet, worldwide, 'at least one in nine [people] do not have enough to eat' (FAO 2014:Foreword), because food has become unaffordable to vast numbers of people.

Increasing food production alone, therefore, will not enbable us to 'win the war against hunger' (FAO 2014), even less so if such increases rely purely on private investment, as this only strengthens mechanisms that encourage production for profit rather than to reduce hunger. We urgently need to address the issue of fair distribution, of who decides what food should be produced and how, as well as who should own the land and resources. This, however, is not an issue ever addressed by the above-mentioned alliances and foundations.

Public Private Partnerships: the power of the private sector unleashed

Two alliances or public private partnerships, i.e. Grow Africa and the New Alliance (short for G8 New Alliance for Food Security and Nutrition), have been pushing hard to transform Africa's agriculture. PPPs emerge from contracts between public-sector authorities and private parties. In this context, the mission of these PPPs is to increase investment in Africa's agrarian sector. Agribusiness giants in particular make sure that potentially profitable areas are integrated efficiently into the global cycles of capital accumulation.

Some very large companies are involved in the New Alliance: large agribusiness companies such as Syngenta and Monsanto, and Norway's Yara, the world's largest fertiliser manufacturer; food giants Nestlé and Danone; global commodity traders such as Cargill and Louis Dreyfus Commodities; the Swiss Reinsurance Company (Swiss Re), and the Standard Bank of South Africa. All of them rely on the public sector to provide and enforce favourable conditions and regulations. In exchange for noncommittal promises of enormous investments, public agencies offer tax relief and changes to legislation, for example private access to resources such as land and water. A recent ActionAid report highlights the serious risk of land grabs insofar as 'large tracts of smallholder land [are made] available to large-scale [foreign] investors', but without consulting the smallholders (ActionAid 2015a:Executive Summary).

Many African governments have made legislative and policy changes with a view to obtaining support from international institutions such as the World Bank, and from rich industrialised countries. Their large development agencies are also frequently involved. Grow Africa's largest funders, for example, are USAID and SDC, the Swiss

Agency for Development and Cooperation. Intended to encourage private investment, such changes relieve the governments of their responsibility to invest public funds in agricultural development in order to enforce the human right to food.

Growth Corridors

So-called 'Growth Corridors' can best illustrate how PPPs work. Syngenta, for example, has been heavily involved in SAGCOT, the Southern Agricultural Growth Corridor of Tanzania, which covers one third of the Tanzanian mainland as well as northern parts of Malawi and Zambia. This is one of a number of such corridors across Africa designed to develop the entire agrarian value chain across a wider geographical area. The three national governments have changed their seed and plant variety protection legislation, for example, and removed obstacles to investors' access to land and other resources. In a region that, characteristically, already possesses adequate shipping infrastructure including roads and ports, as well as plenty of productive agricultural land, investment by private-sector companies is geared towards industrial agriculture and export production. In the Contract Farming system, by contast, so-called 'outgrowers' or smallholding farmers are often obliged to sell their harvests to – and buy fertilisers, pesticides and seeds from – large, centralised farms, also known as 'nuclear estates' or 'hub' plantations.

Given fair contracts, contract or outgrower farming could well provide smallholders with greater price certainty. SAGCOT contracts in particular are worded in such a way, however, that many outgrowers quickly accumulate large debts, often despite increased production. Many smallholders have also criticised dependencies associated with contract farming. One such farmer, contracted to produce rice for Syngenta partner Kilombero Plantations Ltd (KPL), recently stated:

> Through the contract, we were forced to accept technologies that we don't really need to get a good harvest. All decisions about farming were made by KPL. You are to do this and you need to do it this way. Because I was in debt I had to do it the way they demanded. I did not feel free, because you have your own farm and everything, but you are dictated by someone else. Because of this, I have sworn to myself to never do business again with KPL (Oakland Institute 2015:21).

Finding alternatives can be challenging, however, because nuclear estates usually hold the monopoly on sales of fertilisers, pesticides and seeds, and constitute the smallholders' only access to markets.

If there is a power imbalance between smallholders and their trading partners, large-scale PPPs also bring huge asymmetries between large multinational corporations and national governments as well as smaller local companies. While the market entry of large agribusinesses may improve the smallholders' access to seeds and fertilisers, monopolies for these commodities may also push local companies out of their markets. According to a report in the Guardian,

> Zitto Kabwe, the chairman of the Tanzanian parliament's public accounts committee, said he was 'completely against' the commitments his government has made to bolster private investment in seeds. 'By introducing this market, farmers will have to depend on imported seeds. This will […] kill innovation at the local level. We have seen this with manufacturing', Kabwe said (Provost et al 2014a).

As a rule, public-sector influence begins to diminish as soon as big agribusiness multinationals establish themselves. According to Oxfam, for example, 'the combined annual revenue of the input companies involved in the SAGCOT initiative – Bayer, Monsanto, Syngenta, Yara and United Phosphorus – was nearly $ 100 billion; triple the gross national income (GNI) of the Tanzanian economy.' (Oxfam 2014b).

Given these power asymmetries, it is necessary for institutions, mechanisms and policies to be put in place to protect the rights of local populations and small-scale producers. Because, as ROPPA's Mamadou Cissokho noted,

> we do not believe a word of the commitments of responsible behaviour on the part of multinationals. Who will control the responsibility of practices in the field? Who can claim that, in such an unbalanced relationship between a multinational and a small African farmer, one will not lose? What serious and reliable recourse do we offer to farmers in case of excesses? (McKeon 2014:11).

Argicultural 'development' benefits large corporations

Public private partnerships and the 'development' programmes associated with them are very dangerous because they normalise pri-

vate-sector defined agricultural 'development'. The fact suddenly becomes somehow 'reasonable' that a corporation like Syngenta, which has grown rich from the sale of chemical plant protection products, claims to promote 'sustainable agriculture', even though it actually depends on agriculture with high chemical input. Moreover, these kinds of alliances legitimise the interests of global corporations. As they themselves have noted, both Grow Africa and the New Alliance 'enabled these companies to operate under cover of an "African-owned, country-led, multi-stakeholder platform",…' (McKeon 2014:7). Big agribusiness decisions, however, rarely benefit small-scale food producers. On the contrary, their policies prevent local governments from focusing on the human right to food. This is also reflected in the type of countries that have been admitted to the New Alliance, i.e. Tanzania, whose economic potential is expected to increase, rather than countries with particularly severe poverty and malnutrition.

African governments also form part of these alliances. Alongside the African Union, the New Alliance includes ten African countries. Their inclusion was an important step towards the legitimisation of such alliances. However, this does not mean that the way their agricultural and food policies are being developed has received democratic legitimisation. This would absolutely require the involvement of organisations representing the interests of farmers, indigenous communities, consumers, the environment and human rights. Few civil-society organsiations, however, have been consulted, nor have they participated in defining objectives, or in how funding should be distributed. All G8 countries are members of the Leadership Council of the New Alliance, as well as seven agricultural and food giants, and two producers' organisations that 'include strong representation of large-scale commercial farmers' (Hirsch 2014, McKeon 2014). The New Alliance includes no representatives of critical civil-society organisations, small-scale producers or independent NGOs. What is more, massive projects and reforms that will affect vast numbers of people and involve huge tracts of land have been signed off and pushed through without proper consultation (Ford 2014; Hirsch 2014; passim).

If the New Alliance's cooperation with African countries does ne-

vertheless bring a degree of democratic legitimacy, no such legitimisation comes with initiatives promoted by private foundations, whose programmes and strategies are beholden to the intentions of the founder or founders alone, and which – due, if nothing else, to the vast funds involved – affect national agricultural policies to the exclusion of democratic structures.

Private foundations – charity from the super elite

The Syngenta Foundation is dwarfed by the Bill and Melinda Gates Foundation (BMGF), the world's largest private foundation, which has invested vast sums of money in African agriculture and its development as defined by the foundation itself. In 2006, BMGF and the Rockefeller Foundation launched the Alliance for a Green Revolution in Africa (AGRA), which has since then also received public funding from the UK, Sweden, Denmark and other countries (Agra-Alliance).[3] According to its own 'Story', 'AGRA was formed in 2006 in response to a call from former UN Secretary-General Kofi Annan, who said the time had come for African farmers to wage a "uniquely African Green Revolution."' (Agra-Alliance). Many voices in the scientific and civil-society communities, however, have warned against the organisation's pseudo-revolutionary focus on capitalist industrial agriculture.

In its early days, AGRA landed a coup by appointing Kofi Annan as Chairman of its Board of Directors. The alliance claims to be 'an independent African-led and Africa-based organization' (Agra-Alliance). However, many Africans have voiced strong objections. Various members of AFSA, the Alliance for Food Sovereignty in Africa, have expressed concern that the Gates Foundation (BMGF) has become a threat to their work. They have reported that BMGF has provided funding as soon as one of their groups or NGOs achieved some success; such groups subsequently seemed to abandon their political demands.

The fact that civil society has been excluded from important decisions was clearly illustrated when a secret meeting was held in London in March 2015. Sponsored by BMGF and USAID, and 'including corporations, development bodies, trade bodies and aid donors, yet excluding any African farmers or representatives of affected organizations', the meeting was called to discuss 'the corporate capture of

seed [and] the commercialization of agriculture in Africa' (FoodFirst 2015).

If ties between AGRA and Monsanto have been particularly close, Syngenta, too, has been involved in a large number of AGRA projects. In this context, according to a report by the African Centre for Biosafety (ACB) in South Africa, 'Monsanto, DuPont, Syngenta and other seed and agrichemical multinationals, and equity funds lie just behind the scenes of AGRA's show. Building new markets and market infrastructure for commercial seed in Africa opens the door for future occupation by multinationals' (AGRA 2012).

Seed markets: protecting intellectual property

The world's three largest seed companies, Monsanto, DuPont Pioneer and Syngenta, are members of the New Alliance. Together, they control almost half of the global commercial seed market (ETC Group 2008). This sector comes first among several supported by the New Alliance, both in terms of investment promises made by the private sector, and in terms of commitments to implement legislative and policy reforms undertaken by the ten African countries involved (Oxfam 2014a). These changes in economic policies and legislation are primarily intended to protect intellectual property rights associated with new plant varieties, to encourage private investment in the commercial seed sector, and to market so-called 'improved varieties'.

Big agribusiness multinationals consider commercial hybrid or genetically modified (GM) varieties to be 'improved varieties'. Since the potential of these varieties can only develop in combination with pesticides and synthetic fertilisers, multinational companies increase sales of both their seeds and their pesticides – a highly lucrative business for Syngenta. Little surprise, then, that the Syngenta Foundation emphasises the importance of creating 'enabling conditions' for investment by the private seed sector. In Kenya and Tanzania/ Sub-Saharan Africa, for example, the Syngenta Foundation was aiming to sell commercial seeds to 250,000 smallholders by 2016 (Syngenta Foundation).

What the alliances actually mean by the euphemistic term of 'enabling environment' becomes clear in countries where substantial reforms of seed legislation have already been implemented. In

2014 an Oxfam report noted that these reforms had 'been undertaken quickly since the first New Alliance progress report published in May 2013 quotes reform of the seed sector as one of the "notable successes in the reform of key policies" achieved in the New Alliance.' (Oxfam 2014a:45).

Elsewhere, the same report notes that, under 'a cloak of encouraging research and innovation for the good of all, the industrial seed sector has managed to achieve recognition of intellectual property over seeds and patent a large number of seeds.' (Oxfam 2014a:43). New legislation based on UPOV 1991, the International Union for the Protection of New Varieties of Plants-1991 Act, protects the interests of breeders, i.e. seed and research companies. Specifically, this means that firms claim monopoly or proprietary rights to the varieties they develop while small-scale farmers and producers see drastic restrictions of their right to 'recycle' harvested seed by selling, swapping or using it the next season. Nor can farmers protect their local (indigenous) varieties because such seed usually fails to meet global commercial standards. Given that it has become illegal to sell non-certified seed, farmers swapping or selling seed to each other commit illegal acts. And given that, in Africa, around 80% of seed is being produced in and distributed through informal networks, vast numbers of farmers are being criminalised.

In Kenya, plant variety protection legislation has already undergone extensive reform. Daniel Maingi from Nairobi-based Growth Partners Africa (GPA), a partner NGO of Bread for All, has reported that farmers selling their local seed without having registered as seed traders commit offences punishable by up to two years of detention, or maximum fines of around CHF 50,000 (€ 45,500, or £ 34,600, or US-$ 49,300). Given a farmer's average annual income, which is equivalent to around 1300 Swiss francs (€ 1180, or £ 900, or US-$ 1280), the fines are absurdly high.

New seed legislation also hands big agribusiness many advantages over local competitors, i.e. small-scale farmers and producers, as well as local breeders. The larger local competition is also being eliminated. In 2013, for example, Syngenta acquired 'MRI Seed Zambia Ltd and MRI Agro Ltd (MRI), a leading developer, producer and distributor of white corn seed' (WoC 2013).

According to FoodFirst, this company's 'maize germplasm collection was […] amongst Africa's most comprehensive and diverse' (FoodFirst 2014). In opinion of the Syngenta Chief Operating Officer, however, the

> acquisition reflects our commitment to sustainable development in Africa, which is clearly emerging as the continent with the greatest growth potential. Smallholders and larger farmers in Zambia will quickly benefit from the combined innovation of MRI and Syngenta in seeds, seed care and crop protection. This will also provide the foundation for integrated crop solutions responding to the needs of African farmers. (Farms.com 2013)

The FoodFirst report warns that just a few large multinationals will eventually control the seed industry, developing 'commercial (corporate) certified seed' that has been tailored to highly industrialised, high-input (fertiliser, pesticides) agriculture. Due to their recent acquisitions of African seed companies,

> three of the world's largest biotechnology companies, Monsanto, DuPont and Syngenta, all now have a significant foothold on the continent in markets for two of the three major global GM crop varieties: maize and cotton (FoodFirst 2014).

In other words, big biotech has focused on varieties that are particularly amenable to genetic engineering and modification.

Paving the way for genetic engineering

A recent report from the African Centre for Biodiversity (ACBIO), on the impact of so-called agricultural development programmes pushed in Africa by big biotech and agribusiness companies, has found that such programmes

> shift the focus and ownership of maize breeding, seed production and marketing almost exclusively into the private sector and, in the process, ensnare small-scale farmers […] into the adoption of hybrid [i.e., GMO] maize varieties and their accompanying synthetic fertilisers and pesticides (ACBIO 2015).

The companies must be proud of their success: 'some New Alliance members such as Nigeria are already in the process of altering their legislation to permit GMO seeds' (Oxfam 2014).

One example that illustrates the efforts made by big agribusiness companies and their allies to spread GMOs was the Insect Resistent Maize for Africa (IRMA) project. In cooperation with the government of Kenya, and funded by the Novartis Foundation (now Syngenta Foundation) as well as by various government agencies and universities, the Rockefeller Foundation and Monsanto, much of the charitable project was launched in Kenya in 1999.

The 'attempt to commercialise publically developed Bt technology in open-pollinated seed (which can produce a viable crop year after year) […] failed after 10 years of work. IRMA was unable to find Bt genes […] that were effective against the African stem borer' (ACB 2013:4), a pest responsible for huge losses in maize production.

'IRMA was based on rather naïve and noble principles […] – they wanted to make Bt technology available to resource-poor farmers and therefore were intent on creating open pollinated Bt maize varieties and use Bt technology that they thought was in the public domain', i.e., 'free'. (ACB 2013:19).

IRMA failed for three main reasons. For one thing, research clearly showed that introducing GMOs into small-scale agricultural systems was unviable without undermining traditional agricultural practices, as new seed must be bought year on year, 'because reusing seed that has been engineered with Bt genes would expedite the development of insect resistance, rendering the technology useless within a couple of seasons' (ACB 2013:4). This not only presents a substantial financial risk to small-scale farmers and producers, but also renders them dependent on the big seed companies.

Next, IRMA suffered a 'major blow' in 2005 when its proponents 'learnt that their genes were protected by intellectual property rights that only allowed them to be used for experimental purposes [and that] they would never be allowed to commercialise their new varieties. They entered into urgent negotiations […] but in the end the intellectual ownership of the […] genes resided in a number of private hands' (ACB 2013:19–20).

Finally, the IRMA project also failed because its proponents were unable to source freely available genetic material that would make new plants resistant to the African stem borer (ACB 2013:4, passim). The African stem borer is the pest that causes by far the most ex-

tensive damage to Kenya's maize plantations. Most likely, however, even if such genes had been available, they would soon have lost their effectiveness against a pest that has proved to be extremely adaptable.

The promoters of IRMA attempted to salvage the situation by entering into urgent negotiations with Monsanto for permission to use their Bt maize – without success, however.

IRMA is an excellent example for many other, similar ventures. Ultimately, only those companies will benefit and profit who developed the technology and owns the intellectual property rights – and they are usually big agribusiness corporations. On several occasions, Monsanto co-opted aid and development projects for the marketing of its own products; it undermined biosafety legislation, and obtained open-source germplasm for use in its own research aimed at the production of its 'own' proprietory varieties. Moreover, big agribusinesses have also filed (and obtained) patents on resistant gene sequences.

IRMA eventually ended up developing and distributing conventional maize varieties resistant to various insects. In contrast to biotech and GM research and development, conventional breeding programmes have managed on numerous occasions to develop new varieties that perform well in African conditions and on small-scale farms. Not only is this a cheaper and quicker approach, it also works without requiring patents. Therefore, even though IRMA failed in its objective to introduce Bt technology in Kenya, the project vastly increased Kenya's GM research capacities, knowledge and infrastructure. In other words, projects such as IRMA pave the way for the big agribusiness companies and their introduction of GMO seeds to Africa (ACBIO 2015).

Fighting the 'Fear of the Unknown'

The large funding bodies of GM research and development have shown little interest in scientific objections to genetic engineering. The powerful Bill and Melinda Gates Foundation (BMGF), for example, has made its position very clear. An Oxfam report has noted that the

> latest AGRA report describes African smallholders' opposition to GMO as a 'farce'. It reduces the discussion to a simple 'fear of the unknown' amongst most African smallholders. The report tries to

> reassure by saying that many African countries (including Nigeria, Cameroon, Malawy and Kenya) are in the final stages of adopting GMOs. (Oxfam 2014a:45).

The most recent project for the introduction of genetically engineered seed on the back of so-called development promises is WEMA, Water Efficient Maize for Africa. Launched in Uganda in 2008, 'the goal of the WEMA project is to produce, using both genetic engineering and conventional hybrid breeding, drought-tolerant maize varieties for small-scale farmers in Sub Saharan Africa (SSA)'. Partners in this project are BMGF, USAID, Monsanto, various African and international research institutions, and at least one other big donor. They have 'agreed to make available their best maize germplasm lines, with Monsanto "donating" the drought-tolerant gene' (ACBIO 2015:5).

Civil-society organisations have been emphatic in their criticism of the project. For one thing, '[d]rought tolerance in plants is an extremely complex phenomenon and evidence […] suggests that […] GM drought-tolerant maize will make minmal impact' (ACBIO 2015:5). Nevertheless, in the context of the Global Alliance for Climate Smart Agriculture (GACSA), launched in September 2014, the 'Consultative Group on International Agricultural Research (CGIAR), a key player in the CSA movement, has cited the [WEMA] project as a successful case study for CSA' (ACBIO 2015:5). GACSA has been promoting a range of methods to mitigate climate change in support of farmers adopting methods that are better suited to the changing climate.

The world has already seen devastating climate change impacts, with agriculture – its industrialised, capitalist, commercial variety, in particular – responsible for the lion share of greenhouse gas emissions. GACSA has become yet another attempt to present their technologies as 'false solutions' (ACBIO 2015) to a crisis to which they themselves have contributed to a substantial degree. Hoping to 'greenwash' their business models, the world's largest agribusiness companies, including Syngenta, are driving GACSA – albeit rather behind the scenes.

The fight against hunger – a false alibi for big business interests

Programmes like GACSA chiefly legitimate their existence by the fight against hunger. On closer inspection, however, hunger is just another line of business.

In absolute numbers, hunger has increased in Sub Saharan Africa over the past years and continues to be a daily disaster. Nevertheless, the New Alliance continues to claim that food security can only be achieved through private agricultural investment. So far, however, there is no evidence of a reduction of poverty or malnutrition. Even the World Bank has declared that 'inreased food production raises the availability of food, but by itself does little to ensure that poor and vulnerable people have access to the food that is produced' (World Bank 2007). The issue of fair distribution, which is crucial for the implementation of the human right to food, never even gets a mention.

Although people in many of the New Alliance countries suffer severe hunger and malnutrition, food security merely plays a rhetorical role in communiqués issued by the New Alliance and its partner governments. When it comes to actual cooperation contracts and to specific programmes, however, the provision of nutritious food is usually neglected. Private-sector investors focus on agricultural products grown for export, and on foods that, while they may fill stomachs, cannot ensure a balanced, nutritious diet.

As Ewan Robinson and John Humphrey have noted,

> When nutritious foods are being produced for the domestic market, the investment plans don't spell out how producing more crops actually leads to getting healthy foods to the people that need them. It is well-known that producing more food, even if this food is nutritious, does not guarantee that it gets to the people who need it, or that businesses have incentives to sell healthy foods (Robinson/Humphrey 2013).

Nor do businesses seem to care about universal access to food: a mere four[4] of all New Alliance investments aim to increase the production of food that is both nutritious, and destined for domestic markets (Robinson/Humphrey 2013).

In other words, just 27 of the 211 New Alliance investment projects, or 'commitments', have improved the food situation (Provost et al 2014b). Worse still, none of the initiatives address the possible, not to say likely negative food security impacts of the remaining 184 'commitments'.

New Alliance investments whose purpose it is to improve the food

sitation tend to be made in potentially profitable market segments. The 'Golden Rice' project, in which Syngenta holds substantial stakes, is one such project (see the chapter on 'Golden Rice'). A similar project in Africa, funded by the Syngenta Foundation, aims to produce conventionally bred hybrids of staple food plants enriched with iron, zinc or provitamin A to reduce malnutrition. The project was originally launched by CGIAR, the Consultative Group on International Agricultural Research, which Syngenta joined in 2009, and which includes among its members the Bill and Melinda Gates Foundation, USAID, the World Bank, and many more.

The notion of fighting hunger by growing staple crops enriched by big agribusiness to the hungry is revealing. What starving populations need is food that is suited to their individual needs, and access to healthy, varied and well-balanced food. Article 11 of the International Covenant on Economic, Social and Cultural Rights unambiguously recognises 'the right of everyone to an adequate standard of living for himself and his family, including adequate food [and] the fundamental right of everyone to be free from hunger'.[5] Corporations that aim to sell the most profitable food cannot guarantee this right. Doing so requires true food sovereignty.

Growing resistance against agriculture in the service of big agribusiness

What will future agriculture look like? There are a great many ideas. A powerful alliance of elites in the northern and southern hemispheres, of private-sector enterprises, public bodies and private foundations – with Syngenta at the forefront, has been promoting the kind of agriculture that yields the greatest possible profits, and is in the hands of big agribusiness. However, there is growing resistance against the likes of the New Alliance and its partners.

Many organisations, small-scale farmers and producers, critical scientists and activists have raised their voices against these developments, warning of their negative aspects. In Switzerland, Bread for All is one voice among many that call for a step-change in agriculture and for a food system defined and determined by the people working within it and endeavouring to make a decent living from it. These voices call for healthy, tasty food produced without destroying our

environment. They warn against corporate agriculture and call for a self-determined, ecological agriculture.

Notes:
1 Translator's note: Syngenta and the industry in general refer to these substances as 'crop protection products'.
2 The use of the term, 'Sub-Saharan Africa' (SSA) as a statistical unit has been criticised for being based on racist categories, just like the older term, 'Black Africa'. Nevertheless, it is here being used whenever it occurs in source documents or statistics, or on relevant websites.
3 Translator's note: The information attributed to '(GRAIN 2014)' in the German original is actually from AGRA. For details, see Bibliography.
4 Translator's note: Erroneous percentage indication has been amended here to reflect the quoted source text.
5 Translator's note: Full text of the Covenant, http://www.ohchr.org/EN/ProfessionalInterest/Pages/CESCR.aspx; accessed on 27 January 2016.

‘Golden Rice’ – a staple food privatised by big agribusiness

Dr. Paul Scherer, Ing. Agr. ETHZ, CEO, SAG –
Swiss Alliance for a world without GMOs (www.gentechfrei.ch)[1]

Vitamin A deficiency (VAD) is a serious health issue in low-income countries. In 1999, however, a miracle cure was presented to the public. Using genetic modification techniques, two molecular biologists, Ingo Potrykus at ETHZ, Swiss Federal Institute of Technology in Zürich, and Peter Beyer at the University of Freiburg in Breisgau, Germany, had transferred a soil bacterium and two genes from a daffodil plant, ‘creating’ a rice plant prototype whose grains produce beta carotene (provitamin A carotenoids). ‘Golden Rice’ was born. The intention has been for this rice to be planted in Asia, Africa as well as Latin and Central America to provide essential vitamin A to impoverished populations. But with serious tangible interests at stake, ‘Golden Rice’ comes with a plethora of patents. Syngenta in particular has taken out patents relating to plant genetics since the 1990s.

How to combat vitamin A deficiency (VAD)

Vandana Shiva, the Indian scientist and Alternative Nobel Prize winner, has noted that ‘it is those promoting Golden Rice as a miracle who are blind’, calling it ‘a blind approach to blindness prevention because it is blind to alternatives that are superior, not just for vit A [sic] deficiency, but all micronutrient deficiencies.’ In her analysis, the

> problem[s] of hunger and malnutrition are rooted in an obsolete and destructive food and agriculture system that is blind to the need for diversity, quality and nutrition [in] a balanced diet. The reductionist mechanistic paradigm [i.e.,] the Monoculture of the Mind promotes Monocultures, and only focuses on the yield of a few commodities. As a result […], the human diet has been reduced from the diversity of nearly 8500 species providing a diversity of nutrients that the human body needs, to just 8 crops, largely producing carbohydrates (Shiva 2014)

The consequences have been dramatic, indeed. One such example is VAD. According to the WHO, an 'estimated 250 million preschool children are vitamin A deficient and [an] estimated 250,000 to 500,000 vitamin A-deficient children become blind every year, half of them dying within 12 months of losing their sight' (WHO 2016).

Deficiency in vitamin A – and in vitamins C and D, as well as a number of trace elements – is a direct consequence of malnutrition, not least due to the consumption of polished white rice, which is poor in vitamin A. Moreover, in countries where rice is cultivated on virtually every square foot of land, people tend to consume small quantities, if any, of fruit, vegetables and animal products that are rich in micronutrients. There is also rampant ignorance about inexpensive food sources of vitamin A. Therefore, the most successful strategies in the fight against malnutrition are educational programmes for farmers, and the distribution of vitamin A supplements.

'Golden Rice' – false promises of a miracle cure

Against early expectations, 'Golden Rice' failed to bring a quick solution to VAD. Despite the media hype, little progress towards a promising variety was made in ten years of development work done chiefly by Potrykus and Beyer. In 2001, Greenpeace estimated that, given the very low content of provitamin A carotenoids in genetically engineered (GE) rice, adult women would need to consume twelve or more rice rations, i.e. up to 3.75kg of uncooked rice daily, in order to achieve their recommended daily intake of vitamin A (Greenpeace 2001).

At an early stage in the 'Golden Rice' research project, the promoters managed to get AstraZeneca (now Syngenta) on board. In 2005, Syngenta and the Rockefeller Foundation, the main project funder since research work began in 1982, created 'Golden Rice 2' (GR2) by replacing the daffodil gene by the analogous maize gene. Its developers claimed that GR2 contained up to twenty times more provitamin A carotenoids than the first-generation variety, GR1.

Syngenta's involvement has been critically observed since the start. After all, Syngenta is not only one of the world's largest suppliers of rice seeds, it also supplies suitable own-brand pesticides. In December 2001, Syngenta Biotechnology Inc. and Myriad Genetics, a U.S.

company, announced the completion of the draft sequence of the rice genome (*Oryza Sativa, ssp. Japonica* – NipponBare cultivar). Very soon thereafter, Syngenta filed a large number of patent applications on the entire rice genome with the World Intellectual Property Organization (WIPO) in the U.S., and with the European Patent Office (EPO). However, what Syngenta has claimed to be 'inventions' are quite simply descriptions of naturally occurring genes. In 2004, Syngenta submitted another patent application intended to protect its claims to a wide range of rice varieties. Little surprise, then, that Syngenta has been deeply committed to 'Golden Rice'.

At the same time, the biotech company was eager to issue 'statements emphasising the humanitarian nature of the whole project' and to claim that its '"Golden Rice 2 transgenic events [would] be donated for further research and development"', as indicated in the mission statement (Greenpeace 2005; Golden Rice Project). Syngenta has also expressed its willingness to waive future proceeds from licenses in developing and threshold countries – but only to small farmers earning less than US-$ 10,000 a year. It is also a fact, however, that – by 2004 – the corporation had filed over 70 patent applications which directly or indirectly covered 'Golden Rice' in over 100 countries, including India, China, the Philippines, Vietnam and sixteen African countries as well as North America and Europe. Some of these applications also covered the first generation of 'Golden Rice' (GR1).

As Clare Westwood noted in February 2014, Syngenta

> has also provided a 'humanitarian use' licence that ensures that the use of GR seeds is free of royalty or similar charges to small farmers. Syngenta reserves its rights to commercial exclusivity over GR1 and GR2, including commercial rights over improvements to the technology – but the 'humanitarian use' of such improvements is guaranteed. Syngenta announced several years ago that it will not commercialize GR, however there is no legal obstacle should it choose to do so (Ecologist 2014).

Most Asian farmers are not 'covered by the "humanitarian use" licence', which means they may commit so-called infringements of Intellectual Propery Rights (IPRs) over Syngenta's 'Golden Rice' seeds. Will they be subject to legal prosecution by Syngenta and be fined for millions of dollars?

Quezon City, Philippines, 5 June 2013: Over one hundred Green Mums and their children protest against the launch of genetically modified Golden Rice. Green Moms are a nationwide movement for organic food and breast feeding

Lack of risk assessment studies despite inevitable cross-breeding

At the time of writing, 'Golden Rice' research was primarily being conducted by the Philippine non-profit, International Rice Research Institute (IRRI; Menning 2013). IRRI is among the world's most significant agricultural research institutions engaged in the breeding of high-yield rice varieties. In 2009, Syngenta and IRRI 'signed a Memorandum of Understanding to collaborate in undertaking rice research, build scientific capacity, and establish a Scientific Know-how Exchange Program' (IRRI 2009).

The IRRI has been conducting 'Golden Rice' field trials in the Philippines since 2012, cross-breeding GM rice with local rice varieties – against massive local resistance. Farmers' groups and environmental organisations fear that 'transgenes from the GM rice are almost certain to cause genetic pollution' of their over one-thousand indigenous rice varieties 'through cross pollination, with unknown ecological effects' (Masipag 2014).

A Greenpeace report has warned that, because rice 'is widely cultivated throughout many parts of the world, particularly Asia. Seed saving is common [and] if any seed gets mixed up, or cross-pollination causes contamination, it will be difficult to eradicate' (Greenpeace 2013a).

Rice products imported from China, where GM rice is illegal, were tested in Switzerland and several EU countries in 2006 and GM rice (Bt63) was found to be present in several shipments. The most likely origin was central China's Hubei province, where GE rice

> has been sold and grown commercially for a number of years. […] In late 2006, the GE rice Bt63 was found for the first time outside the People's Republic of China in Europe: 10 cases of GE rice contaminated products were reported by European governments (Austria, France, UK and Germany), and other cases were found by Greenpeace and Friends of the Earth. […] In 2007, [GM rice] was found in 10 imports to Europe (GeneWatch ca2008).

It is highly likely that transgenic Bt rice that 'produces natural toxins that act as insecticides' (Then et al 2013) has already spread through China's rural seed saving system.

Even the promoters of the 'Golden Rice' Project had to concede that 'the chances of outcrossing to non-transgenic rice are very low (but not zero).' Traditional, indigenous and wild rice varieties may therefore be contaminated. However, they dismissed any fears of cross-contamination, 'since practically all plants produce carotenoids' (Golden Rice Project 2005).

The potential for gene flow from cultivated rice to wild weedy rice, and the genetic invasion of many varieties of wild rice, is a known phenomenon that has been confirmed in a number of studies. One such study, commissioned by the Austrian Ministry of Public Health (*Österreichisches Bundesministerium für Gesundheit*), considered gene flow to be too high a risk ever to consider transferring exogenous genetic elements into rice. The study warned of the high likelihood that, within a few decades, this kind of genetic contamination would cause irreversible problems (Reiner 2004).

Genetic engineering can also produce a whole range of (unintended) negative effects such as a weakening in plants that reduces pro-

ductivity or stress tolerance, or increases susceptibility to diseases. 'Unintended effects may also arise when the transgenic organism is subjected to changing environmental conditions and its metabolism responds to these conditions by producing different substances and structures. […] Moreover, unintended effects often become apparent only […] when they encounter the vicissitudes of growing in a natural […] environment.' (Holdrege 2008). Some ill-effects take many years, or generations, to become apparent.

Health risks and uncertain carotenoid bioavailability

So far, there is still a lack of studies on potential health risks involving 'Golden Rice'. Nor are any data

> available on the concentration of substances, metabolites and gene expression, and no studies were conducted such as testing for subchronic toxicity and immunogenic or antinutritive effects. No publications are available in which the substances and metabolic profiles of Golden Rice are compared to those of conventional parent plants (Then 2014).

In 2011, after years of international pressure, IRRI announced that the (bio)safety of genetically modified rice plants would be assessed. In 2013, IRRI conceded that commercialisation would be put on hold while further risk assessments were carried out. The first feeding trial was also announced, underscoring the lack of crucial data for the commercial use of 'Golden Rice'.

According to an article published by GMWatch in 2015,

> Charles Margulis of the Centre for Environmental Health has been following the GMO golden rice project for many years and has kept a collection of quotes […] documenting [15 years] of failed promises of the crop's imminent arrival.

Margulis' collection includes an extract from a 2014 report on the results of so-called multi-location field trials (MLTs) conducted in the Philippines in 2012–2013:

> Preliminary results were mixed… The initial results indicate that more research is needed, with greater focus on increasing yield… the developments described above will result in a delay in the timeline (GMWATCH 2015).[2]

Moreover, the science community has been in disagreement regarding carotenoid bioavailability from 'Golden Rice' to malnourished individuals. While studies were carried out in the U.S. and in China, the real-life conversion rate (to vitamin A) from 'Golden Rice' in developing countries has never been studied. The assimilation of vitamin A requires adequate amounts of zinc and fats in the food, which is not always the case in countries where malnutrition is rife. In July 2015, *The American Journal of Clinical Nutrition* retracted a Chinese study on genetically engineered rice published in 2012 because it 'contained ethical mis-steps'. In the context of the study carried out in 2008, 72 primary-school children in China's Huan province had been given 'Golden Rice' to eat, but the authors of the study had failed to provide clear information to the children and their parents that the rice was genetically modified (see Retraction Watch 2015).

Propaganda campaign for 'Golden Rice'

If the promoters of 'Golden Rice' have been raising expectations, they have also used strong moral arguments, insisting on speedy cultivation approvals and holding 'over-regulation' by government agencies responsible for delays in the development of 'Golden Rice'. An expert in the field, Christoph Then, executive director of Testbiotech Institute for Independent Impact Assessment in Biotechnology in Munich, Germany, has noted that

> the communication strategies used by many proponents of the Golden Rice project are ethically questionable, propagandistic and alarmist. They clearly contradict the humanitarian goals of the project and impede factual debate (Then et al 2013; Then 2014).

According to Masipag, the Farmer-Scientist Partnership for Development in the Philippines, and similar organisations across India, Indonesia and Bangladesh,

> Golden Rice has been met with resistance from farmers' groups and other concerned civil society organizations as its safety to health and

Syngenta has substantial stakes in the Golden Rice project, claiming that the genetically modified rice will provide vitamin A to deprived people in the Global South. As large numbers of patents on Golden Rice show, the project is primarily about profit interests.

> environment has not yet been ascertained. Farmers also claimed that Golden Rice will lead ultimately to control of seeds by huge agrochemical companies. In August 2013, more than 400 farmers and consumers uprooted the clandestine Golden Rice field trial in Pili, Camarines Sur [Philippines] as a show of intense protest (Masipag 2015).

On Earth Day 2014, Masipag and 'thousands of organic farmers in the Philippines signed a petition urging the [government] to stop the commercialization of "Golden Rice"'. The farmers also called for more transparent research projects and for the protection of local biodiversity – including the genetic diversity of indigenous rice – as well as that of 'farmers' rights, people's health and the environment' (Masipag 2014).

Notes:

1 Translator's note: SAG is a forum of discussion, awareness raising and co-operation of organisations and individuals critical of genetic engineering.

2 Author's note added on 13 January 2016: Since the time of writing, the source reference given in the original German text has disappeared from the IRRI homepage, where the most recent entry dates from November 2014.

Syngenta and the great Bee Decline

Syngenta strenuously rejects a neonicotinoid ban

Yves Zenger, Media Communication officer, Greenpeace Switzerland[1]

> The likes of Syngenta, Bayer and BASF refuse any responsibility for dwindling bee populations […]. These selfish, short-sighted hypocrites ought to be ashamed and stop selling their bee-killing pesticides […]. Without bees, there is no future.[Zitat-Ende]
> *(Francesco Panella, Italian beekeeper; President of the National Union of Italian Beekepers' Associations, BeeLife; Spokesman for the European Beekeeping Coordination; 27 Oct 2012)*[2]

It is more than likely that Syngenta has been making significant profits from the sale of substances that are highly toxic to honey bees and other pollinators, including thiamethoxam, a neonicotinoid that is the active ingredient in two Syngenta pesticides. Cruiser and Actara are used in seed treatment, or to spray on plants themselves, respectively. Numerous comprehensive studies have shown the substance to be acutely toxic to bees. Moreover, so-called sublethal doses can cause disorientation in the bees, which therefore gather pollen less efficiently. Other effects of sub-lethal doses include reduced fertility and compromised immunity, making honey bee populations more susceptible to parasites and infectious diseases (PAN 2012).

Science has sent out a clear message: the potential harmful effects of neonicotinoids far outweigh any assumed pest control benefits in terms of increased agricultural production. In 2013, the large body of evidence led the EU and Switzerland to impose a precautionary two-year ban on the use of neonicotinoids, including Syngenta's thiamethoxam.[3]

The company, however, has dismissed independent scientific studies as unscientific. It has taken legal action against the moratorium and has continued to sell the bee-killing pesticides. Syngenta has presented three points of argument. Firstly, the company claims that the EU moratorium was based on incomplete data and that the ban was rushed. However, in 2013 EFSA, the industry-oriented European

Food Safety Authority, carried out a peer review of all available field and laboratory studies on thiamethoxam, in particular also studies supplied by the pesticide industry itself. EFSA concluded that 'significant exposure of bees (or other pollinators) [to thiamethoxam] cannot be excluded' (EFSA 2012).

Syngenta further claimed that neonicotinoids were safe because the active systemic substance 'only' spread throughout treated plants and only affected targeted pests. Many studies have shown, however, that bees are affected by even the smallest amount of the pesticide. For example, some honey bees which ingested thiamethoxam along with the nectar and pollen from treated plants, were unable to find their way back to the hive; the potential weakening impact on a bee colony is significant.

Finally, Syngenta used inflated figures and scaremongering tactics, claiming that a ban on neonicotinoids would reduce Europe's agricultural productivity by 40%, at a cost of 17 billion Euros over five years. What Syngenta failed to mention, however, is the vast economic benefits, amounting to 15 to 22 billion euros annually, of bees that pollinate wild and cultivated plants. In other words, the benefits are approximately five times larger than the damage predicted by Syngenta. Likewise when it comes to productivity, where Syngenta (deliberately) failed to mention the existence of proven pesticide-free methods of pest control, as well as the fact that productivity has not fallen in countries such as France and Italy, where neonicotinoids have been banned (EU 2012, EEA 2013).

Greenpeace therefore considers Syngenta's arguments to be baseless. The company is intent on profit, not on protecting bees and other pollinators. The dramatic decline of honeybees and wild bee species is symptomatic of a misguided agricultural industry that serves the interests of powerful global agribusiness above all else. If we leave food security in those hands, coming years and decades will bring an even more drastic reduction in the diversity of our food crops and food products. It is time to wrest the claim of food security from the grasp of companies like Syngenta.

Syngenta headquarters in Basel, Switzerland, 17 April 2013: Greenpeace activists have unfurled a huge banner calling for a total ban of bee-harming pesticides


syngenta
pesticides
kill bees
GREENPEACE

All over Europe, countless farmers have been practicing the only form of agriculture that can sustain food security and produce healthy food: ecological agriculture based on biodiversity, that protects the soil and water, people and animals. Ecological agriculture requires neither chemicals, nor medicines, nor large-scale monocultures. In ecological agriculture, rather than being obedient agricultural workers, farmers are the expert custodians of our livelihoods; they produce healthy food. In ecological agriculture, scientific innovation meets farming knowledge and traditions – there is no place for Syngenta.

So, what is Syngenta's legacy?

Notes:

1 For further information on the great bee decline, see Greenpeace Report (Greenpeace 2013b).

2 English by MPJ.

3 Translator's note: Several large U.S. cities including Portland and Eugene (OR) and Seattle and Spokane (WA) have also banned neonicotinoids to protect honey bees. In July 2014, the U.S. National Fish and Wildlife Service announced that, by early 2016, it would phase out the use of […] neonicotinoids in all its Wildlife Refuges (150 million acres, or over 600,000 sqkme); see http://www.takepart.com/article/2014/07/31/us-bans-gmos-bee-killing-pesticides-national-wildlife-refuges (8 May 2016).

Syngenta's Toxic Legacy

Martin Forter, Basel

Syngenta for some time now has been reducing its activities on its 'home turf' in the Basel area, moving many of its production facilities abroad, chiefly to Asian locations. However, the Swiss agrochemical giant intends to leave behind a toxic legacy of hazardous waste in landfill sites. Most of these landfills are exhausted gravel pits situated over large groundwater reserves in the Rhenish Plains.

There are eighteen known hazardous waste landfills in the three countries whose borders meet in the Basel region (see map below[1]). This is where, from the late 1940s until the mid-1960s,[2] the four chemical or pharmaceutical corporations, Novartis, Clariant, Roche and BASF, deposited hazardous waste from their production facilities in Basel and Schweizerhalle, Switzerland; Grenzach, Germany; and Huningue, France. Much of the waste left behind by the companies formerly known as Geigy AG, Ciba AG, Sandoz AG and Hoffmann-La Roche AG was highly toxic.

Drinking water at risk

The companies in charge today have cleared up just two small hazardous waste landfills in Alsace, France (see the two red crosses on the map above). The ground water continues to be polluted by hazardous waste at sixteen further known sites, at least some of which are also likely to pose a risk to drinking water. One such site is the Feldrebengrube in Muttenz, in the Swiss canton Basel-Landschaft (BL),[3] for which BASF, Novartis and Syngenta are currently liable. This is where – as these companies themselves have stated – their predecessor companies Geigy and Ciba deposited between 13,500 and 25,000 metric tonnes of hazardous waste (Ciba SC/Novartis 1999; BaZ 20/03/2007; Forter 2000:245–256; Forter 2010:83–87).

The Feldrebengrube site is in the immediate vicinity of the (protected) Muttenzer Hard area, the source of drinking water supplied to over 230,000 people living in and around the city of Basel by Hard-

wasser AG. It was in this drinking water that Greenpeace discovered mutagenic[4] substances such as hexachloro- and tetrachlorobutadiene (Greenpeace 2006), whose most likely origin is the Feldrebengrube site. It subsequently emerged that, for at least 26 years, both the public agencies and the chemical industry had known about the presence in the drinking water of these and other harmful substances. However, no-one had deemed it necessary to inform the public, or to undertake any remedial action (Forter 2007).

It is highly likely that, in the Basel region, both hexa- and tetrachlorobutadiene are traceable in the milk of nursing mothers who have been drinking water supplied by Hardwasser AG. However, the Executive of canton Basel-Stadt has so far refused to carry out any analyses that would provide clarity on this issue.[5]

Of the toxins and pollutants present in Basel's drinking water, 75% have also been found in samples of waste taken at the Feldrebengrube site, and 94 percent of these substances are present in the groundwater near three hazardous waste landfill sites in Muttenz (Forter/Wildi 2013:6). An estimated 1.4 metric tons of chlorobutadienes were deposited at the Feldrebengrube site in Muttenz (Sieber Cassina & Partners 2011:18). However, rather than suspecting the local landfill site as the source of pollutants in drinking water, the BL Executive (*Regierungsrat*) blamed previously high pollution levels in the Rhine River[6] (BL Executive Council reply to an interpellation by Jürg Wiedemann (SP[7]), 2008:5), without ever presenting any corroboration of the thesis, however (Sieber Cassina & Partners 2011:18).

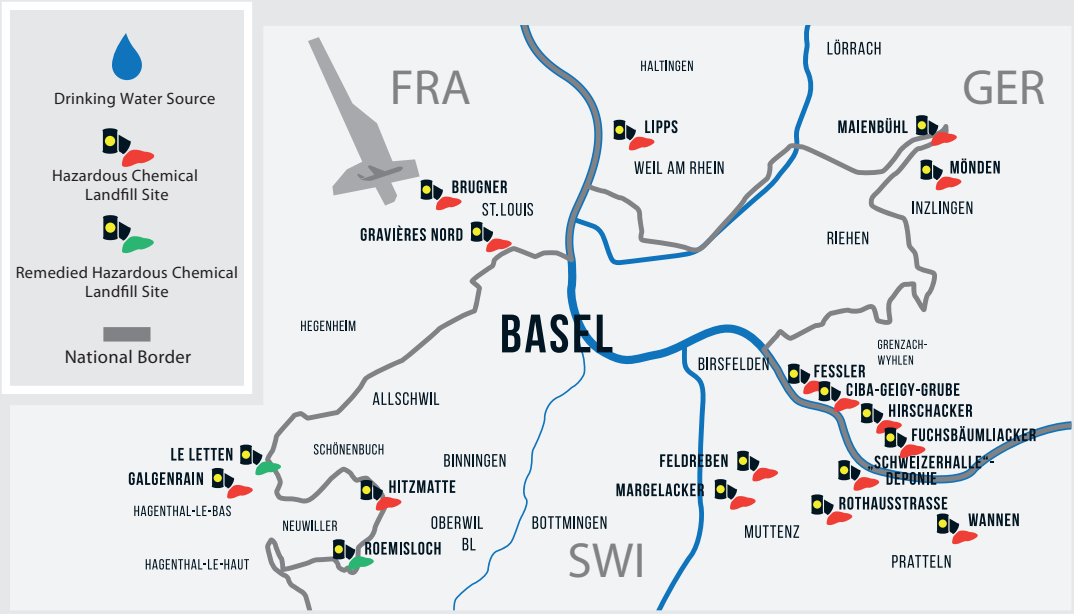
Suppliers only responded in 2006, when Greenpeace published alarming water analyses. Hardwasser AG installed a relatively cheap active-carbon filter in 2007. By contrast, in 2010 a majority of Muttenz voters opted for a costly multi-step water treatment system to remove any toxins and other harmful substances from their drinking water (BaZ 26/09/2010).

Cheap pseudo-remedy rather than drinking water?

Elsewhere in Switzerland, most 'special landfill' sites of the Feldrebengrube kind would be excavated completely,[8] especially if they were polluting an entire region's drinking water, or threatening to do so. Not so in canton Basel-Landschaft, where Sabine Pegoraro

Hazardous Chemical Landfill Sites in the Basel Region

So far, BASF and Syngenta have only remedied two out of eighteen hazardous chemical landfill sites



© Léon Bricola, Quelle: Forter 2010

(FDP[9]), the director of the cantonal Construction and Environment Department (*Direktorin für Bau und Umwelt*), condones a partial remediation of the Feld¬rebengrube site. Why does the BL Executive accept a cheap method that neither resolves the issues at the site, nor protects drinking water reserves? It would also appear that the partial, and therefore inadequate remediation project is the result of 'brazen duplicity' (*dreistes Doppelspiel*). In January 2013, this is how Allianz Deponien Muttenz (ADM)[10] described the industry's intense lobbying activities.

In whose interests?

In 2013, ADM objected to the infiltration by BASF, Novartis and Syngenta of cantonal committees set up to elaborate the partial remediation project for the Feld¬rebengrube site (ADM 2013). As a matter of fact, at Feldreben Round Table (*Runder Tisch Feldreben*), the body overseeing the excavation,[11] BL cantonal agencies were sometimes represented by Round Table board member and secretary, Franziska Ritter. Not only did she step in for Peter Zwick (CVP[12]), member of

the BL Executive, i.e. the client,[13] she also presided the board of bci Betriebs-AG,[14] a company founded by BASF, Novartis, Syngenta and other companies, and liable for the excavation of 100,000 metric tons of hazardous waste at the Bonfol landfill site in canton Jura.[15] Hence, while Ritter was expected to enforce cantonal government interests at the Feldreben Round Table, at Bonfol she sat in the industry camp together with her joint signatory on the BCI Betriebs AG board, Andreas Dür, managing director of BASF Schweiz AG until 2014.[16] Elsewhere, Marco Semadeni (Syngenta), deputy president of the board of BCI Betriebs AG, and its board member, Roger Fischer (Novartis), sat on the *Technische Fachkommission Feldreben*,[17] a committee providing technological advice to the Feldreben Round Table[18] mentioned above. Finally, it should also be noted that even the secretariat of the Feldreben Remediation Project (*Projektsekretariat Sanierung Feldreben*) was managed by someone close to the industry: Désirée Allenspach had long been the manager of the secretariat of the Novartis board of directors.[19]

An industry intent on avoiding total remediation

Muttenz was to be cheaper than Bonfol. According to ADM, this seems to have been Franziska Ritter's mission for many years. In 2000, on behalf of Basel's industry and due to pressure from Greenpeace and the Executive of canton Jura, she signed an agreement on the total remediation of the Bonfol hazardous landfill site, which was to cost CHF 350 million. When it came to the remediation of the Feldrebengrube site, however, the industry was intent on avoiding such high costs. This, at least, can be inferred from the minutes of a meeting held shortly after the Bonfol agreement. Present at the meeting was Ritter, then still on the Ciba (now BASF) payroll, as well as representatives from Novartis and AUE BL, i.e. the BL Environment and Energy Office. In summer 2000, Ritter and her industry colleagues acknowledged the existence of problematic substances at the Feldrebengrube site, making clear that, should these substances ever come to be dispersed, Basel's drinking water would undoubtedly be at risk. Ritter pointed out that this assessment could lead to calls for the total remediation of the Feldrebengrube site, just as had been the

case at the Bonfol site (Rohrbach 2000).[20] That is what the chemical and pharmaceutical companies wanted to prevent.

Cantonal involvement as a protective shield

The estimated cost of a total excavation of the Feldrebengrube site is CHF 500 million. In December 2002, industry stakeholder Conrad Engler described how complete remediation might be averted. In an internal e-mail, he noted that the BL Executive should be involved in any further evaluations to make it think twice about any demands made through AUE BL, given that the same public body would have to provide co-funding (Engler 2002),[21] the direct inference being that the BL Executive's appetite for total remediation would decrease as its (financial) involvement in the removal of hazardous waste generated by the private industry increased.

In June 2010, BL voters were asked to express their opinion on two public referendums. In order to protect Basel's drinking water, the Green Party's Total Remediation and Drinking Water referendums,[22] each signed by some 4000 registered voters), called for the total excavation at the polluters' expense of three hazardous waste sites – including Feldrebengrube – in Muttenz (Grüne BL 2008). The Greens argued that, if the referendum was rejected, the taxpayer via the cantonal agencies would stand to foot massive bills. However, both the BL Executive and a majority of the BL legislative (*Landrat*) collaborated with the industry towards precisely that outcome. Eventually, 63% of the votes went against both cantonal referendums – a clear defeat.

1.3 million Swiss francs against cantonal referendums

At the time, the current director of the BL Chamber of Commerce, Christoph Buser (FDP), was parliamentary spokesman and leader of the campaign against the referendums. In May 2010, Buser asserted that his campaign would have funds of little more than CHF 100,000 (BaZ 06/05/2010). On 16 August 2015, however, an article in *Schweiz am Sonntag*, headlined 'Buser's Power Machine' (*Busers Machtmaschine*), claimed that the BL Chamber of Commerce spent over CHF 1.3 million on the campaign that defeated the referendums (Schweiz am Sonntag 2015). In Switzerland, that kind of money only

Entrance to Novartis campus, Basel, Switzerland, 12 February 2004: Greenpeace activists warning about hazardous chemical waste disposal sites in the Basel region. Syngenta is one of several chemical companies that dumped their waste in sites that have not been cleared up

tends to be made available for national rather than cantonal political campaigns. Given the high total remediation costs for the Feldrebengrube site, however, that kind of propaganda money is, of course, negligible.

There was more: *Schweiz am Sonntag* claimed that Buser had manipulated parliamentary debates on the referendums by using his campaign organisation, the Chamber of Commerce's Institut für Wirtschaftsförderung AG (IWF), to provide MPs from various parties with sample texts of parliamentary motions.[23] The same article also alleged that TeleBasel, a local TV station, had manipulated a public survey. It further reported that legal expert and TV presenter Jascha Schneider had been slated to facilitate a public panel discussion, and to host a TeleBasel programme on the referendums with Christoph Buser as his guest. Schneider withdrew at short notice when *Basellandschaftliche Zeitung* revealed that he was Buser's lawyer (BLZ 28/05/2010).

BL Executive buys hazardous waste landfill site

In the course of the Total Remediation and Drinking Water referendum campaign, the BL Executive suddenly declared it would acquire the largest portion of the Feldreben site (BaZ 22/04/2010).[24] The price tag was CHF 22 million (BZ Basel 31/01/2015). Soon after, the industry declared that CHF 20 million would be paid to the BL Executive for the protection of drinking water, and another CHF 20 million would be paid into a 'Landfill Fund' (*Deponiefonds*). The Executive interpreted these funds as a token of the industry's sense of responsibility.[25] Actually, however, the money was more of a 'sweetener' for the Executive, which stands to be liable for remediation costs of CHF 500 million for the Feldrebengrube site alone, not to mention any liabilities in the event that drinking water should be polluted.

Canton Basel accepts the risk of toxins present in drinking water

Precisely as BASF, Novartis and Syngenta had expected, the BL Executive has shown little interest in cleaning up the Feldrebengrube site since its acquisition of the landfill site and the rejection of the two referendums. During the referendum campaign, the Executive grandiosely promised a start of remediation work in 2012 (BLZ 22/04/2010). However, as of autumn 2015, not even a decree concerning the cheap remediation project had been issued. Moreover, despite the risks to the drinking water, the Executive even allowed itself to become embroiled in time-consuming environmental legislation disputes with ADM and the municipality of Muttenz.

Notes:

1 Map of chemical waste in the Basel region – it's a start: to date, Novartis, Syngenta and Basf have remediated two of eighteen sites. Source: Martin Forter: *Falsches Spiel. Die Umweltsünden der Basler Chemie vor und nach Schweizerhalle*. Chronos-Verlag, Zürich, 2010:75.

2 From the 1970s, hazardous waste from Basel went to Bonfol (formerly in the Swiss canton of Bern, then Jura; 1961–1976; remediation soon to be completed); to Kölliken (canton Aargau; 1976–1985; remediation completed); and to Teuftal (canton Bern; 1975–1996). From 1969–1972, hazardous waste deliveries were also made to the Gerolsheim 'special' landfill site in Rheinland-Pfalz, Germany.
Translator's note: Nomenclature for Gerolsheim according to http://www.opengrey.eu/item/display/10068/233055; accessed on 18 December 2015.

3 Translator's note: For the sake of brevity, 'Basel-Landschaft' will be abbreviated to 'BL' from now on.

4 Translator's note: Mutagenic substances are capable of inducing genetic mutations, or of increasing the rate of mutations.

5 Executive Council of canton Basel-Stadt (*Regierungsrat des Kantons Basel-Stadt*): Reply to written enquiry by Stephan Luethi-Brüderlin (SP) re 'toxic dust from Lindan waste' (*Beantwortung der schriftlichen Anfrage Stephan Luethi-Brüderlin (SP) betreffend "chemischer Lindan-Abfall-Staub"*; 14.5413.02); Executive Council Decision of 2 December 2014; Basel, 3 December 2014.

6 Since the late 1950s, Hardwasser AG has been feeding water from the Rhine River into the natural groundwater reservoir in order to extract larger quantities of drinking water.

7 Translator's note: *SP – Sozialdemokratische Partei der Schweiz*, i.e. the Social Democratic Party of Switzerland, a left-of-centre political party.

8 For example, Bonfol, Kölliken, Pont Rouge.

9 Translator's note: *FDP – Freisinnig Demokratische Partei*, i.e. Liberal Democratic Party, a conservative-liberal political party in Switzerland.

10 Translator's note: According to Art. 4 of its Statutes, ADM is an association that campaigns, in the interest of human individuals and the environment, for the safe, one-off and final state-of-the-art remediation of the hazardous waste landfill sites near the Muttenzer Hard protected drinking water area (see ADM 2015).

11 Translator's note: News of the impending dissolution of the Round Table due to fundamental disagreements made local headlines in December 2014 (BZ Basel 17/12/2014).

12 Translator's note: CVP – *Christlich-demokratische Volkspartei*, i.e. Christian-democratic People's Party, a conservative political party for Christians in Switzerland.

13 Information service, *Volkswirtschafts- und Gesundheitsdirektion Basel-Landschaft* (Directorate, Economic Affairs and Public Health, canton Basel-Landschaft): *Sanierung Deponie Feldreben – Rahmenbedingungen der Kooperationsvereinbarung und Terminplan des Sanierungsprojekts*. Media Release, Liestal, 28 August 2012.

14 Extract from the Commercial Register of canton Basel-Stadt (*Handelsregister des Kantons Basel-Stadt*): bci Betriebs-AG, CH-270.3.013.060-8; 21 January 2013.
15 Consisting of representatives from BASF, Clariant, Novartis, Roche, Syngenta and others, bci Betriebs-AG is owned by Basler Chemische Industrie (BCI); it is a simple company in legal terms.
16 Translator's note: Information at A. Dür on LinkedIn (23 December 2015).
17 CSD AG: *Sanierung Deponie Feldreben, Muttenz: Sitzung der Technischen Begleitgruppe/Fachkommission*, 22 August 2012, Minutes no. 15, p.1.
18 See note 15.
19 Désirée Allenspach, Diamond-Office homepage, Portrait (screenshot, 21 January 2013).
20 Translator's note: German source text: *"bei entsprechenden Ausbreitungsmöglichkeiten in jedem Fall eine Gefährdung" etwa für das Basler Trinkwasser "zur Folge haben" könnten [und] "dass diese Beurteilung" wie in Bonfol so auch bei der Feldrebengrube "zu einem Ruf nach einer Totalsanierung führen" könne.*
21 Translator's note: German source text: *Wichtig ist (…) die Kantonsbeteiligung für die weiterführenden Abklärungen. So überlege sich der Kanton "wirklich auch zweimal, was er fordert im AUE BL, wenn er es (aus der gleichen Direktion) auch mitfinanzieren muss."*
22 Translator's note: The referendums submitted in February 2008 in full: *'Totalsanierung der Chemiemülldeponien in Muttenz'* (Total Remediation of Hazardous Waste Deposits in Muttenz), and *'Verantwortliche Basler Chemie- und Pharmafirmen müssen Trinkwasseruntersuchung und -aufbereitung bezahlen'* (Basel's responsible Chemical and Pharmaceutical Companies Must Provide Funding for the Testing and Treatment of Drinking Water; Grüne BL 2008).
23 Translator's note: German source text: *vorformulierte Vorstösse (…) von Landräten verschiedener Parteien eingereicht.*
24 'Kanton kauft grösstes Areal auf der Deponie', in: *Basler Zeitung*, 22/04/2010.
25 'Chemie macht erstmals Zusagen', in: *Basellandschaftliche Zeitung*, 19/05/2010; and 'Eine Vereinbarung, die noch vieles offen lässt', in: *Basler Zeitung*, 19/05/2010.

Keeping an eye on Syngenta

Staying vigilant and providing detailed criticism are worthwhile

François Meienberg, Public Eye (former Berne Declaration)[1]

Since Syngenta was created, the Berne Declaration has been keeping a close eye on the company. A great deal of research, publications, campaigns and active interventions are the tools employed by the NGO to shed light and exert influence on the Basel agribusiness and its controversial practices.

Historical Background

Even before Syngenta was formed,[2] the Berne Declaration had been keeping close track of activities by the Basel-based pharmaceutical and agrochemical companies locally called *Basler Chemie*.[3] In the context of *Hunger ist ein Skandal*, a 1980s campaign against hunger, various protest actions helped to raise awareness about Ciba-Geigy's insecticide, Galecron (active substance: chlordimeform, CDF).

Galecron is a perfect example of the life-cycle of pesticides. When it was launched in 1966, it was hailed as a miracle weapon. As early indications of its carcinogenic effects came to light, the product was temporarily removed from the market from 1976 until 1978, before being reintroduced as a cotton pesticide to be applied under strict safety precautions. In 1982, the Berne Declaration received insider information that triggered its campaign against Galecron. The most important point of criticism was that promised safety precautions were not being properly observed and that, in developing countries such as Mexico, there had been 'no appreciable change in the methods of spraying Galecron' (Schapiro 1983, EvB 1983).

It was only after more and stronger evidence of Galecron's carcinogenic effects became known that Ciba-Geigy finally withdrew its money-spinner for good. Following a legal settlement in the U.S., Ciba-Geigy had to pay an estimated 80 million US-dollars in compensation to Galecron victims. In Switzerland, former employees suf-

fering from cancer of the bladder after working in the production of Galecron received an undisclosed amount of fincancial compensation in 2006 (Moser 2008).

Even today, scandals like these, which limit the commercial lifecycle of pesticides, are not uncommon. It usually takes many years for products to be removed from the market despite scientific evidence of negative effects on human or environmental health. Therefore, it is the mission of the Berne Declaration to shorten this period, and to reduce the number of victims, by creating public pressure.

Fusion with a 'Terminator' effect

On 11 October 2000, the shareholders of Novartis and AstraZeneca decided to spin off their agrochemical elements into Syngenta, a newly formed company. Members of the Berne Declaration were on location, handing out flyers to alert Novartis shareholders to the new Swiss giant's controversial research and patent portfolio. That same day, together with its partner organisations in the UK and Sweden, AstraZeneca's parent countries, the NGO published a report in which it warned that the new giant would be a world leader in so-called highly controversial 'Genetic Use Restriction Technologies' known as 'terminator' and 'traitor' technologies.

According to the author of the report,

> 'Terminator' means farmers would have to buy new (patented) seed or chemicals which will switch off the sterility each year'. [In] 'Traitor' technology, however, 'the plants' natural functions – or traits – are betrayed (Warwick 2000).

As both methods drive farmers into a systematic dependency, the NGOs demanded that Syngenta should abandon this questionable business model for social and ecological reasons (Warwick 2000/ Berne Declaration 2000).

Two years and many meetings later, Syngenta sent a letter to the Berne Declaration with assurances that the company would not market the 'Traitor' technology to farmers. In the context of the Convention on Biological Diversity (CBD), the international NGO network eventually managed to impose a *de-facto* moratorium on 'Terminator' and 'Traitor' plants.

Paraquat – Voices from the South in Basel

Soon after Syngenta was formed, analyses carried out by the Berne Declaration showed that paraquat causes more incidents of poisoning among farmers and plantation workers in the southern hemisphere than any other herbicide.[4] Launched in 1961 by Imperial Chemical Industries (ICI), a British chemical company, Syngenta markets the product under the brand name *Gramoxone*®.

In fact, paraquat tops several national statistics of (often fatal) poisoning incidents. In 1989, Switzerland banned the product due to its high toxicity. Several other countries and the European Union followed suit. Nevertheless, *Gramoxone*® is still one of the world's most widely used herbicides. Paraquat is one of Syngenta's ten best-selling products, generating sales of around 560 million US-dollars in 2014.[5]

This was the context in which the Berne Declaration and partner NGOs in Malaysia, Costa Rica, Sweden and the UK launched a campaign demanding a halt to the production of paraquat. The NGO coalition's research report, 'Paraquat – Syngenta's controversial herbicide', was published on 22 April 2002, the day before the first Syngenta AGM (BD 2002).

Dr. Catharina Wesseling of the Central American Institute for Studies on Toxic Substances in Costa Rica, a leading authority on paraquat, and Arjunan Ramasamy, a Malaysian oil-palm plantation worker, were keynote speakers at the media conference in Berne, Switzerland. The next day, Berne Declaration activists and their guests leafleted company shareholders outside the AGM venue. At the AGM itself, Dr. Wesseling spoke to the assembly and François Meienberg (BD) read out Arjunan Ramasamy's message:

> As a representative of my people I ask Syngenta from the bottom of my heart to show some sympathy for our appeal by which we hope to stop the continued poisoning of our women and children and our environment. We would like Syngenta to act responsibly and value the lives, rights and wellbeing of our women and men who work on the plantations. Paraquat is very dangerous and today I know it is a highly toxic pesticide. A poison is a poison. It is made to kill. It is dangerous. Stop Paraquat!

Staying vigilant…

An initial success could be reported as early as the following September when the product was banned in Malaysia. Sadly, the satisfaction did not last: the government caved in to massive pressure from Syngenta and several palm-oil plantation operators and a few years later the paraquat ban was lifted.

In 2004 the Berne Declaration and other NGOs submitted an official complaint to the U.N. Food and Agriculture Organization (FAO): Syngenta's 'advertisement drive for its new formulation of paraquat' in Thailand violated the FAO Advertising Codex. The company's

> promotion of Gramoxone Gold Cap in the form of a lucky drive competition, where not only Gramoxone jackets and t-shirts, but motorcycles and a truck can be won. Additionally, the advert states that every purchase of Gramoxone will contribute to 'Syngenta's Fund for New Generation Farmers' to support safe food, which constitutes the fourth prize in the competition (BD 2004).

The following year, the Berne Declaration and the Pesticide Action Network UK/Asia & Pacific (PAN AP) jointly published what was then the most extensive review 'of the impacts of paraquat, largely from peer-reviewed studies' (BD 2005/2006). Despite all the evidence, Syngenta failed to budge.

In October 2006, the Berne Declaration increased its pressure by launching a large campaign including advertisements in the highly popular weekend publication, *Das Magazin*, of the Zürich daily, *Tages-Anzeiger*, sharing news of a

> Public Opinion Campaign, aimed at mobilizing people to participate and vote on whether or not they think the Swiss based Syngenta is responsible for the poisonings, injury and reported cases of death caused by its product. (BD 2006)

At the Berne Declaration media conference, three women speakers emphasised that there was no room for paraquat in agriculture and that the Swiss agribusiness' highly toxic product had already claimed far too many victims. The speakers were Sue Longley of the International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations (IUF), alongside Alterna-

tive Nobel Prize winner Irene Fernandez from Malaysia, coordinator of Malaysian NGO Tenaganita and Chairperson of PAN AP, and Dr. Kirsti Siirala, of KEMI, the Swedish Chemicals Inspectorate (BD 2006).

The verdict was made public outside the Syngenta headquarters in Basel in February 2007: the company was found guilty by over 34,000 individuals and around 90 organisations from 29 different countries. Among the NGOs were Geneva-based IUF, with 336 affiliated trade unions in 120 countries representing 12 million members, and the Asian Peasant Coalition, 'an Asia-wide peasant coalition of farmers, landless peasants, fisherfolks, agricultural workers, dalit, indigenous peoples, herders, pastoralists, peasant women and rural youth', with a membership of over 15 million (APC).

A bombshell was dropped on 11 July 2007 when – in a milestone ruling following a legal challenge by Sweden, which was supported by Denmark, Austria and Finland – the EU Court of the First Instance annulled the European Commission's 'Directive authorising Paraquat as an active plant protection substance'. Paraquat was subsequently banned across the EU.

Apart from various human and animal health issues that had been disregarded before the Directive was adopted in December 2003, the EU Court found that the

> Commission's handling of the file does not satisfy the applicable procedural requirements and the directive fails to satisfy the requirement of protection of human and animal health [and that], although there are studies on the link between paraquat and Parkinson's disease, that issue was never referred to by the notifier (EC 2007).

Even earlier, in the context of the product's re-registration in 2003, the Berne Declaration and its partner organisations had already expressed their concern about the European Commission's inadequate handling (BD 2003). However, not even the 2007 ruling managed to make Syngenta change its practices in the southern hemisphere.

In Switzerland, the Berne Declaration increased public pressure on Syngenta. The 'Toxanella' campaign of summer 2010 targeted large retailers and attempted to involve their customers. The *Toscanella* tomato sold in Switzerland is not a regular tomato but a Syngenta

brand, and therefore one of just a few Syngenta products that are quite easy to identify on supermarket shelves. The flyer distributed in various Swiss cities carried the clear message that consumers who bought Toscanella tomatoes were inadvertently supporting Syngenta's irresponsible policies and encouraging an already highly concentrated seed market to be reduced to even fewer suppliers (EvB 2010/ BD 2013).

… is worthwhile

The Paraquat campaign, a fight of David against Goliath, has been worthwhile. Even though Syngenta has not changed its basically untenable position, and continues to market its profitable long-seller, the ground under its feet has been shifting. In the last decade or so, many countries have banned paraquat. The EU took a lead role, followed by the likes of Sri Lanka, South Korea, Cambodia, Laos and nine countries in the Sahel region (BD Paraquat). Since 2012, China has introduced restrictions that caused the market to shrink. Paraquat has also been blacklisted by many label organisations including Fairtrade International, the Rainforest Alliance, UTZ – formerly UTZ Certified; for better-tasting coffee, cocoa or tea, the FSC – Forest Stewardship Council, the global coffee platform called the 4C Association; and companies including Chiquita Brands, Dôle Food, Nestlé – for Nestea, and Unilever – for tea, as well as many producers of palm oil. By April 2011, large retailers such as Co-op Switzerland and the Co-op and Marks and Spencer in the UK had 'taken steps to restrict the use of paraquat by their suppliers' (BD RVS / Ecologist 2011).

In other words, rather than effecting change where the campaign had originally intended, change has occurred among large numbers of distributors and other interested parties with whom the Berne Declaration has been in frequent communication. This, too, is a way to help reducing the negative impact of Syngenta products.

Focus on seed patents

At the Syngenta AGM in 2005, three Swiss environmental and humanitarian NGOs – the Berne Declaration, Swissaid and Greenpeace – pilloried the company's patent policies. In an attempt to monopolise almost the entire rice genome, Syngenta had filed several patent appli-

cations, with potentially disastrous consequences on future breeding efforts.

Patent offices, however, taking the wind out of such fantasies of omnipotence, heeded the warnings issued by the Berne Declaration and others. No further broad patents on gene sequences were granted, or at least only far more restricted ones (BD 2005b).

Other patent applications by Syngenta were more successful, however. Some have included conventionally bred plant varieties and naturally occurring properties. In 2013, for example, the European Patent Office granted a patent on whitefly resistant peppers. However, this is not an 'invention' made by Syngenta, but a native trait crossed in from a wild pepper variety.

In February 2014, the Declaration of Berne and a broad coalition consisting of 34 NGOs, farmer and breeder organisations, as well as environmental and development NGOs from 27 European countries therefore filed a complaint against the patent (BD 2014a/BD 2014b/Swissaid 2014). Never before has such a far-flung and wide-ranging coalition gathered in protest against the fundamental issue of the privatisation of natural resources.

However, it is not only ethically controversial to grant patents on conventionally bred plant varieties. Our food security is also at risk. 'Patents monopolise the food market, and deprive breeders of the option of free access to plant material for their ongoing breeding activities. This impedes innovation' (BD S&Ps/Swissaid 2014). At the time of writing, the European Patent Office was due to consider our objection against the pepper patent in June 2016.

It is by focusing on this and similar cases that the Berne Declaration and its partner NGOs have been raising awareness of and striving to change the way patents are granted.

More illusion than reality

In its background work and ongoing research on Syngenta, the Berne Declaration has frequently had to deal with the company's propaganda machine. Syngenta has repeatedly (and quite systematically) tried to gloss over controversial business practices, claiming to be committed to sustainability, twisting facts and deliberately misleading consumers and the media. For years, Syngenta claimed that paraquat

was safe for the environment and for the farmers and farm workers, provided it is 'properly used' (Syngenta, see Lewis 2006 / Grabosch 2011:20).

What Syngenta has been neglecting to acknowledge, let alone state is the fact that the product can rarely if ever be used appropriately in developing countries where 'personal protection equipment may be too expensive or for lack of infrastructure not easily available.' (Grabosch 2011). However, and in complete disregard of available evidence, Syngenta has continued distributing its pesticide in these countries. In doing so, the company deliberately and intentionally risks poisoning large numbers of farm workers.

With the purpose of throwing light on Syngenta's PR and communications, the Berne Declaration analysed the Syngenta report on Corporate Social Responsibility (CSR) published in 2008. It found that

> Syngenta's CSR report does not stand up to scrutiny. At the most basic level, our criticism concerns the fact that much of the information regarding some very controversial topics is unreliable and cannot be verified as no sources are provided; that many assumptions are not supported by evidence; and that references cannot be traced back to their source.

Moreover, several key aspects of CSR, including the company's tax strategy, are 'never mentioned at all' (BD 2008).

In response to such criticism, Syngenta launched its so-called 'Good Growth Plan' in 2013. Again, the Berne Declaration studied the document carefully, finding yet more sobering results including the fact that Syngenta systematically obscures major issues associated with its practices by using highly selective indicators and targets. For example, the company has simply ignored the declared FAO objective to phase out and ban highly toxic pesticides. By contrast, the word 'toxicity' seems to have been banned from the Good Growth Plan. Syngenta has failed to observe due diligence on its own core products, thereby rendering worthless any claims of being compliant with Corporate Social Responsibility. One of Syngenta's 'six commitments' listed in the 'Good Growth Plan' is to 'Empower smallholders' (Syngenta 2016), but increased production is the only measure of success.


toxanella
das Doppelpack von
syngenta
syngenta

The plan does not examine farming women and men's actual income. This is a key point given that many smallholding farmers may actually find themselves worse off because they have to increase their spending on seeds, pesticides and credits (BD 2014c).

Rather than inventing its own 'commitments' and criteria, ignoring and therefore cementing the company's serious problem areas, Syngenta would be better advised to engage in a consistent implementation of the Guiding Principles on Business and Human Rights unanimously adopted by the U.N. Human Rights Council in Geneva in June 2011. Their foundational principles state that the

> responsibility to respect human rights is a global standard of expected conduct for all business enterprises wherever they operate. It exists […] over and above compliance with national laws and regulations protecting human rights.

Addressing adverse human rights impacts requires taking adequate measures for their prevention, mitigation and, where appropriate, remediation (OHCHR 2011).

In late 2011, based on those 'Guiding Principles', the Berne Declaration and the European Center for Constitutional and Human Rights (ECCHR) jointly published a legal opinion by Robert Grabosch LL.M., that examined the key question of 'whether the Swiss business enterprise Syngenta meets its responsibility to respect human rights […] in particular […] whether the distribution of paraquat constitutes a breach of Syngenta's responsibility to respect human rights' to health and to life.

The verdict was clear:

> Regarding countries with no or low enforcement of occupational safety and health regulations [or] where the necessary personal protection equipment is not easily available and affordable for pesticide users […], the responsibility to respect [human rights] requires Syngenta to not distribute paraquat and to take appropriate steps against [its] distribution […] by third parties. It is not realistically feasible to obtain an appropriate level of safety by any means in these contexts.

By one, get one free: Berne Declaration awareness raising campaign in June 2010 about Syngenta's Toscanella tomato

Syngenta has a responsibility to remediate the adverse impacts caused by distributing paraquat to these countries. (Grabosch 2011)

Confrontation or dialogue?

In the course of over fifteen years of intense focus on one company, the question has arisen on many occasions whether it would be better to engage in confrontation or in dialogue. In 2008, the author was asked by the Novartis Foundation to outline on what terms the NGO could enter into a dialogue with a company such as Syngenta. The answer was clear and simple: any meaningful dialogue requires a common goal.

In the early days of Berne Declaration's paraquat campaign, Syngenta had suggested several joint activities. To the NGO, however, the notion of collaborating with the company to improve the protection of paraquat-using farmers and farm workers has been inacceptable for two reasons: firstly, along with the FAO, many countries have already made clear that there is no way that paraquat and other highly toxic pesticides can be applied safely, especially in developing countries. The only successful outcome will be a ban on this and other highly hazardous herbicides, and the introduction of non-chemical – or far less toxic – methods of weed control. Moreover, the Berne Declaration had neither the skills nor the resources to train farmers in safe pesticide application methods.

Many years later, there came a mutual agreement to disagree: Syngenta wants to sell as much paraquat as possible, whereas the Berne Declaration wants the product to be banned sooner rather than later.

Some constructive talks have taken place on other issues, however. For example, together the Berne Declaration and Syngenta drew up suggestions on how the current multilateral system of the International Treaty on Plant Genetic Resources in Food and Agriculture (ITPGR-FAO) might be reformed to ensure fairer access to genetic resources, and a fairer distribution of benefits therefrom. It was possible to find some common ground on this issue because Syngenta's position is actually a great deal more progressive than that of other multinational agribusinesses.

The upshot after fifteen years of keeping a critical eye on large corporations must be this: criticism alone will not prevent multinational

and transnational companies from disregarding human rights, nor from engaging in other forms of misconduct. What is needed is both a great deal of stamina, and active exchange with other stakeholders in the value chain, and with relevant public-sector agencies. If business practices and legal frameworks are to change, alliances are required. A great example is the Swiss Responsible Business Initiative that calls for corporate responsibility in terms of human rights and the environment to be enshrined in the Swiss Constitution. It was launched in April 2015 by a broad coalition of 77 civil organisations, churches, unions and shareholders' associations (Konzern-Initiative 2015).

Together with NGOs such as No Patents on Seeds and the global Pesticide Action Network (PAN), the Berne Declaration is committed to changing international regulation.

In the previous chapter, much criticism of Syngenta has been expressed. What about Syngenta's claim, however, that the 'leading agriculture company [is] helping to improve global food security'? (Syngenta Global website)

Notes:

1 A citizens' group engaged in revealing Swiss companies' impact on developing and threshold countries.

2 Translator's note: Syngenta was formed in 2000 by the merger of Novartis Agribusiness and Zeneca Agrochemicals.

3 Translator's note: Basel's most notable historic companies are Ciba (Chemische Industrie Basel), originally established in the 1850s; the origins of J.R. Geigy SA go back to 1758; in 1970 they merged to form Ciba-Geigy AG. Sandoz AG was established in 1886. The merger of Ciba-Geigy AG and Sandoz in 1997 created Novartis; at that time, non-pharmaceutical elements were spun off to form Ciba Spezialitätenchemie AG, later Ciba AG, which in 2008 was acquired by the German chemical company BASF (see http://www.britannica.com/topic/Ciba-Geigy-AG and https://en.wikipedia.org/wiki/Novartis#History; 9 May 2016). Syngenta was formed at the end of 2000 by the merger of Novartis Agribusiness and Zeneca Agrochemicals. Hoffmann-La Roche was founded in 1896. In 2013, it was the world's third-largest pharmaceutical company, and still majority-owned by descendants of the founding families, Hoffmann and Oeri. Novartis owns one third of the company's shares (see https://en.wikipedia.org/wiki/Hoffmann-La_Roche#cite_note-pharmexec50-2; 9 May 2016).

4 Translator's note: See Pesticides News no.32, June 1996, pp20–21, for details: http://www.pan-uk.org/pestnews/Actives/paraquat.htm (10 May 2016).

5 The global paraquat market is estimated at some 850 million US$; Syngenta's market share exceeds 60%.

Feed the world – but how?

On Syngenta's withdrawal from the 'Global Agriculture Report' and on successful agroecological strategies

Florianne Koechlin, biologist, author;
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Agriculture is facing tremendous global challenges. For one thing, as intense floods and severe droughts and storms expected to occur more frequently, farmers will have to cope with far greater climate extremes, especially in the southern hemisphere. Also, agricultural output will need to increase massively to feed an increasing population. Finally, the huge environmental damage caused by current agricultural systems will need to be remedied.

Everyone agrees that we need new strategies to tackle these Herculean challenges. However, the difference between various approaches could not be greater. Syngenta and the agribusiness lobby believe that the solution lies in continuing to increase output, if perhaps rather more cleanly and more sustainably so. However, ever larger numbers of experts have come to the conclusion that a radical strategic shift is required. It is becoming unaffordable to pursue an obsolete concept of industrial agriculture predominantly based on monoculture, which consumes massive amounts of energy, agrotoxins and synthetic fertilisers.

Syngenta withdraws from the 'Global Agriculture Report' (IAASTD)
A key role in the attitude shift described above has been played by the 'Global Agriculture Report', officially known as the I*nternational Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD)*. Initiated in 2002 by the United Nations and the World Bank, the IAASTD has been the most comprehensive scientific assessment of the future global food situation to date (IAASTD 2008): on 'behalf of the United Nations and the World Bank, in a four-year-process, over 400 scientists and experts from

every continent and every field of research summarised the state of global agriculture, its history and its future'. Its key issues were: What are the most efficient strategies to fight hunger and poverty? How can funding generate the greatest possible benefit for the poor? What kind of research is required?

The IAASTD drew on contributors 'from all continents and a broad spectrum of disciplines', ranging from Greenpeace to Syngenta. However, shortly before its publication, Syngenta withdrew from the process. Australia, Canada and the U.S. also expressed their reservations. According to insiders, their 'main motive was the critical assessment of genetic engineering, and industrial agriculture as compared to small-scale farming and the role of global trade with agricultural commodities' (Global Agriculture).

Business as usual is not an option

Having been accepted by 58 governments, including that of Switzerland, the IAASTD (2000+ pages) was presented in Johannesburg, South Africa, in 2008. Its clear and simple message was that 'business as usual is not an option'. Rather, a 'thorough and radical overhaul of present international and national agricultural policies' would be required 'to meet the enormous challenges of the 21st century' (Global Agriculture). The assessment called for a shift towards a multifunctional agriculture, one that would focus on species diversity, and on the conservation and renewal of natural resources.

According to a summary of the IAASTD published in 2013 by the Foundation on Future Farming (*Zukunftsstiftung Landwirtschaft*, Berlin, Germany), this ambitious goal can only be achieved in co-operation with small-scale farmers: 'We cannot respond to the challenges of the coming decades with the methods of the past. The IAASTD does not offer so-called "silver bullet" solutions; in fact it warns us against believing such solutions exist, be they of technological, economic or political nature. Instead, it provides a comprehensive and interdisciplinary analysis of the state of agriculture and a wide range of promising approaches' (Global Agriculture).[1]

The summary of the assessment notes that the challenges of the coming decades cannot be met by policies from the past. Rather than providing panaceas, the IAASTD warns of the danger of trusting in

them, offering a comprehensive analysis and a plethora of potential large and small-scale solutions instead (see *Zukunftsstiftung Landwirtschaft* 2013:2/3).

One of the IAASTD's key statements is that a sustainable reduction of hunger and poverty can only be achieved at the local level, in close cooperation with small-scale farmers: 'Over seventy percent of the world's poor are rural and most are involved in farming; […] 40% of the world population depend on agricultural activities for their livelihoods.' (IAASTD 2009:452). Small-scale and subsistence farmers, the landless, as well as all persons depending for their livelihood on hunting, fishing or forestry are immediately dependent on local land-use. However, they are often unable to achieve food security or a secure livelihood (see IAASTD 2009:560).

Therefore, the crucial factor in improving poverty is for improved access to land, safe water and production systems to be provided to those who need this most urgently. Another important factor is greater autonomy and independence among small-scale farmers, both in terms of their economic situation, and of their education and knowledge. In this context, one of the key terms in the IAASTD is 'agroecology'.

The art of optimising synergies

Agroecology is the 'science of applying ecological concepts and principles to the design and management of sustainable agroecosystems' (IAASTD 2009:560). In agroecology, traditional and local agricultural knowledge converges with modern scientific strategies and information on a wide range of topics. The strength of agroecology lies precisely in the integration not only of ecological, biological and agricultural knowledge, but also of cultural and social information gathered from a wide range of experts. Complex issues can be resolved through the practical agroecological application of locally available resources; specific technologies are neither categorically excluded nor prescribed.

While agroecology is neither a perfect system nor a universal ideology, it does represent a continuous approach to the best possible solution in any given local, ecological, cultural and social context. In his 2010 report, Olivier De Schutter, at the time the Human Rights

Council of the U.N. General Assembly's Special Rapporteur on the right to food, argued that,

> As a set of agricultural practices, agroecology seeks ways to enhance agricultural systems by mimicking natural processes, thus creating beneficial biological interactions and synergies among the components of the agroecosystem. It provides the most favourable soil conditions for plant growth, particularly by managing organic matter and by raising soil biotic activity. The core principles of agroecology include recycling nutrients and energy on the farm, rather than introducing external inputs; integrating crops and livestock; diversifying species and genetic resources in agroecosystems over time and space; and focusing on interactions and productivity across the agricultural system, rather than focusing on individual species. Agroecology is highly knowledge-intensive, based on techniques that are not delivered top-down but developed on the basis of farmers' knowledge and experimentation. (De Schutter 2010:6)[2]

While the IAASTD neither dismisses nor excludes genetic engineering, it does consider its contribution to resolving pressing agricultural problems as being slight. Moreover, farmers might be facing lawsuits due to unintended contamination by GE plants. Also, patents on GE seeds impede localised breeds and their (traditional) exchange, trade and sale.

By contrast, Syngenta owns a large number of patents on GE seeds. The company's exclusive monopoly control on the seeds has made farmers completely dependent on it. As the patented GE seeds are owned by Syngenta, the farmers are not allowed to use any of the seeds from their harvest for the next sowing. The century-old practice of producing seeds from their own harvests has become illegal. Many countries in the southern hemisphere have been protesting fiercely against this form of control imposed by the distant 'north', others have been imposing stiff penaltiess

A strategy of sufficiency rather than growth

After its publication, the assessment was ignored, kicked into the long grass or even ridiculed by the industry and politicians. This slowly began to change three years later. For example, in 2011, the World Watch Institute published the report, *State of the World 2011: Inno-*

vations that Nourish the Planet. The overview of hundreds of large and small-scale agroecology projects in Africa put the spotlight on 'successful agricultural innovations and […] major successes' (Worldwatch Institute 2011).

Very simple techniques often manage to produce astonishing results: higher yields can be achieved by planting crops among trees and in conjunction with nitrogen-fixing plants such as beans or clover, which also help to enhance soil fertility. Flowering plants between rows of food crops attract useful insects that attack plant pests, rendering agrotoxins superfluous. For centuries, farmers have been selecting and breding robust seeds that are well adapted to local conditions and capable of producing harvests even under extreme conditions. As numerous studies have shown, these and many other agroecological methods can increase – even double – productivity (Worldwatch Institute 2011; Fao.org).

Higher productivity no panacea for hunger

In 2014, the NGO Berne Declaration published a detailed analysis of Syngenta's Good Growth Plan. The report also notes that, according to UNCTAD, 'despite the fact that the world currently already produces sufficient calories per head to feed a global population of 12–14 billion, hunger has remained a key challenge. Almost one billion people chronically suffer from starvation and another billion are malnourished', which is why 'hunger and malnutrition are not phenomena of insufficient physical supply, but results of prevailing poverty, and above all problems of access to food.' There is no guarantee, therefore, that 'increasing industrial agricultural production' will enable us to feed a rapidly rising world population.

'Hunger and malnutrition are mainly related to lack of purchasing power and/or inability of rural poor to be self-sufficient', the report argues (UNCTAD TER 2013/Berne Declaration 2014).

Moreover, vast quantities of agricultural products are not used to produce food:

- In 2013, 40% of the U.S. maize crop went to produce ethanol (fuel).
- Some 98% of the global soybean (cake) production goes into animal feed.
- Around one third of the global food production is lost or wasted, amounting to some 1.3 billion metric tonnes annually.
- In 2013, Syngenta generated 40% of its turnover from pesticides and (soya and maize) seeds destined for the production of crops going into animal feed or ethanol (fuel) rather than for human consumption.

Various U.N. studies have also outlined a possible transition towards an agriculture that is more diverse and more sustainable. One such study, by the European Commission's SCAR, the Standing Committee on Agricultural Research, goes a step further as it calls for the focus of future developments to be on constraints rather than growth. As an alternative to the prevailing productivist model of growth at any cost, the committee proposes a 'narrative of sufficiency', in other words, a strategy of sufficiency rather than growth. (SCAR 2011).

More recently, the World Food Organisation (FAO) followed suit. In September 2014, the FAO hosted the International Symposium on Agroecology for Food Security and Production. Among the participants were experts including academic professors and researchers, agriculture ministers from several countries, as well as numerous other stakeholder representatives. FAO Director-General José Graziano da Silva note that one valuable approach was known as 'climate-smart agriculture'. He highlighted agroecology as a 'promising approach to moving food production onto a more sustainable path in order to help sustainably promote food security, address climate change, and build resilience' (Fao.org 2014).

Progress or 'greenwashing'?

As we have seen, agroecology has been making inroads into the mainstream. Syngenta certainly did not want to miss this particular 'bus'. With much media fanfare, the Basel-based agribusiness company launched its six-point plan for sustainable growth, *The Good Growth Plan*, in 2013. It outlines the company's commitments to promote resource and crop efficiency; regenerate ecosystems and preserve biodiversity; strengthen rural communities; keep people safe and strive for fair labour conditions. (Berne Declaration 2014)

Dr. Hans Herren, together with Prof. Dr. Judi Wakhungu, presided the IAASTD. When I asked him about the credibility of Syngenta's commitments, he replied that some of the things the company had written could have been copied word for word from the 'Global Agriculture Report' (IAASTD). 'However,' he continued, 'the way they understand the concepts is completely different. What we consider to be sustainable is very different from how the industry perceives it. Also, Syngenta does not see pesticides as a problem, but as the

solution. Rather than reorganising the system, they simply use new products or technologies. Another issue is the fact that the industry intends to tackle symptoms rather than underlying causes. This is an unbridgeable philosophical chasm that divides us.'

In its detailed analysis of *The Good Growth Plan* published in 2014, the Berne Declaration warned that 'the indicators selected by Syngenta for the assessment of the sustainability of an agricultural system are inadequate, and do not meet the level found in current research' (Berne Declaration 2014:4).

The following are just two examples: firstly, Syngenta claims to be committed to preserving biodiversity by planting field margins with local wildflower seed mixes across Europe and the U.S. However, it insists on continuing to distribute its highly effective insecticides based on neonicotinoids despite the fact that numerous studies have shown the devastating impact on bees of these highly toxic substances (see also chapter, Global Bee Decline and Syngenta). For a period of two years, both the EU and Switzerland therefore placed tight restrictions on their use, against strong objections from Syngenta. If the company decided to stop marketing its neonicotinoid-based pesticides, the positive impact on bee populations and biodiversity would be far greater than that of planting some field margins.

Secondly, Syngenta claims to be committed to training farm workers on the risks and dangers – and safe usage practices – of pesticides. However, according to the FAO, this is only the third of three measures that should be taken to reduce risk, the first being to avoid pesticides where possible. Pesticides, however, are Syngenta's core business, generating over 70% of its profits. Highly unlikely, therefore, that the company will abandon this product line. In the southern hemisphere, Syngenta still markets Paraquat, a highly toxic herbicide that has long been banned in Switzerland and other industrialised countries. 'According to a study by PAN Germany, Syngenta sells 65 pesticides in Africa, Asia and Latin America that, according to the PAN International List of Highly Hazardous Pesticides, are classified as highly hazardous.' *The Good Growth Plan* remains silent on any intentions to reduce or even generally avoid the use of these pesticides.

Agro-ecology taps into the knowledge and skills of local small-scale farmers. Hans Rudolf Herren, World Food Prize winner, in conversation with African colleagues

Sustainable (agricultural) intensification – an elastic concept

In recent years, the term 'sustainable agricultural intensification' has surfaced repeatedly in the international debate. The term is so vague that it can be taken to mean anything at all, be that initial steps towards a transition from industrial to agroecological agriculture, or, on the contrary, 'business as usual', but in slightly more ecological and more sustainable fashion.

Of course, Syngenta has also been using the term. The agribusiness company evidently means to increase food production efficiency and output while reducing the use of resources, the motto being 'more crop per drop' – higher yields per drop of water, perhaps even per drop of pesticide. Sustainability must be profitable, on a global scale.

Intensification on its own can also mean a great many things. Syngenta and other agribusiness companies chiefly take it to read one thing: higher yields from more technological equipment and means of production, i.e. more energy, more chemicals, more technology, enhanced seeds and machinery. From an agroecological perspective, however, sustainable intensification means the best possible adaptation and use of available resources. It means greater natural diversity, restoring soil fertility, making careful use of water, increasing knowledge, investing greater human skills and more human labour, and supporting local food systems by increasing democratic participation. This interpretation is diametrically opposed to that of big agribusiness.

So. We do know what tomorrow's fairer and more sustainable agriculture would look like. Awareness of and knowledge about agroecology and the urgent necessity to embrace a new paradigm has reached the top echelons. Whether and to what extent we will manage to change tack is therefore no longer a scientific issue but a political one.

Notes:

1 Translator's note: The 2013 summary by Zukunftsstiftung Landwirtschaft draws heavily on Global Agriculture; for details, see Bibliography.

2 Translator's note: The author of the German source text has translated these ideas in summary form.

First Conclusions

Sweeping across the globe, the first thirteen chapters of this book have revealed many aspects and findings that could not be clearer.

Syngenta's core mission has been to generate and secure the highest possible profits on a permanent basis. To this end, the company will go to extraordinary lengths. Land and labour conflicts have cost the life of one person and left many people injured. Union rights have been trampled. Scandalous working conditions are far too common. The sale of hazardous pesticides, and open-air tests have jeopardised human, animal and environmental health, often causing extreme damage and injury. Given the huge profitability of the company's pesticides, the imposition of long overdue bans and restrictions could hit Syngenta where it really hurts.

In terms of seeds, developments are also highly problematic. Syngenta aims to displace locally adapted, traditional crop varieties also known as native landraces, fostering capitalist-style agroindustrial monocultures instead. They require intensive management, which provides ideal markets for the company's products. As the model has been widely implemented in the U.S. and in Latin America already, Syngenta has been investing substantial sums into 'developing' Africa, pushing genetic engineering in particular.

Claiming to fight hunger, Syngenta and other similar gigantic agribusinesses entice public bodies to enter into public-private partnerships, a mechanism that not only instrumentalises national elites but, most importantly, enables these companies to exert significant influence on national legislations. This is true also for 'Golden Rice', one of Syngenta's most ambitious projects designed to take control of rice, one of the world's staple crops. The addition of yet another level of radical, all-round agricultural capitalisation clearly has great potential to create enormous markets for Syngenta's products, particularly in Asia. If successful, however, the consequences in terms of biodiversity and food security will be dire.

When it comes to pesticides, various impressive contributions to Part One have shown very clearly the potential and actual damage

caused by these chemicals. We urgently need a complete and worldwide ban of Synenta's highly hazardous and highly toxic products, not least because of their serious negative impact on populations of (honey) bees and other pollinators, whose numbers have been falling drastically over the past decade or so. If the trend is allowed to continue, global food security may be in serious jeopardy.

Another inacceptable fact has been the inadequate disposal of chemical and toxic waste, including the stalled complete remediation of historic hazardous landfill sites in the three countries near Basel, i.e. France, Germany and Switzerland. At the time of writing, the editors were outraged to hear of government plans to build Switzerland's largest refugee centre on top of the old Feldreben landfill site for hazardous chemical waste in Muttenz near Basel (Tages-Anzeiger 2016).

What this chapter has also made clear is the enormous power of multinational companies such as Syngenta. Despite a degree of flexibility at the level of its global policies, Syngenta's evident objective is to subjugate developing countries, and to make farmers and growers dependent on its products, to which end the company has made gigantic investments.

In terms of criticism, opponents often lack adequate, sufficient and detailed information about Syngenta's activities; often there are long delays in the exchange of new information about Syngenta's regional policies and related scandals. Campaigns against the agribusiness would also need to be more focused and better coordinated. The contributors to Part One have disagreed in their explicit and implicit analyses alike on whether important Syngenta decision-makers are willing to engage in a serious dialogue. So far, there has been little real cause for hope.

The final keypoint is that Syngenta has so far failed to contribute towards increasing the food supply of the people living on this planet. It is clear to outsiders that the company's top priority is profit, and that it plans to continue selling its highly hazardous products for as long as possible. Syngenta has been supporting and promoting an obsolete business model, that of capitalist agroindustry, a model that has failed to eradicate hunger. Worse still, it has created global dependencies on big multinational agribusinesses, and thereby poses a threat to food security and food sovereignty.

Part Two of the book examines a number of Syngenta's activities more closely, beginning with a general overview and some important figures, and ending with a look at the company's influence on universities and other research institutions.

Part Two: In the limelight, and behind the scenes

Let us now take a closer look at the stage that has been set by and for Syngenta. What is on view in the limelight? What happens behind the scenes? Who is Syngenta? What motivates the company?

The company profile with the most relevant facts and figures should answer these questions before we focus on the company's history. As the events leading up to its foundation and its more recent history are outlined, the close historic relationship between agribusiness and war will need to be considered, and the fact that pesticides have been used as chemical weapons against armed forces, liberation movements and civilians.

The widest possible range of social conditions feature in today's global agriculture. Syngenta and a handful of other multinational companies dominate the value chain upstream of agriculture proper. These companies have been applying ever tighter intellectual property legislation and ever wider-ranging patents enabling them to impose monopoly prices.

While Syngenta does not rank among the few giant multinationals that control the world, a chapter will address global trade and the Transatlantic Trade and Investment Partnership (TTIP) because the company is currently number two of the world's top seed and pesticide producers. In view of global concentration processes in both these markets, Syngenta has been attempting to tap into synergies between genetically modified organisms (seeds) and pesticides. Moreover, with its plants and production facilities in some 90 countries, the company also has a substantial stake in the maximum investment protection provided by free-trade treaties.

Various shareholders and groups of shareholders are more or less closely associated with Syngenta. Their diverse intentions and weight of influence are brought to bear on a management whose membership is no longer of Swiss nationality – just as Syngenta's most important shareholders are no longer Swiss. In other words, we are dealing with a company that is merely registered in the Swiss city of Basel. Syngenta's business policies, however, are being defined by international

capital with global economic and profit interests. At least for the time being, the location of the company headquarters, and therefore of the strategic management of its value chain, remain in the city on the River Rhine that looks back on a long history of hosting high-ranking businesses in the chemical industry.

Syngenta's targeted activities in the city of Basel have resulted in what may well be considered an 'unholy alliance' between the company and the public administration, not least in a special tax rate of 14%, whereas regular businesses pay 22% tax. Still dissatisfied with such an advantageous position, however, Syngenta managers have been busy lobbying and 'green-washing' the company's activities. Both these aspects will be addressed in separate chapters.

Part Two closes with a chapter contributed by *kriPo*, a largely left-wing group of students at universities in Zürich. They illustrate Syngenta's influence on public research at ETH Zürich, one of many publicly-funded educational institutions all over the world that have received financial support from the company.

Syngenta, a multinational corporation

Syngenta is inextricably linked to agribusiness and capitalist agriculture.

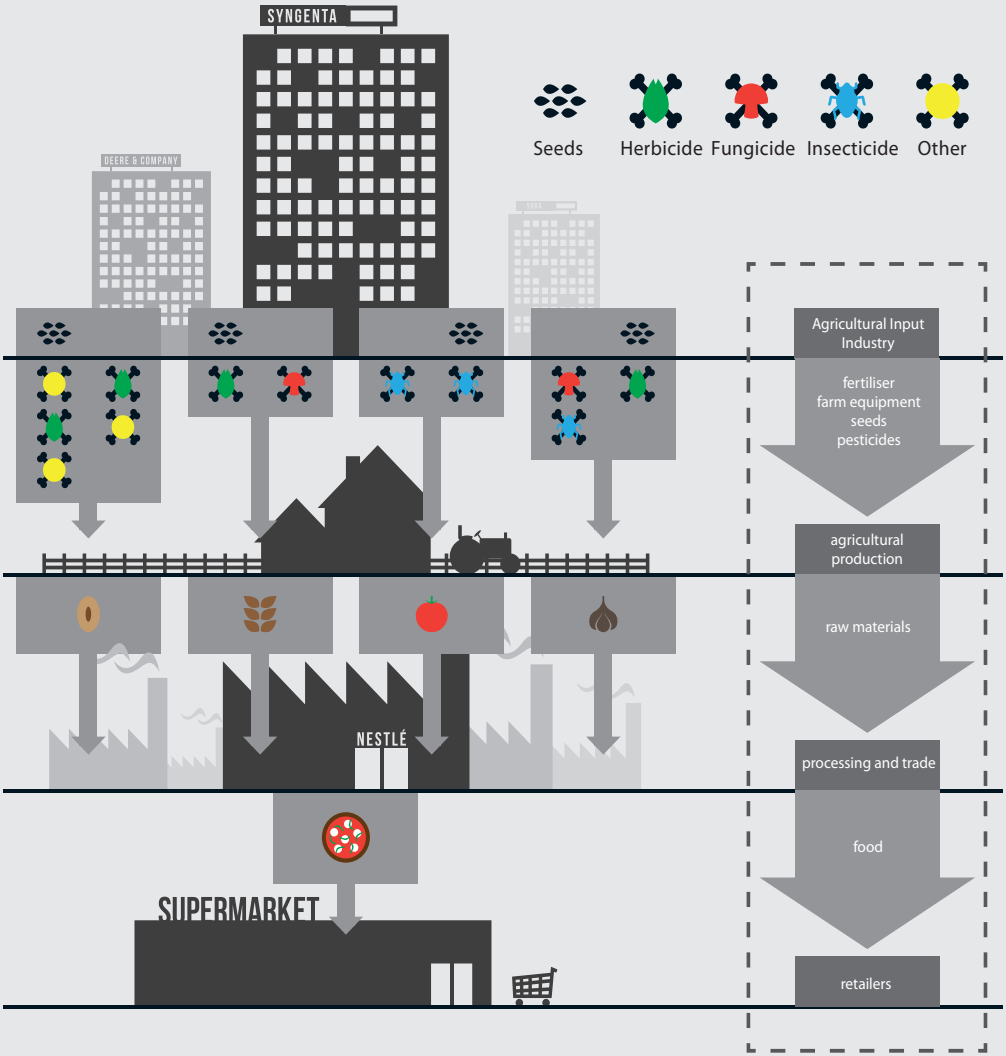
What's in a frozen pizza or some other ready meal produced by the food industry? You can be certain that various Syngenta products are on its list of ingredients. The pizza dough may contain Syngenta's *Plenus* GM maize, whose seeds were perhaps treated with Syngenta's *Cruiser Maxx*. Broad-leaved weeds in the soybean monocultures were most likely killed using Syngenta herbicides *Dual* or *Flex*, or maybe even Touchdown, its glyphosate-derivative – or perhaps Gramoxone, with paraquat as the active chemical ingredient. The wheat in the pizza dough may have been treated with a herbicide from Syngenta's *Axial* range that kills off 'annual grasses such as *Alopecurus* (blackgrass), *Apera* (bentgrass), *Avena* (wild oats), *Lolium* (ryegrass), *Phalaris* (canary grass), *Setaria* (foxtails) and *Poa* (meadowgrass)'. The fungicide *Amistar* may also have been applied. Perhaps the tomatoes on that pizza came from Syngenta Seeds and were treated for aphids with *Plenum WG*, and with Affirm for *Tuta absoluta*, the Tomato moth. The herbicide *Fusilade* may have been applied to destroy weeds, and the insecticide *Karate Zeon* to kill leaf-mining flies, *Agromyzidae* (Syngenta Global 2016). The impact of global agribusinesses such as Syngenta on the food we eat is immense.

Alongside the likely Syngenta ingredients in our food, we also need to look at the entire food production chain. Also known as 'food value chain', it starts with the agricultural input industry and ends with wholesalers and major food retailers.

Specific figures for sales and profits should accompany the various levels in the chain. However, the endeavour is fraught with difficulties as no consistent and reliable global data is available. What we may assume with a degree of certainty is that, in 2013, the entire value chain was estimated at more than 5 trillion USD, generating profits of some 600 billion USD.[1] At the lowest level in the chain, the agricultural input industry was estimated to have generated profits

From input industry to retail: a long chain

Our daily supermarket pizza is the end product of global agribusiness production chains also known as Food (Value) Chains, in which large multinational companies play an increasingly important part as much of our food is now produced on an industrial scale, while farmers all over the world are becoming more and more specialised producers and suppliers to the food processing industry. In turn, they themselves have become increasingly dependent on the agricultural input industry, including seed and pesticide manufacturers such as Syngenta, fertiliser companies such as Yara, and manufacturers of farm equipment such as John Deere. As a participant in the agricultural input industry, Syngenta's very existence is inextricably linked to industrialised agriculture. Farmers are sandwiched, as it were, between monopolistic input companies (Syngenta et al) and the equally monopolistic food processing industry (Nestlé et al).



cf. KPMG 2013

of 400 billion USD (KPMG 2013:5).[2] Syngenta's annual sales came to around 15 billion USD, i.e. its share in the global input industry was just under 4%. However, in the global pesticide and seed market, valued at approx. 93 billion USD (ETC Group 2015), Syngenta's share rose to a strong 16%. Moreover, both markets are expected to grow significantly in Asia and Africa. In 2015, Syngenta aimed to increase its market share to 25 billion USD 'after 2020', and by 2018 to increase its profits to 24–26% EBITDA margin[3] (Syngenta 2015a).

Syngenta's key crops

To Syngenta, maize is the most important crop plant. Most of it is grown in the U.S., Brazil, Argentina and Canada, chiefly for animal feed and biofuel (ethanol). Globally speaking, soybeans – which are produced for the same markets – have seen the most rapid growth in production area, with plantations in the U.S., Brazil, Argentina, Paraguay, China and India. The two crops are mostly grown in vast monocultures. Rice is the staple food for one half of the world population. At the time of writing, most of it was being produced by small-scale farmers also known as family farmers. Despite massive investments in rice genome research and development, Syngenta has yet to achieve a full breakthrough, a situation the company has attempted to change through its 'Golden Rice' project and by acquiring Belgian biotech seedmaker Devgen in 2012 (Bloomberg 2012). In terms of cereals, wheat – the world's most important bread ingredient – comes in third place after maize and rice. 70% of the global wheat is produced for human consumption. Although hybrid and genetically modified (GM/transgenic) varieties of wheat have been in existence for some time, and many field trials have been conducted, as of 2015 GM wheat was not yet grown commercially (Wikipedia 2016). Several competing bodies have been pushing the analysis of the wheat genome.[4] 'Hybrid wheat has been a limited commercial success in Europe (particularly France), the United States and South Africa' (Basra 1999). Evidently, Syngenta is hoping to play a key part in the full commercialisation of hybrid and GM wheat.

Syngenta's pesticides and GM seed varieties are used in monocultures which are highly susceptible to damage caused by insects, fungal diseases and weeds. Syngenta's relatively new fungicide *Elatus*, for

example, has already become a market leader against Asian (soybean) rust (Syngenta Elatus) and, according to then CEO Michael Mack, *Elatus* 'sales in Brazil exceeded $ 300m' in 2014 (Syngenta Elatus), its 'biggest ever product launch' at the time (AgroNews 2015/FuW 2015). In 2015, the product also received approval in the USA and Canada under the trade name of *Solatenol* (PMN 2015/AgraNet 2015). On 8 January 2016, Syngenta announced EU approval for *Solatenol*, the trade name in the EU for *Elatus*: 'First sales of SOLATENOL™ in France are expected for the 2016/2017 season, with a total peak sales potential in Europe of $ 200 million (Syngenta *Solatenol* 2016). If the product were to achieve its anticipated 'global peak sales potential of $1 billion' (Syngenta *Solatenol* 2015), it would truly represent Syngenta's biggest-selling product, ever.

Syngenta's range of seeds and 'plant protection products' or pesticides, covers over one hundred plant species. Among the seeds are maize, rice and wheat (see above), as well as rapeseed, sunflowers, sugar beet, sugarcane, potatoes, tomatoes and various vegetables. Syngenta is also a leader when it comes to hybrid barley, *Hyvido*. By contrast, the company withdrew from the cotton seed business after it had made headlines for being involved in child labour in India.[4] However, the company still sells pesticides for use in cotton plantations.

Syngenta is part of the agricultural input industry

By contrast to Nestlé or certain major retail chains such as Coop Switzerland, Syngenta with its core business in agricultural input production, is at the bottom rather than at the top of the chain of agri-cultural production. Alongside its key agricultural inputs such as seeds and seed treatments, and pesticides (herbicides, insecticides, fungicides), the company also supplies chemical fertilisers, animal feed and feed mixes; it is involved in animal breeding and health, stable technology and farm machinery as well as energy and water supplies.

The agricultural input industry's share in the entire value chain has increased steadily, increasing the bottom-up pressure on farmers who are already feeling pressured from above by businesses involved in processing and trade, catering and retail.

However, contrary to what Figure 1 above might imply, things move in both directions along the food (value) chain. Fuel is produced

from various food crops, for example, and the processing of cotton is not part of the food chain at all. Various authors therefore distinguish between a 'food chain' for human consumption and a 'feed chain' for animal feed and other uses of agricultural products.

Marketing its own GM corn variety Enogen, Syngenta plays a major part in the production of biofuel (ethanol) and by far the largest amount of the global soybean and maize production is destined for the animal feed market, i.e. to produce meat rather than food for direct human consumption. In this context, therefore, Syngenta's claim that it is 'Feeding the World' is controversial.

Syngenta's product diversity

Syngenta has the widest range of products among all currently existing agrochemical businesses. In 2014, its seeds generated 20% of its sales, fungicides 23%, selective herbicides 20%, insecticides 14%, non-selective herbicides 10%, and seed treatments 8%. In terms of pesticides, the company not only leads the market but, arguably, is a technology leader, as well, and Syngenta's unique e-licensing system helps the company stand out from its competitors. Introduced in 2014, the

> system provides quick and easy access to our patented native traits and enabling technologies in order to improve plant breeding and increase innovation in agriculture […] so that plant breeders, companies and public research institutes can access many of our most important plant-related innovations with transparent and FRAND (fair, reasonable and non-discriminatory) conditions (Syngenta E-Licensing).

However, a large number of Syngenta's products are highly controversial – some of them even highly hazardous and toxic, and their production is associated with a wide range of issues, including serious health risks for workers whose managements fail to comply with best production practices.

Syngenta's customers

Theoretically at least, a Berne Declaration analysis published in 2013 identified over a billion farmers on around 450 million farms who constitute Syngenta's customer base, 85% of whom can be de-

scribed as small-scale farms as their surface area is smaller than ten hectares. Such farms employ 450 million farm labourers world-wide (BD 2013:4). In actual fact, however, only a relatively small number of farmers can afford to buy Syngenta's products. In 2014, Syngenta reached 15.3 million smallholding farmers, i.e. direc and indirect customers (Syngenta Annual Review 2014:01), which constitutes only about 1.5% of the world's small-scale farmers. However, farmers are increasingly market dependent, which means they must rely on being able to supply their produce and products to companies above them in the value chain. Two years previously, in 2012, 4 billion people were already dependent on agroindustry, aka the global food system, while 3 billion people, or 43% of the world population, still relied on subsistence agriculture (Rastoin 2012:12).

Production costs for agricultural 'inputs', i.e. seeds and pesticides, have risen relative to value-added wage labour costs. As agriculture has become more industrialised, the input per worker has risen as well, usually at the farmer's or producer's expense. According to a report by the FAO (Food and Agricultural Organization of the United Nations), farmer households in rural India spent 12% on irrigation and 23% on fertiliser and manure. 16% of their annual cultivation expenses on seeds, and 7% on pesticides. The cumulative 23% amount to almost five times average lease rents (5%) and are slightly higher than the 22% average labour costs (FAO 2009:12).

Seed varieties have a relatively short life cycle; new forms are therefore introduced in rapid succession, presenting great opportunities for seed producers such as Syngenta to raise their prices. As the life cycle of pesticides is longer, the marketing and specific applications of any given product are paramount.

Syngenta's Regions

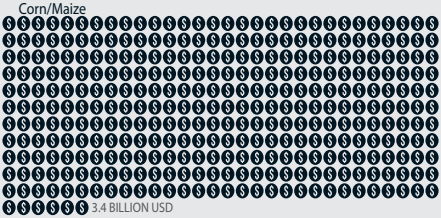
While the North American market has been of extreme importance to Syngenta historically, it is now also largely saturated. Pesticide use has reached its limit and, in terms of maize and soybean, GM varieties have already been introduced commercially. Brazil and Argentina are Latin America's core markets where Syngenta is hoping to expand further.

In Europe, where genetic engineering has not (yet) made a break-

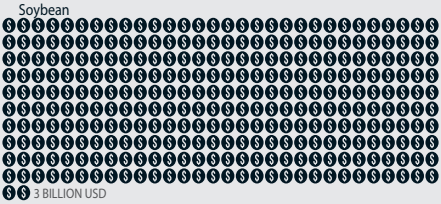
Key Performance Data Syngenta 2014

Crop Sales

Corn/Maize



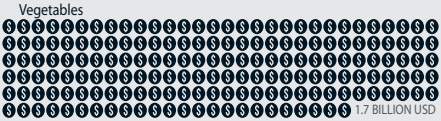
Soybean



Specialty Crops

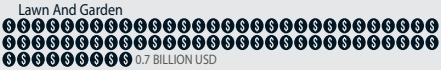
Cereals

Vegetables



Diverse Field Crops

Lawn And Garden

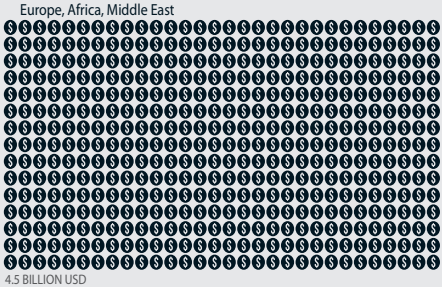


Rice

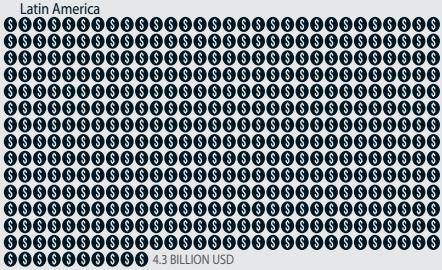
Sugar Cane

Regional Sales

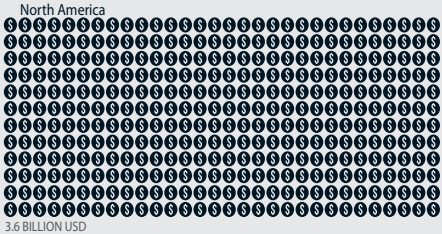
Europe, Africa, Middle East



Latin America

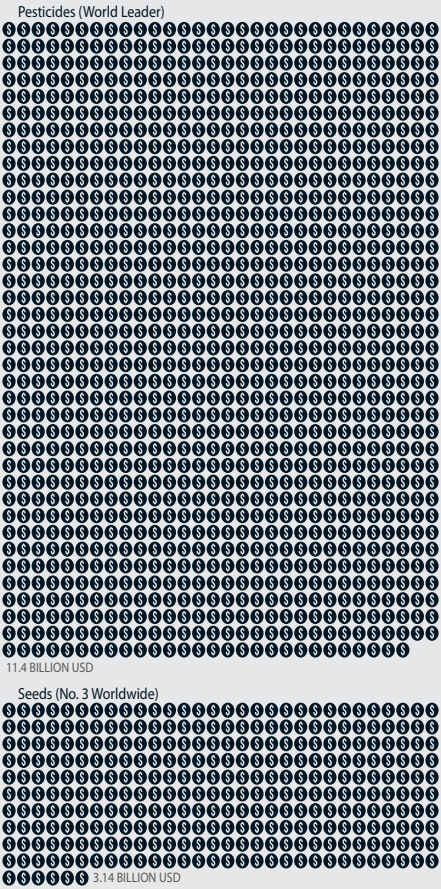


North America

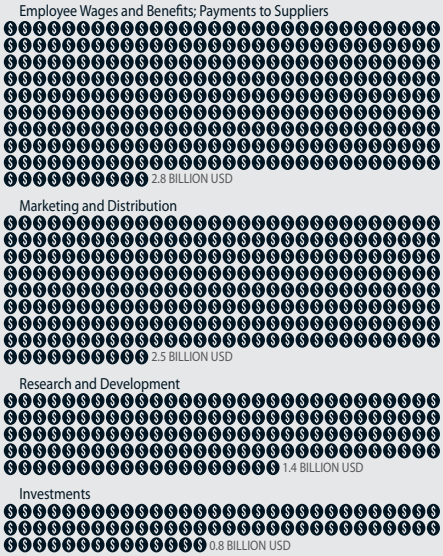


Asia / Pacific

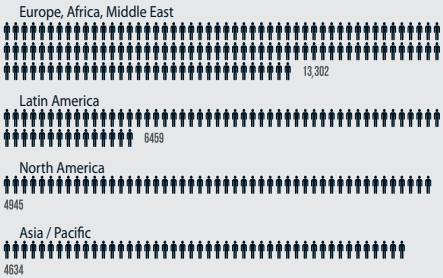
Regional Sales By Product Group



Costs / Expenditures



Employees



Group Sales: $15.13 billion
29,340 Employees

Production and Supply Sites
Switzerland, UK, USA, France, Brazil, China
India (by order of importance)

Research and Development Sites
Switzerland, UK, USA, India, China (by order of importance; approx. 5,000 employees in total)

Earnings
Nett Group Sales: $15.1 billion
Cash Flow Return on Investment: 11 %
EBITDA: $2.9 billion
EBITDA Margin: 19.3% (2013: 19.7%);
Target By 2010: 24 To 26%).
Investments: $0.8 billion

Earnings per Share: $19.42
Dividend per Share: CHF 11.00

Share Prices 2015 (SIX Swiss Exchange)
High: CHF 280.00 (16 January 2015)
Low: CHF 435.20 (29 May 2015)

Share Capital: CHF 9.3 million
Total Market Capitalisation:
CHF 29,331 million ($29,654 million)

through, the company has been marketing a very wide range of products for a great variety of crop plants. Strategically speaking, Syngenta is hoping to commercialise hybrid wheat varieties. A new, sizeable market is also expected to stabilise in Ukraine.

Syngenta's largest potential for growth by far would result if cash crops for the world market could be produced in Africa on a vast scale, which is why Syngenta and the Syngenta Foundation have been supporting international efforts to introduce capitalist agricultural systems to Africa.

In Asia, Syngenta and the entire agricultural input industry are comparatively weak in Asian countries, with China increasingly producing its own pesticides. In India, genetic engineering is widely used in cotton wool production. By contrast, GM foods have been and so far remain highly controversial. In order to maintain or expand its top positions on the world market, the company would have to come up with significant innovations in rice for the East Asian market.

In his Annual Review for 2014, Michael Mack, Syngenta's CEO at the time, noted that emerging markets represented over 50% of their sales and that 'managing more volatile conditions has become an integral part' of Syngenta's business (Syngenta Annual Review 2014:04). In other words, the company's vulnerability to economic and political upheavals, particularly in the large threshold countries, has increased.

Syngenta brands, distribution, communications and research

As part of the agricultural input industry, Syngenta has little contact with end consumers, which is perhaps why people are not very familiar with this giant multinational agribusiness company. What is more, Syngenta is present on world markets not only under its own name, it also operates under many different brand names kept on post-acquisition. Some examples include AgriPro Coker, C.C. Benoist, Hyvido, Golden Harvest and Maag; Agrisure is a U.S. gentech maize traits 'portfolio'; GoldFisch is Syngenta's brand for GM flower varieties; Hilleshög is the brand for sugarbeet seeds – and on, and on – not to mention countless brand and product names for herbicides, insecticides and fungicides.

Syngenta uses market-specific distribution channels, and also has its own marketing and sales organisations in some areas, as well as

numerous additional online services such as weather forecasts 'for the farming community', online chat facilities and call centres for direct contact. Syngenta owns model farms, collaborates with food retail chains.

A particular strategic challenge has been the distribution of seeds and pesticides to small-scale farmers, who can be difficult to reach through classic distribution networks. Here, Syngenta has engaged in co-operating with public-sector partners and, for example in India and China, with national seed and agrochemical businesses.

While Syngenta invested heavily in research and development, 1.4 billion USD in 2014, spending on marketing and distribution in 2014 was a great deal higher, at 2.4 billion USD. Around 5000 staff in some 140 R&D centres and field stations are expected to deliver innovative projects as efficiently as they can. Syngenta also collaborates very closely with international research organisations in agricultural genetic engineering. Significantly, one of them is the Consultative Group on International Agricultural Research (CGIAR), founded in 1971,

> a collaborative venture with input and funding a number of organisations including the UN, the World Bank, various national development organisations and several private foundations (Ford, Kellogg, Rockefeller). In November 2002 it was announced that the Syngenta Foundation had become a member of the governing board of CGIAR. The appointment of the Syngenta Foundation has prompted fierce criticism from NGOs involved in CGIAR (Corporate Watch 2007)

According to other sources, 'the lead in creating CGIAR was taken by the World Bank. The CGIAR's Chairman is a Vice President of the Bank' (LobbyWatch). In other words, being very closely associated with the World Bank's development policies, Syngenta's research policy is anything but a-political.

Follwing the overview on Syngenta's global operations, the next chapter will provide some key facts and figures on the company.

Notes:

1 Translator's note: In March 2015, the Japanese government estimated the global food market, excluding Japan, to rise to 7.2 trillion USD by 2020 (MAFF 2015).

2 By comparison, for 2013 the ETC Group estimated the combined annual revenue in seeds, pesticides, chemical fertilisers and farm equipment at 384 billion USD (fertilisers: 175 billion USD, equipment: 116 billion USD, seeds: 39 billion USD, pesticides: 54 billion USD; ETC Group 2015:6).

3 The measurement of a company's profitability as a percentage of its total revenue, the EBIDTA margin is equal to earnings before interest, tax, depreciation and amortisation (EBIDTA), divided by total revenue.

4 Translator's note: According to the International Wheat Genome Sequencing Consortium report published online on 27 May 2016, 'a high quality reference genome sequence for the bread wheat cultivar Chinese Spring [was] anticipated for early 2017' (IWGSC 2016).

5 Translator's note: See Part One, 'Syngenta in India'.

Syngenta's genesis

Mergers and acquisitions are 'normal' to a company that has never known different

Syngenta was founded in 2000 from the spin-off and merger of Novartis and AstraZeneca's respective agribusiness divisions. The fact that Syngenta's corporate headquarters are located in the Swiss city of Basel is by no means accidental but related to the high relevance of Novartis, one of the parent companies. In his study published in 2005, Swiss historian Lukas Straumann examined how and why chemical methods of pest control became well-established in Switzerland by about 1950. He focused on the key interest groups involved, i.e. the state, industry, and public-sector research institutions; the effects of World Wars I and II, and specific circumstances in Switzerland, which favored pesticides over alternative approaches (Straumann 2005; Harwood 2008).

In its present form, therefore, Syngenta is a fairly young company. But it has emerged from a much older industrial tradition. Let us look at its British arm first before turning to the company's Swiss origins.

AstraZeneca's agribusiness division also reaches back some time, to the early days of pesticide production by British Imperial Chemical Industries (ICI), formed on 7 December 1926 by the merger of four chemical companies (Brunner, Mond & Company Limited, Nobel Industries Limited, British Dyestuffs Corporation Limited, and United Alkali Company Limited. 'Its purpose was to create a British company capable of competing in world markets with large corporations such as DuPont in America and IG Farben' (ICI Factbook). IG Farben is short for I.G. Farbenindustrie AG. *The German cartel was established in December 1925 by a large number of leading German chemical companies, including BASF, Bayer and Hoechst.*

Until the 1990s, ICI was Britain's largest manufacturer. Like other chemical companies, it was highly diversified, producing che-

micals, dyestuffs, paints, food ingredients, flavourings, pharmaceuticals, plastics and speciality polymers and, in its Agricultural Division, fertilisers and insecticides. In 1928, work began at ICI's first Agricultural Research Station in the UK (Syngenta History).

For ICI, too, World War II was a period when it rushed to develop agrochemicals. The company also played an important part in Britain's war-time industry and, later in the twentieth century, when the notorious Agent Orange, a powerful defoliant and weedkiller was used in so-called 'herbicidal warfare', chiefly in Vietnam (see next chapter, Agribusiness and warfare).

In the Basel area, the 18th and 19th centuries saw the establishment of three of Syngenta's key predecessor companies: Johann Rudolph Geigy's trading company for chemicals and dyes was founded in 1758 (Novartis 2016; Colorants History 2009). In 1886, Edouard Sandoz and Dr. Alfred Kern established a dyestuff factory in Basel (Novartis 2016; Colorants History:Sandoz). Ciba, the Gesellschaft für Chemische Industrie in Basel *(Society of Chemical Industry in Basel), began producing dyes in 1859, and was formally established in 1884 (Britannica 2016; Colorants History 2007). Their small chemical businesses evolved into natural dye manufactories.*

Another part of Syngenta's history began during the Wine pest epidemic that almost wiped out Europe's entire wine industry: in French-speaking Switzerland in 1874, carbon disulphide solutions began to be sprayed in vineyards in an attempt to combat Phylloxera, *an aphid-like insect (*Phylloxera *on Wikipedia).*

Sixty-five years later, Paul Müller, a research chemist at J.R. Geigy SA, discovered the insecticidal efficacy of DDT in 1939,1 for which he would receive the Nobel Prize in Medicine in 1948 (DDT on Wikipedia – E).

When the process of producing dyes from coal tar was discovered in the mid-19th century, and patented in France, Basel emerged as a convenient location as the process did not fall under Swiss patent law, which had only been introduced in 1888 (Kilchenmann 2004). Geigy, Sandoz and Ciba soon became involved in the production of coal-tar dyes for the textile industry. As early as 1918, they established Basler IG, *the Basel Community of (Chemical) Interests – shortened to Basel C.I. – to strengthen their position against in-*

ternational competition in the budding chemical industry. Locally nicknamed Basler Chemie*, Basel C.I. went on to become one of the pillars of the Swiss cartel system (Colorants History 2007; HLS 2014). Ciba and Geigy merged in 1970 to form Ciba-Geigy.*

The rise of pesticide production

Dr. R. Maag AG in the small town of Dielsdorf in north-eastern Switzerland was the first Swiss company to produce chemical pesticides from 1920.[2] The 1930s – a key decade for Syngenta – saw Basel C.I. entering the agrochemicals sector by directing their research, development and production capacities towards synthetic pesticides. Moreover, the Rhine River flowing past Basel not only provided a great ready-made transport artery, at the time the river was also considered a perfect and cheap dump for chemical waste (and much else).

As mentioned above, Geigy made the first great breakthrough when the high insecticidal efficacy of DDT was discovered in 1939. Basel's chemical companies became key actors in the pesticide business during World War II, when DDT and other agrochemicals began to be 'widely used to protect Allied troops and civilians from malaria, typhus and other insect-borne diseases [and] "Geigy sold DDT both to the Germans and the Allies", [according to] Straumann, who examined the role of Swiss chemical firms for an international panel probing Switzerland's wartime past' (Swissinfo 2003).[3] From 1942, DDT was marketed under the trade names Gesarol and Neocid (Straumann 2005:203 ff). Exports to Germany and the U.S. swiftly put both Geigy and the two other Basel C.I. members on the international map.

Over two decades earlier, to avoid high U.S. tariffs, 'the Swiss conglomerate [had] purchased the colorants business of the Ault & Wiborg Co. which had plants in […] Cincinnati, Ohio', in 1920, thereby gaining a foothold in the U.S. (Colorants History 2007). U.S. production of DDT began at Basel C.I.'s Cincinnati Chemical Works in 1943; licensing agreements also enabled DuPont, Merck and Hercules to produce DDT. In other words, DDT is a uniquely symbolic product for the transformation of Basel's chemical companies from dye traders and manufactories into corporations with diversified portfolios (Straumann 2005:254; Colorants History 2007).

In the 1950s, Switzerland's *Maikäferkrieg* constituted the 'high

point' in the use of DDT and of similar insecticides in the HCH group, including Lindane.[4] Accompanied by a media campaign using wartime rhetoric against the 'aggressive' Cockchafer (*Melolontha melolontha*), the insectidices were tested in huge field trials that involved spraying from aerosol and motorised sprayers, airplanes and helicopters. However, the toxins also killed the cockchafer's natural enemies such as 'true bugs' (*Heteroptera*); other important insects including honeybees were also killed or damaged, prompting beekeper protests against the campaign (see Uni Landau 2008:slide 15). There were also vehement protests against the pollution of drinking water. 'In the United States, Rachel Carson's *Silent Spring*, published in 1962, highlighted the environmental problems and notably its impact on birds of prey' of DDT (Swissinfo 2003).

Despite the spectacular successes of DDT in the WHO's malaria eradication programme, long-term residual and other side effects of DDT and HCH products caused environmental alarm and a loss of confidence in chemical methods of pest control. The US and Switzerland banned DDT in 1972; many other countries followed suit in the 1970s. 'In 2001, more than 120 countries signed up to a global treaty – the Stockholm Convention – banning the use of 12 chemicals known as Persistent Organic Pollutants' (Swissinfo 2003; DDT on Wikipedia – G/E).

Golden years and downturn; the seed market beckons

The economic boom years from 1945 until the early 1970s saw both ICI and the Basel C.I. expand rapdily. Mass production and ever expanding markets allowed a steady rise in productivity and profits, an economy of scale lubricated by relatively cheap oil. The expansion period was accompanied by aggressive diversification, which was no doubt also designed to help spread the risks. After 1945, ever more industrialised agriculture went hand in hand with the expansion of the agrochemical industry and its products including insecticides and herbicides such as Ciba-Geigy's atrazine for use in the vast maize plantations in the U.S. Those twenty-five years or so were truly golden years for agrochemical businesses.

The great oil crisis of 1973 brought a massive downturn which translated itself into the economic crisis of 1974–76. Facing lower

rates in growth and productivity, and drastically intensified competition, the chemical companies attempted to recover their boom-year investments and to hold on to their high profits. A new expansion strategy was launched; they began to market their products aggressively all over the world.

It was in the 1970s, for example, that Ciba-Geigy entered the Latin American market, where it soon produced and distributed pesticides on a large scale. Soon, however, overproduction began to depress the herbicide market.

The chemical companies moved into the seed market: Ciba-Geigy acquired U.S.-based Funk Seeds International in 1974, while Sandoz bought the American Rogers Seeds Company in 1975. The acquisition of Northrup-King in 1976, of Dutch Zaadunie Group in 1980,[5] and of the Swedish seed company iHillesh'g in 1989 turned Sandoz into the world's second-largest seed company (Sandoz History:1967). Forming the rearguard in terms of the seed business, ICI acquired Belgian seed company SES Europe in 1987. ICI then 'decided to station all its seed activities in Zeneca, a separate international company. The name SES Europe existed until 1996, when Zeneca and Cosun merged into Advanta, the world's fifth largest seed company' (SES-VanderHave 2016).

From restructuring efforts to the creation of Syngenta

The 1980s were a transition period. Competition grew fiercer; cost pressures increased. Companies responded by cutting overheads, chiefly by reducing the number of staff at their Administration, Research and Development departments. Things were particularly drastic at Sandoz: In 1980, Rolf Soiron, the then 35-year-old Sandoz CFO, commissioned McKinsey & Co. (Switzerland) to carry out an Overheads Value Analysis, which resulted in the loss of 1800 jobs, mostly in the company's Admin and R&D divisions, by 1982 (Schäppi 1984).[6]

However, while all the cost-cutting, downsizing and streamlining exercises did manage to increase profits in industrialised centres from the mid-1980s onwards, margins in the 1990s never returned to boom-time levels. Europe's chemical and pharmaceutical therefore followed the lead of their competitors in the U.S. that had already made the shift to massive restructuring according to three tenets, i.e.


RAG
RAG

shareholder value, the life-sciences concept, and the intensive centralisation of capital by means of acquisitions, spin-offs and mergers.

Owing to structural issues and lower rates of growth and productivity, however, the outcome was less an increase in investments than a widening gap between investments and profits, and the increasing dominance of financial capital, i.e. banks, insurance companies, pension funds, and the so-called 'locusts', i.e. investment funds and similar speculative instruments.

This financialisation prompted companies to adopt a new corporate strategy geared, in particular, towards highest-possible capitalisation on financial markets or shareholder value maximisation, by achieving high and steadily rising stock-market prices for their own shares. It is a strategy that has generated speculative profits, and has also been beneficial to the companies themselves insofar as high market capitalisation widens the scope for acquisitions and takeovers, whereas low market capitalisation entails the risk of being taken over. Also, while high profitability is a cornerstone of the capitalist method of production, the shareholder-value approach not only considers current profit rates, but expected increases as well.

This is precisely why the life-sciences concept gained traction at the time. In the early 1990s, biotechnology and genetic engineering were considered to be the technologies of the future, and key to future growth and profit (Menz et al. 1999), which explains why various corporations shifted the focus of their core business on life-science sectors such as pharmaceuticals, food, seeds and agrochemicals.

When changing conditions lead to stagnating internal growth and productivity, profit maximisation through external growth, i.e. through mergers and acquisitions, becomes a great deal more important. In the competitive struggle, the maxim is to 'eat or be eaten'. Do we need to say that neoliberal politics have strongly encouraged and promoted this development?

In Basel, the shift towards implementation of these principles occurred in the 1990s. It was led by Sandoz CEO, Marc Moret.[7] Even

Schweizerhalle near Basel, Switzerland, November 1986: After a disastrous fire, workers in hazardous material suits are decontaminating the site of Syngenta predecessor, Sandoz

before Sandoz took over Ciba-Geigy in 1996, Moret had shifted his company's focus to life sciences: in 1995, the new speciality chemicals company, Clariant, was spun off – not least to boost Sandoz share values.

By contrast, Ciba-Geigy and its CEO, Alex Krauer, held on to the diversification model for longer, without managing to increase the company's stock-market value.

The situation culminated in the takeover of Ciba-Geigy by Moret's Sandoz in 1996. Novartis was created, one of the largest-ever companies at the time, and a predecessor company to Syngenta. Moret appointed as his CEO Daniel Vasella, his nephew-in-law (Pöhner 2016:102). Vasella quickly embraced the shareholder-value approach outlined above and turned the focus of the new giant's business strategy to life sciences.

Novartis was now the market leader in pesticides, a position still held at the time of writing by Syngenta. Initially, however, Novartis expanded its agricultural division by acquiring Merck & Company's crop protection business in 1997 (NYT 1997), and the majority of Eridania Béghin-Say's seeds activities in July 1999 (Zeller 2001:259; SeedQuest 2016). Moreover, the Genomics Institute of the Novartis Research Foundation (GNF) was created in San Diego, CA, USA, in 1999 (GNF at Wikipedia).

ICI, Novartis' counterpart in Britain, underwent similar restructuring processes. Having become

> the first British company to make profits of £ 1bn [by 1984.]
> But, after fighting off a hostile takeover from Hanson, ICI shrank in the 1990s, demerging its pharmaceuticals division [in 1993] as Zeneca (now part of AstraZeneca) and disposing of various other businesses.
> Burdened by increasing debts, the company fell from favour (Telegraph 2007).

Zeneca Group plc was designed to be a bioscience company. The 1993 'demerger' from ICI also included agrochemicals and speciality chemical products. In 1999, Zeneca merged with Swedish pharmaceutical company, Astra AB, creating AstraZeneca plc, one of the world's largest pharmaceutical businesses at the time,[8] and the world's

third-largest agrochemicals company after Novartis and Monsanto. AstraZeneca eventually abandoned the life-sciences concept.

In the meantime, the shareholder-value approach and 'addiction to mergeritis' (Adams/Brock 2003/2006) have proved to be far more tenacious than the life-sciences concept. The agrochemical sector has failed to deliver because, for one thing, public resistance to genetic engineering has been far greater in this sector than in terms of pharmaceuticals and human medicine. Moreover, biotech, and so-called 'green' genetic engineering in particular, has turned out to be anything but a sector of growth (Levinson 2006). Rather than creating new markets, genetically modified seeds have replaced traditional products, systems and structures. It is only the highly controversial strategy of patenting genetic traits that has enabled industrial (GM) seed production to be as highly profitable as it has been; it is a strategy that has driven farmers and growers into the greatest possible dependency on their suppliers.

The hoped-for synergy effects between pharmaceuticals and agrochemicals failed to materialise due to insurmountable differences in terms of R&D and marketing (Streckeisen 2001). Profitability in the Novartis agricultural division fell from 19.7% in 1996 to 10.4% in 1999 (Zeller 2001:269), a profit margin that was deemed too narrow. In 2000, the division was therefore 'demerged' from Novartis, and offloaded onto Syngenta, a new company created from the merger with AstraZeneca's agrochemicals division. It may also be surmised that, by getting rid of Novartis' agricultural arm, Vasella, the CEO at the time, attempted to silence criticism against genetically engineered seeds.

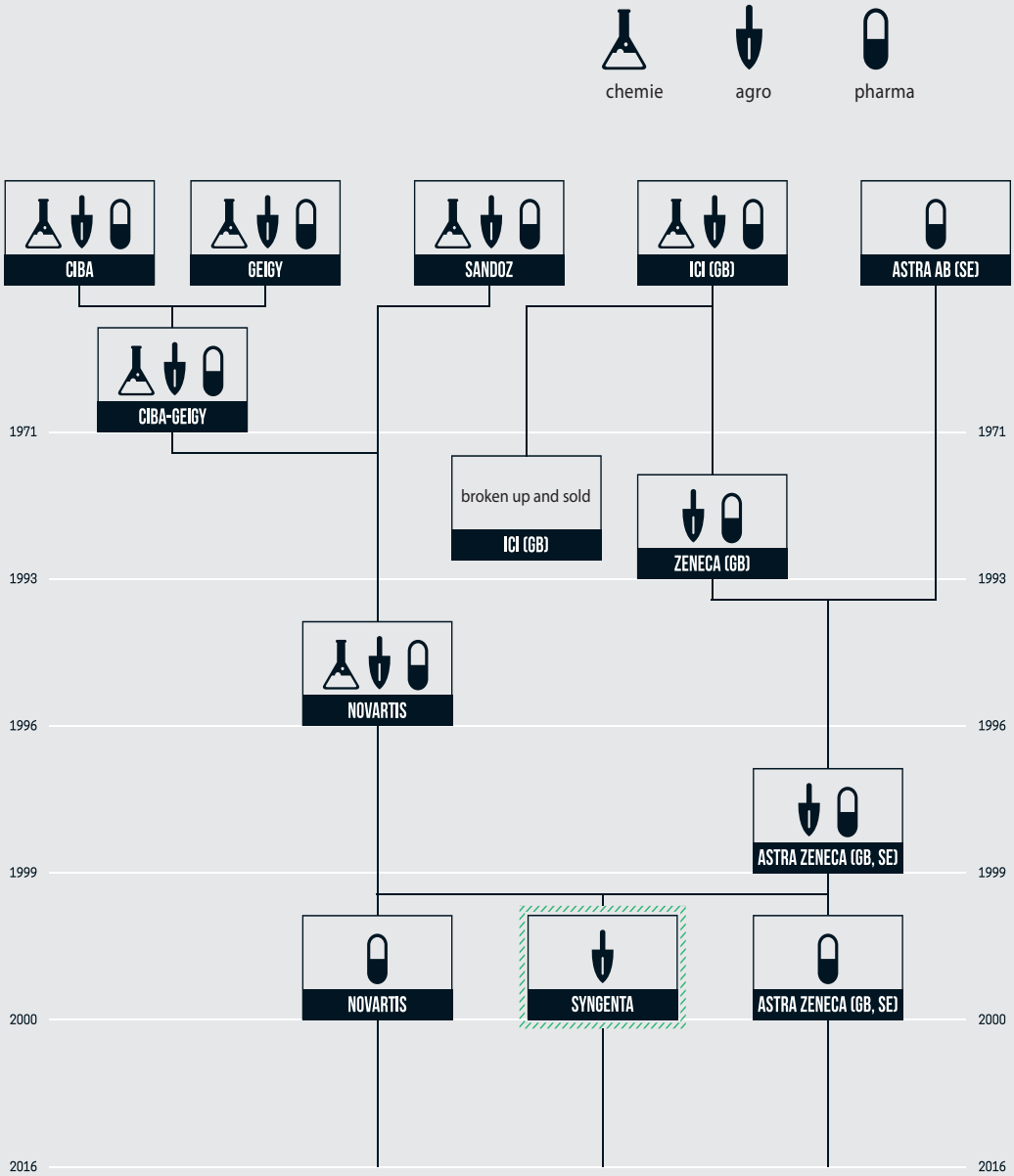
The merger

When Syngenta[9] was created on 13 November 2000, Novartis shareholders received 61% of the new shares, with the remaining 39% going to AstraZeneca shareholders (NYT 1999). The percentages reflected the size of their respective businesses. Not included in the merger was AstraZeneca's 50% stake in Advanta BV – Syngenta acquired the company in 2004.

The focus of the newly-created company lay on seeds and pesticides: 'Syngenta [was] the first global group focusing exclusively on

Creation of Syngenta

Overview of mergers and selected major takeovers that led to the creation of Syngenta.



agribusiness' (Syngenta History), putting it in direct competition with Monsanto, headquartered in Creve Coeur, MO, USA (Monsanto at Wikipedia).

Syngenta has three campuses or research centres, one in the small town of Stein in north-eastern Switzerland, one in the village of Jealott's Hill in Berkshire, UK, and a third one at the Research Triangle Park in Durham, NC, USA. Owing to the British Commonwealth, and Switzerland's highly export-oriented approach, research and production have always been highly internationalised both in the UK and in Switzerland. The same is true for Syngenta's management and capital structure. As has been said in the Prologue, the company's headquarters are located in the Swiss city of Basel. However, neither the management nor the capital structure of Syngenta are Swiss. These days, the company can therefore scarcely be considered Swiss (see chapter on Syngenta's shareholders). In 2005, Syngenta announced the resignation for health reasons of its Chairman of the Board, Heinz Imhof, who had joined Sandoz as a young graduate.[10] British-born Martin Taylor succeeded him as Board Chairman. In 2012, Belgian/Swiss national Michel Demaré replaced Taylor on the Syngenta Board. Syngenta's first CEO was Michael Pragnell, formerly the CEO of Zeneca Agrochemicals, and a neoliberal of the highest order, who retired at the end of 2007, and was replaced on 1 January 2008 by U.S. national Michael (Mike) Mack, who had been the COO of Syngenta Seeds, and in his turn stepped down in October 2015 (Syngenta Global 2015).[11]

Syngenta since 2000 – a brief overview

As Syngenta's activities, strategies, products and problems are treated in greater depth elswhere in this book, the following section merely provides a brief overview.

Very much a product of the neoliberal era, Syngenta is a company with a strong focus on shareholder values. In the agricultural sector, it is among the dominant companies that have carved up their markets. However, in fragmented markets and when competitive pressure is high, internal growth becomes a challenge, which is why the strategic focus shifts to mergers, acquisitions and partnerships. Since its foundation, Syngenta has acquired numerous companies and entered

into various partnership agreements. Also of great relevance was the company's announcement in 2012 that it would 'invest more than $ 500 million to build a $1 billion business in Africa over 10 years' (Syngenta History).

When Syngenta started out, it had 23'500 staff and employees, but the plan was to slash costs by over 500 million USD, and to cut some 3,000 jobs. At the time of writing, Syngenta and its more recently acquired companies employed 29,340 people in 90 countries. In Switzerland, its 3,000 highly qualified and highly specialised staff enjoy privileged conditions. In turn, they are expected to deliver on extremely high expectations, and to bring serious commitment and loyalty, greatest efficiency and a fresh, innovative mindset to their jobs (Herzog/Schäppi 2014; see also Part Three, chapter on Labour conditions and industrial disputes).

Its shareholder-value approach also means that Syngenta has no surplus staff, on the contrary: jobs are cut wherever and whenever possible; conditions are downgraded periodically: in February 2012, the company announced 'net annualized savings of $ 650 million' by 2015 (Syngenta 2011 Full Year Results), and in November 2014, the 'implementation of its Accelerating Operational Leverage program [was expected to achieve] savings of $ 1 billion by 2018' (Syngenta 2014).

Syngenta's company history since 2000 contains an impressive number of innovations, new products, takeovers and strategic partnership agreements that range across a broad spectrum. This suits a company that is among the global giants. Syngenta clearly wishes to expand and strengthen its position, most notably in terms of maize and soybean seeds, and by increasingly pushing into southern-hemisphere markets, as well as engaging with other big agribusiness companies such as John Deere, DuPont and Limagrain (Syngenta History).

Nevertheless, it is difficult to dismiss the impression that Syngenta's day-to-day business with seeds and pesticides is slowly being eclipsed by financial concerns as well as mergers & acquisitions. It would therefore come as no surprise if the relatively volatile stock market was being used and managed for arbitrage (buy low, sell high) transactions.

In its strategic statement, Syngenta claims that it wishes to

> help address one of the planet's most challenging dilemmas: how to grow more crops using fewer resources [in order] to bring greater food security in an environmentally sustainable way to [the] world [through a] breadth of technologies [and] broad-based innovation for the future (Syngenta Strategy).

Guided by ruthless shareholder values, however, the company has actually been pursuing a business policy that aims at continued growth, profit maximisation, highest-possible market capitalisation, including high dividends, and a steadily rising share value. Less profitable segments have been 'offloaded' to focus on high-value pesticides and strategic GM plant products. By positioning itself as a provider of 'integrated offers' Syngenta aims to increase and strengthen its long-term hold on food production (see Herzog/Schäppi 2014).

Alongside its successful ascent to the top tier of global agribusiness companies, Syngenta's history has also been plagued by serious ecological problems and scandals related to products such as Geigy's DDT in the 1950s; Ciba-Geigy's Galecron (1976-1988)[12] and atrazine[13] since 1985;[14] the ICI's paraquat since 1962,[15] and – currently – Syngenta's glyphosate and bee-killing neonicotinoids.

At the time of writing, however, Syngenta's primary vulnerabilities from a capitalist perspective stemmed from its stagnating profitability and from the fact that it was still trailing well behind Monsanto and DuPont in terms of seeds. Of course CEOs prefer to acquire new companies to being 'absorbed' by their competition, which is why, in summer 2015, Syngenta rejected a merger with Monsanto. However, Syngenta may well be forced to make some major 'adjustments' in its Agricultural Division soon.

In October 2015, following the Monsanto turmoil, CEO Mike Mack surprised everyone when he stepped down, perhaps for failing to significantly improve the company's profitability and market capitalisation. It is very likely therefore that the company will henceforth steer an even more shareholder-value oriented course involving acquisitions and divestments, and expectation that gains traction from the fact that, in October 2015, the Board appointed Syngenta CFO, John Ramsay, as CEO *ad interim* (Syngenta Global 2015).[16] What

if Syngenta's history were to come to a swift conclusion after just sixteen years or so? In an interview with the highly respected Swiss financial paper *Finanz und Wirtschaft*, Syngenta Chairman Michel Demaré openly declared, 'Given what shareholders expect for the next 12 months, going it alone is hardly possible' (Reuters 2015, quoting *FuW* 22 Dec. 2015; see also Postscript of 2 February 2016: ChemChina's offer and the last round in Global Agropoly).

Having dealt very briefly with the company's history, the next chapter looks more closely at its darkest chapter of agrochemicals and war.

Notes:

1 Translator's note: Dichloro-diphenyl-trichloroethane, a halogenated aromatic hydrocarbon, was first synthesised in 1874 (DDT at Wikipedia).

2 Translator's note: The Maag Group was acquired by one of Syngenta's predecessor companies, Ciba-Geigy, in 1990 (Syngenta History).

3 The analysis of Swiss chemical companies in the Third Reich was part of the so-called Bergier Report (Straumann/Wildmann 2001).

4 Lindane, (gamma}-hexachloro-cyclohexane, is a CHC.

5 Translator's note: The acquisition included Sluis & Groot (S&G), established in 1867, a major marketing company for Zaadunie. 'S&G is one of the three brand-names within Syngenta Seeds' (Syngenta History and Syngenta Historie NL).

6 Translator's note: With a PhD in history, Soiron joined the Sandoz Group in 1970; he left after the McKinsey exercise and rejoined the company in 1980, stepping down as CEO of Sandoz Pharma Ltd in 1992 (Sandoz 1993; Soiron CV; Soiron at Wikipedia).

7 Translator's note: Moret is distantly related to the former Chairman of the Novartis Board, Daniel Vasella, whose wife is Moret's niece. Having resigned from his post with Novartis in 2013, Vasella led a 'nomadic life' for three years, including the tax haven of Monaco, before returning to the village of Risch in the low-tax canton of Zug, Switzerland (Blick 2016).

8 Translator's note: Measured by 2012 prescription drug sales, AstraZeneca was then the world's 7th-largest pharmaceutical company (AstraZeneca at Wikipedia).

9 Translator's note: According to Syngenta's company history, the name combines 'syn-', Greek, as in 'synergy, synthesis') and 'gens', Latin for 'people, community' (Syngenta History).

10 Translator's note: On 13 October 2008, Syngenta regretfully announced Imhof's death (Syngenta Global 2008).

11 Translator's note: In early June 2016, the Syngenta Board of Directors consisted

of 8 members of six different nationalities: 3 Swiss, 1 Belgian/Swiss, 1 British, 1 German, 1 Indian, 1 Swedish (Syngenta Global June 2016).

12 Translator's note: According to Multinational Monitor, 'One of the most appalling episodes in Ciba Geigy's history occurred in 1976 in Egypt, when the company paid six boys to stand in a cotton field while it was sprayed with the insecticide Galecron in a test to see how much of the chemical would be absorbed into their bodies. Galecron was long suspected to be a carcinogen, but it was not until 1988 that Ciba Geigy agreed to pull it off the market. In the United States, the company recalled the product from farmers after the Environmental Protection Agency (EPA) announced it would make distribution or use of the pesticide illegal.

'Remarkably, the Galecron incident was not the first to involve tests of this nature. According to Greenpeace, in 1975 the company's Indian affiliate Hindustan Ciba Geigy sprayed the pesticide monocrotophos on more than 40 Indian children and adult volunteers over the course of four days. The World Health Organization classifies monocrotophos as highly hazardous, and the EPA considers it a highly toxic organophosphate that is neurotoxic to insects and animals.' (Knaus 1993).

13 Translator's note: In 1956, 'Geigy introduces triazine-based herbicides (Simazine, Atrazine) allowing farmers to control weeds for the first time' (Syngenta History).

14 Translator's note: In 1985, 'an accident at a company facility in Basel, Switzerland led to the release of a large amount of the herbicide atrazine into the Rhine River' (Knaus 1993).

15 Translator's note: In 1954, ICI 're-evaluated [a group of] chemicals originally discovered in 1947 […] leading to the discovery and development of diquat and paraquat' (Syngenta History).

16 Translator's note: On 4 May 2016, the company announced the appointment of U.S. national J. Erik Fyrwald as CEO, from 1 June 2016 (Syngenta Global May 2016).

Agribusiness and warfare

Close link between pesticides and 20th-century warfare

Among the insecticides produced by Syngenta is one that protects fruit, vegetables, potatoes and soybeans. Its name is Warrior II. Could there be any clearer evidence of the close link between war and insecticides? During World War I, poison gases killed some 100,000 soldiers. During that same period, entomologists1 began to co-operate with chemical warfare specialists. The historic link between Syngenta's predecessor companies and the wars of the 20th century means that warfare has fathered a wide range of pesticides.

Explosives, insecticides and World War I

Explosives are made from the same compounds as synthetic fertiliser,[2] i.e. ammonia (NH3) and nitric acid (HNO^3). Agrochemical companies were therefore ideally placed to produce explosives and would simply go back to producing fertiliser in post-war periods.

Created in 1926, the British conglomerate Imperial Chemical Industries (ICI) was among the key explosives manufacturers during both world wars. ICI managed numerous so-called Agency (munitions) Factories constructed with UK Ministry of Supply funding (ROF at Wikipedia). One of ICI's partner companies in the UK was ICI Nobel in Ardeer, Scotland, founded in 1870 by Swedish chemist and industrialist Alfred Nobel, who had also founded Nitroglycerin AB in Vinterviken, Stockholm in 1864 and, having found some German business partners, launched Alfred Nobel & Company near Hamburg, Germany, in 1865.[4] In Germany, Nobel had invented a new explosive, Dynamite,[5] which he patented in England and Sweden in 1867. Although it rapidly gained wide-scale use as a safer alternative to gun powder and nitroglycerin, Dynamite also proved too dangerous for wider use on the battlefield (Dynamite at Wikipedia).

> Early in World War I, it was found that mixtures of molten TNT and ammonium nitrate were almost as effective for shell loadings as pure TNT. […] known as amatol[, their] principal advantages were that

> they made the supply of TNT go further and were considerably cheaper. In World War II the amatols were used in aerial bombs as well as artillery shells (Amatol at Britannica).

The first chemical weapon to be used during World War I was chlorine gas. It can cause severe airway irritation and damage (NYS Dept of Health 2011). In 1916, a method for the large-scale production of sulfur mustard, or mustard gas,[6] was invented for the Imperial German Army (Sulfur mustard at Wikipedia).

In his book, *The X Site, Britain's most mysterious government facility*, Tim Jones described the effects of mustard gas, which

> attacks the skin, exposed organs and respiratory tracts, and although it may be detected by its faint garlicy odour, its impact on skin is not immediately obvious, making it a particularly effective weapon of surprise attack. Exposure to this carcinogen can result in awful blistering, lesions, lung and eye damage, bronchitis, and a painful death (Jones 2001).

Late in the war, 'Berlin invented arsenic compounds […] which, while not lethal, caused uncontrollable sneezing or nausea that forced victims to remove their masks, thus exposing them to lethal gases' (Citizendium 2016; Chemical warfare at Wikipedia). Even before World War I, arsenic had been put to agricultural use, against the Colorado or Potato beetle, for instance (see 'Colorado or Potato beetle, DDT and warfare', below).

Chemical research projects for military and crop-protection purposes proved to be mutually beneficial both to the chemical industries in Germany and the UK (ICI). During World War I, the U.S. War Department conducted research on numerous active insecticide ingredients, both for chemical warfare and in the context of feeding the troops as well as fighting all manner of 'ailments that commonly afflicted soldiers' due to insects 'capable of transmitting parasites and germs':

> By 1918, scores of expert entomologists, commissioned and non-commissioned, had left for Europe, where they lived in Army camps and worked to control insects that carried disease in military camps (McWilliams undated).

In other words, among other things, World War I led to the rise of the pesticide industry and the introduction of the first synthetic insecticides. After the war, many former British Army experts in chemical warfare went to work at ICI's Jealott's Hill Research Station (now owned by Syngenta).

Inter-war period, World War II and nerve poisons (neurotoxins)

In the colonial war that followed the revolt and declaration of independence from Spanish occupation as well as from the Moroccan sultan of Berbers and other ethnic communities of the Rif, and the creation in September 1921 of the Confederal Republic of the Tribes of the Rif (Berber: *Tagduda n Arrif*), both Spanish and French troops used mustard gas at about the same time that this and other chemical weapons (CWs) were banned (Rif Republic at Wikipedia).

Ratified in June 1925, the Geneva Protocol on Gas Warfare 'prohibited the use of asphyxiating and poisonous gases and bacteriological weapons in international conflicts' (Arms Control at Britannica). Even though the protocol left a gaping loophole regarding 'national' conflicts, Japan refused to sign. From 1932 until 1945,

> Japanese Imperial Army's Unit 731 killed [tens of] thousands of Chinese and Russians [prisoners] in Japanese-occupied Manchuria, in experiments to develop chemical and biological weapons. […] At the outbreak of the Wusung-shanghai campaign on August 13, 1937, the Japanese army used poison gas against Chinese troops' (WW II in the Pacific).

Nor did the Geneva Protocol of 1925 prevent the Italians under Mussolini from using poison gases in Abyssinia (Jones 2001).

> […] as tensions increased in Europe over the rise of Nazi Germany, the Western Powers contemplated cranking up their CW research and development. The view was that, if 'the other side' had dem, then so should we, if only to act as a deterrent to their deployment 'in the field'. By 29 January 1937, concerns amongst British government officials and industrialists had grown to the extent that a meeting was convened in Whitehall[7] to discuss a new CW programme. The meeting was chaired by the Director-General of Munitions production [; …]. Imperial Chemical Industries (ICI) […] was represented by the

> Joint Manager of ICI's Special Products Department (SPD) at Western Point, Runcorn [Cheshire]. Along with his colleagues […], he agreed that ICI should produce chlorine at its factories […]. In addition, a blistering agent, (or vesicant), mustard gas, would be manufactured at ICI's main plant at Wigg Island […], near Runcorn. […]

From 1937 onwards, monthly meetings of key ICI personnel and interested government officials charted the progress of CW research and development […] (Jones 2001:Ch1).

Subsequently, during World War II, 'no poison gases were applied in battle, but a lot of research was conducted' (Paul et al 2003:13), not only at ICI but also in Nazi Germany. At IG Farben (see previous chapter, 'Syngenta's genesis'), new organophosphate (OP) pesticides were being developed by Dr. Gerhard Schrader and his team. This led to the discovery of 'new chemical nerve agents (Tabun, Sarin, Soman) superior to those available to the Allied Forces' (Schmaltz 2006). Soman was the third of the so-called G-series nerve agents to be discovered along with GA (tabun [in 1936]), GB (sarin [in 1939]), and GF (cyclosarin; see Soman at Wikipedia). In slightly different formulations, these OP compounds could also be used as insecticides. 'Bayer […] developed the phosphoric acid esters. After the war […] they made new formulations of the stuff and sold it as insecticide' (Paul et al 2003:13).

In 1952, Dr. Ranajit Ghosh La-a and J. F. Newman, chemists at ICI's Plant Protection Laboratories, discovered the extremely toxic nerve agent VX,[8] another OP compound. ICI passed their results on to the British government, who in turn passed them on to the U.S. government: 'The US went into production of large amounts of VX in 1961 at Newport Chemical Depot'. In the late 1980s, there was evidence of a combination of chemical agents having been used by Iraq against the Kurds at Halabja in 1988 under Saddam Hussein. […] 'After U.S. and allied forces had invaded Iraq, no VX agent or production facilities were found. However, UNSCOM laboratories detected traces of VX on warhead remnants' (VX at Wikipedia). Among other substances, VX resembles Methyl parathion, 'an organophosphate insecticide developed by the German pesticide company Bayer' in the 1940s. It 'has caused many health problems – particularly in developing countries – since its introduction onto the market in the early

1950s' (Methyl parathion 1995). The powerful insecticide has been used for committing suicide and deliberately poisoning other persons. In Germany, it is known as 'mother-in-law poison' or *Schwiegermuttergift* (Parathion safety at Wikipedia).

In terms of explosives, ICI Nobel's site in Ardeer, Scotland, and its World War II agency factories for the British War Office produced 35% of the combined UK's output of Cordite[9] and 15% of its combined output of TNT[10] (see ROF at Wikipedia).

Syngenta predecessor Ciba and Swiss poison-gas production

As elsewhere, public opinion on the use of poison gases had shifted in Switzerland due to the disastrous effects of poison gas use in World War I. However, on 2 February 1937, Rudolf Minger, the head of the Swiss Federal Military Department at the time, formally instructed the General Staff of the Swiss Army to draw up an active chemical warfare (CW) programme. In doing so, however, Minger 'omitted' to inform the Swiss government (Hug 1997:38).[11] At a conference held in October 1938, during which Military Department and Army staff as well as Ciba Director, Dr. E. Steinbuch, and the director of Wimmis Munitions factory, Hermann Gubler, were present, the decision was taken that Ciba, one of Syngenta's predecessor companies, should provide test facilities for the production of mustard gas (Hug 1997:40). It was only on 3 October 1939 – two years after Minger's secret instructions but compelled by the outbreak of World War II – that the Swiss government officially agreed to contract Ciba for the construction of a mustard-gas production plant in Monthey, canton Valais, with a daily output capacity of 2–3 metric tons. In the contract concluded in November 1939, Ciba was sworn to complete secrecy. Moreover, to keep a lid on these activities, the code-name 'RN1' was to be used instead of 'mustard gas'. (Hug 1997:41–43).

However, the production of mustard gas presented serious health and safety challenges, largely due to utterly inadequate safety procedures. Swiss historian Peter Hug reported that, in 1940, 23 Ciba workers suffered severe poison gas injuries; a further 31 suffered the same fate in the first half of 1941. In total, workers were on sick leave for an average of 31 or 34 days, respectively, and six workers never returned to the plant. The most common injuries were severe mustard

gas burns affecting the eyes, hands and arms. Hug's report notes that production was suspended for a time, due to unexpected storage issues as mustard gas proved to be highly corrosive.

Despite all these serious problems, however, Henri Guisan (1874–1960), who was the Swiss Army General at the time, insisted on a chemical weapons' programme, which was code-named 'RN1', and production was resumed at Ciba's Monthey plant towards the end of July 1941 (Hug 1997:43–46).

Already in the previous year, in summer 1940, large-scale army training exercises had been carried out. They involved polychlorinated naphthalene (PCN) smoke bombs produced at the Ciba plant in Monthey, and couldn't have been much more amateurish, as Hug's report revealed in 1997: In the narrow valleys of Uri alone, so-called 'Fog Patrols' or *Nebelkompanien* fired smoke bombs containing 12 metric tons of the stuff, 4 tons of pure PCN, high up into the air. The quantity would have been sufficient to kill a million cows. Cattle soon fell sick with mouth sores, salivating, refusing to eat, giving barely any milk and losing weight. More than the entire cattle population of canton Uri (12,663 in 1939) was wiped out, putting an end to good ancient cattle breeds. Toxic residues also polluted hay and the ground (Hug 1997:47). Until March 1941 the Federal Military Department denied any responsibility for the 'Fog Cow' tragedy, and refused to pay compensation to the devastated farmers. Discreetly, the Swiss Army eventually bought up 13,956 'Fog Cows' or *Nebelkühe*, most of which had to be put down. It was only in 1997 that Hug's study lifted the shroud of secrecy on this particular scandal (see also Tages-Anzeiger 2015).

In the Bernese Oberland, meanwhile, the CW unit at the Swiss Army's CW laboratory in Spiez[12] experimented with real mustard gas. Again, several accidents occurred due to completely inadequate training and protective equipment. Guisan's cynical response was that 'accidents and death were an inherent and inevitable part of waging war': *Unfälle sind ein für allemal mit dem Kriegshandwerk verbunden* (Hug 1997:54).

Regardless of all these difficulties and serious problems, the General also pushed for the production and use of other chemical weapons that had been used in World War I. Among the substances were

White-Cross class[13] lachrimogenic agents (tear gas) containing bromoacetone (BA), or chloroacetophenone or phenacyl chloride (CN, also known as 'Mace'), as well as Blue-Cross class nose and throat irritants also known as 'gas-mask lifters', including diphenylchloroarsine (DA, Clark I) and chloropicrin (PS, Clark II) (see Hug 1997:51; Gelbkreuz; Blue/White Cross at Wikipedia).

During World War II, it was Ciba Director General, Carl Koechlin (1889–1969), who liaised between Switzerland's chemical industry and the Swiss Army. In 1940, as Head of the Chemicals and Pharmaceuticals Section at the Swiss Federal Military Department's Office of War, Industry and Labour (*Kriegs-, Industrie- und Arbeitsamt, KIAA*), Koechlin formed a 'Chemical Issues Committe' (*Kommission für chemische Fragen*), initially to address explosives-related supply problems with the Swiss Army. Soon, however, issues related to the poison-gas programme were regularly discussed with the army's CW specialists. The chemical industry also provided a list of all available Swiss chemists and their various qualifications and specialisations, including those residing abroad. At the time, the scientists involved raised virtually no objections, nor did they voice many qualms (Hug 1997:67–69). One of the members of the 'Chemical Issues Committee' was Prof. Paul Karrer (1889–1971). It is a little-know fact that he was among the most vocal advocates of the Swiss poison-gas programme. Born in Moscow to Swiss parents and raised in Switzerland, Karrer had become a celebrated vitamin researcher, he was professor of organic chemistry at the University of Zürich, and the director of the Institute for Organic Chemistry at the University since 1919. As the doyen in vitamin research and a highly-regarded teacher and author of over 1,000 scientific papers, in 1937 had received the Nobel Prize in Chemistry. Moreover, he was instrumental to Swiss industrial vitamin research and production, contributing greatly to the success of F. Hoffmann-La Roche & Co. AG in Basel (HLS 2016).

By 1941, the considerable quantity of 92 metric tons of mustard gas had been delivered from the Ciba plant in Monthey, and by March 1942, Ciba had complied fully with its 1939 contract to produce 300 metric tons of mustard gas (Hug 1997:43/52). The programme was abandoned in March 1943; by 1949 the gas had been incinerated in a special facility in Altdorf, Uri (Tages Anzeiger 2015).

Colorado potato beetle, DDT and warfare

The Colorado potato beetle (*Leptinotarsa decemlineata*), also known as the Ten-striped spearman, Ten-lined potato beetle or Potato bug, is a dreaded pest of potato crops. Accidentally introduced into Europe in 1877, it was successfully exterminated at first, and many European countries banned the import of potatoes from the U.S. In 1922, the beetle was accidentally transferred to Bordeaux in France, where the U.S. maintained a military base at the time. This is where it first caused major damage, devastating some 25,000 hectares of potatoes.

In 1914 and 1934 (as well as later, in 1939 and 1944), Colorado potato beetles were again observed in several locations in Germany. In response to the fear that the beetle was swiftly moving towards Germany, in 1935, the German government created a 'Potato beetle Resistance Army' (*Kartoffelkäfer-Abwehrdienst*), which called on the entire population to be vigilant and join in the fight against the pest beetle.

For a time, DDT was the most effective insecticide against the Colorado potato beetle. Its insecticidal efficacy was discovered in 1939 – just three weeks before the outbreak of World War II – by Paul Müller (1899–1965), a research chemist at J. R. Geigy SA (see previous chapter, Syngenta's genesis). For a time, dazzled by the resounding success of its first agricultural chemical, which 'gave it a 10–15 year advantage over its competitors' (Colorants History 2009), Geigy even added the three letters 'DDT' to their company logo to underscore the fact that 'DDT and Geigy are one', as Chairman of the Board Carl Koechlin proudly declared (Knechtli 2006).

Dr. Friedrich Traugott Wahlen (1899–1985), who was professor in agronomy at ETH Zürich and was later Federal Councillor (1958–1965), promoted a national cultivation scheme, the so-called 'Plan Wahlen'. It was designed to increase Switzerland's food autonomy, which was a mere 52% in 1939. During World War II, the smallest piece of arable land, even parks in the cities of Switzerland, were planted with potatoes, sugar beets and grains; by 1945 the country's food autonomy had risen to 72% (Wahlen at Wikipedia). Wahlen and the Swiss government collaborated over DDT with Nazi Germany, which had a particular interest in the substance. Basel's chemical companies did not shy from trading with Nazi Germany: from 1934,

Geigy's production facilities in Grenzach, Germany, sold large quantities of dyestuffs, synthetic tanning products and other chemicals including DDT to Germany; PCI, Ciba's branch in occupied Poland supplied dyestuffs, pharmaceuticals and chemicals; sales at the German branch of Roche, finally, rose from 8.8 million *Reichsmark* in 1939 to 22.3 million in 1943 (Straumann 2005).

However, the

> large scale use of insecticides in agricultural crops effectively controlled the pest until it became resistant to DDT in the 1950s. Other pesticides have since been used but the insect has, over time, developed resistance to them all (Colorado beetle at Wikipedia).

The GDR government accused the U.S. of planning to destroy their socialist potato crops. In May 1950, a brochure was published claiming that Colorado beetles (Amikäfer) had been dropped from airplanes, a claim that has since been dismissed as Cold War propaganda. However, both in the British and French armed forces, the idea of using the Colorado beetle and other potato pests against Germany had been considered during World War I already, but rejected the idea for practical reasons. When French documents about biological weapons came to light during a German raid, Germany launched their own research into using the Colorado beetle; in October 1934, a field trial for the aerial mass dispersal of 14,000 Colorado potato beetles occurred near Speyer (57 beetles were later retrieved). It was only due to the military-political situation that the project was abandoned in June 1944 (Herrmann 2011:321–323).

In her seminal environmental science book, *Silent Spring*, U.S. Fish and Wildlife employee Rachel Carson (1907–1964) documented the detrimental effects on the environment – particularly on birds – of the indiscriminate use of pesticides. Carson accused the chemical industry of spreading disinformation, and public officials of accepting industry claims unquestioningly (Carson 1962). In 1981, Carson's achievements were commemorated when her portrait featured on the US-17¢ stamp (U.S. Stamp Gallery). The celebrated UK naturalist Sir David Attenborough has stated that, after Charles Darwin's *On the Origin of Species*, Carson's *Silent Spring* was probably the book that had changed the scientific world the most (see also McIntosh 2015).

The beginnings of herbicidal warfare at ICI

Early in World War II, the effort in the UK to increase agricultural production to feed the people prompted the Ministry of Agriculture to appoint

> ICI's agricultural adviser, Sir William Gavin, […] chief agricultural adviser to the Ministry. Government money had largely financed the development of Britain's first hormone weedkiller. […] At the end of the war MCPA dust was marketed to UK farmers as Methoxone or 'cornland cleaner' (Harvey G. 1997:23).

As regards MCPA and ICI, in 1936 investigations began at ICI's Jealott's Hill Research Station into the effects of plant hormones such as MCPA on plant growth. The search was specifically for a weedkiller that would not harm crops such as maize (MCPA at Wikipedia).

Also regarding crops and warfare, Judith Perera and Andy Thomas noted in the New Scientist in 1985:

> The destruction of enemy crops has long been accepted as a tactic in war, but it was the discovery in the 1930s of chemical plant growth regulators, which mimic the effect of plant hormones, that made it realistic to use chemicals for this purpose. Agent Orange contains two of these compounds – 2,4-D[14] and 2,4,5-T[15] – and works by provoking plants into frantic growth before they wither and die (Perera/Thomas 1985:34).

ICI, one of Syngenta's predecessor companies, was also involved in this particular discovery, as Perera and Thomas describe:

> When the Second World War began, ICI was working on chemical plant growth regulators and had developed one such substance – isopropyl phenyl carbamate (code-named 1313) – as a possible weedkiller. The military potential of this compound immediately occurred to the research workers, who passed details to the government. After field trials, [it] considered using [the compound] to destroy German crops, but in September 1942 Churchill dropped the scheme on the grounds of cost and because it would take too long to build a production plant (Perera/Thomas 1985:34–35).

In 1950, Geoffrey Emmet Blackman, the former head of the Botany Section at ICI's Jealott's Hill Research Station from 1927 to 1935, was appointed

> secretary of Britain's Biological Warfare Committee – a post he held until 1970. The unit studied the physiological effects of phytotoxic and allied compounds on plant growth, and set up a data bank on chemicals for the control of vegetation. It also advised on and supervised trials in the British colonies. Between 1950 and 1952, for example, trials were conducted in Tanganyika [present-day Tanzania], at Kikore and Shinyange, to test arboricides and defoliants under tropical conditions. The chemicals involved were 2,4-D, 2,4,5-T and endothal (3,6-endoxohexahydrophthalic acid). During 1952/53, the unit supervised the aerial spraying of 2,4,5-T over the Waturi peninsula in Kenya to assess the value of defoliants in the eradication of tsetse fly (Perera/Thomas 1985:35).

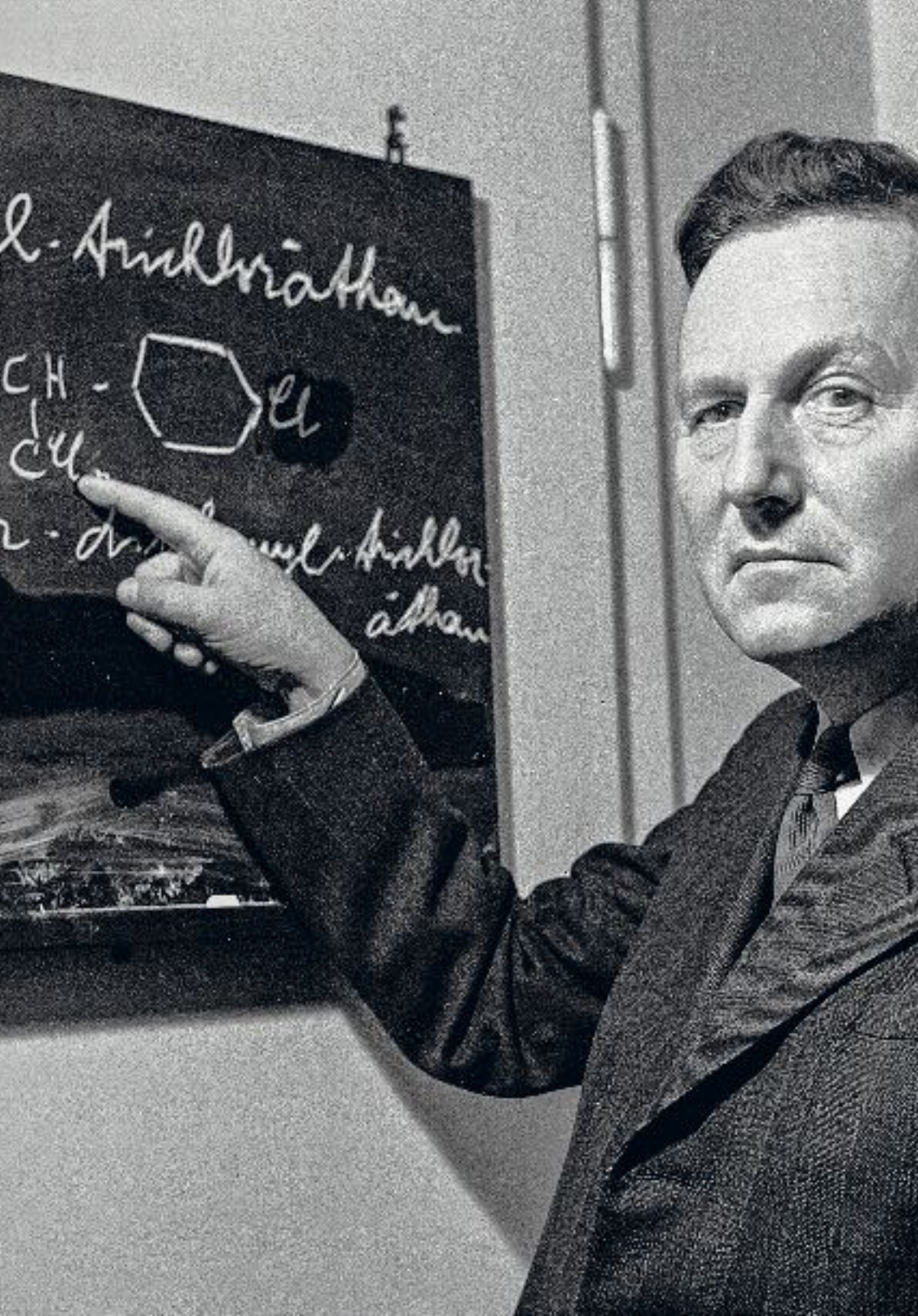
Shortly before the end of World War II, Britain and the U.S. were looking for a chemical to starve Germany and Japan into submission by killing their potato and rice crops. 2,4-D was developed as part of a clandestine wartime effort but found to be ineffective for that purpose because both crops are tolerant of it (2,4-D at Wikipedia). Nevertheless, not long

> before the end of the war in the Pacific, an American freighter was on its way to Manila with a load of potent plant killers of the 2,4-D and 2,4,5-T group. The intention was to starve the Japanese by destroying their crops by spraying the plant poison from the air. It was too late. The boat was ordered back before it arrived. Another group of Americans had dropped the atom bombs . . . Same story: […] the stuff was reformulated as 'herbicide' and unloaded on the farmers (Paul et al 2003:13).

Immediately after World War II,

> Fort Detrick, the US Army's chemical and biological warfare establishment in Maryland, examined 12 000 compounds, tested 700 and selected a few for field trials. The emphasis was still on anti-crop weapons, but the target now was food supplies in the USSR and Eastern Europe (Perera/Thomas 1985:36).

In 1939 Geigy researcher Paul Hermann Müller discovered the insecticidal effects of DDT. He was awarded the Nobel Prize for Medicine in 1948, before its disastrous effects due to bioaccumulation were revealed



Agent Orange in Malaysia and in Vietnam

However, ICI was involved in more than the development of these compounds. ICI (Malaya) also motivated British authorities to make military use of 2,4-D and 3,4,5-T (Agent Orange), by offering 'to conduct defoliation trials using products it was developing for use as weedkillers in rubber plantations' […] (Perera/Thomas 1985:36). The context was the Malayan guerilla war from 1948 until 1960, a conflict that the British colonial government chose to call the 'Malayan Emergency'.[16] In the conflict, Commonwealth armed forces sought to protect British commercial interests in rubber plantations and tin-mining industries that generated revenue of importance to Britain's own post-war recovery (Malayan Emergency at Wikipedia). Here, the British weaponised Agent Orange even earlier than American forces: 'During the early 1950s, the British on a limited basis employed herbicides to destroy the crops of communist insurgents in Malaya'[17] (Buckingham 1982:iii).

> In the 1960s ICI was quick to seize on the opportunities offered by the 'emergency' in Malaya. The company encouraged the colony's administration to embark on defoliation trials using a mixture of Trioxone (its own mix of 2,4-D and 2,4,5-T) and sodium trichloroacetate (STCA). The company was developing these compounds for use as weedkillers, so it won official support for tests it would have conducted anyway.
>
> The Malayan Administration bought 15,000 gallons of Trioxone from ICI. The trials proved unsuccessful, however: an investigation by the Standing Committee of Finance in London showed that it was cheaper to clear roadsides by hand (Perera/Thomas:Box p36).

In the decade prior to the use of herbicides in Vietnam,

> American military pilots and aircraft in [the UK] developed herbicide delivery techniques and equipment. One successful experiment conducted at Camp Drum, New York, 1959 foreshadowed what was to come later in Vietnam. […] helicopter spraying of [sugar] maples with a mixture of 2,4-D and 2,4,5-T […] caused their leaves to dry and drop about one month later, greatly improving visibility (Buckingham 1983:2).

Perera and Thomas noted that, meanwhile,

> the Malayan administration turned its attention to the use of chemicals for crop destruction. As well as testing 2,4-D and 2,4,5-T, the army tested STCA[18] and a new substance, chlorophenyl n'n' dimethyl urea (CMU), which it obtained from the US on Blackman's suggestion. Full-scale anti-crop operations began in 1953, using aerial application of STCA, which had proved to be the most effective for this purpose (Perera/Thomas 1985:36).

The British did not hesitate to pass on information to the U.S. about the experiments in their colonies, including effective chemical compounds and application methods. In the context of their increasing involvement in the war in Korea, the U.S. accelerated their anti-crop programme:

> In the last few months of the war, with information filtering through from Britain, the US began defoliation trials in Korea using a mixture of 2,4-D and 2,4,5-T similar to Agent Orange. These trials were so successful that Fort Detrick revived its own defoliation programme. With British help, the stage had been set for the massive use of defoliants in Vietnam – the ultimate testing ground for the military use of herbicides, and Agent Orange in particular (Perera/Thomas 1985:36).

In other words, Great Britain and ICI in particular, are partly responsible for some of the US-war crimes committed by the U.S. in Vietnam.

In Southeas Asia, from 1967 until 1971, the U.S. Air Force 'sprayed about 19 million gallons of herbicide, 11 million of which consisted of Agent Orange',[19] from its aircraft in a military operation code-named 'Operation Ranch Hand' designed 'to make ambushes more difficult' (Buckingham 1983:1). The herbicides came in containers of various colours (hence Agent Blue, Orange or White (see respective Agents at Wikipedia). During the Vietnam War, apart from Agent Orange, the Ciba-Geigy insecticide Diazinon and the weedkillers Primatol A (atrazine), manufactured by Ciba-Geigy, and Weedazole (amino triazole), as well as the ICI pesticides Agral, Diquat and Paraquat were also used (for quantities, see American War Library 2008).

It was only the rise of the anti-war movement, with scientists also increasingly voicing their deep concerns, that began to put a halt to this horrendous way of waging war by banning biological warfare.

The Draft Biological Weapons Convention (BWC) came into force on 26 March 1975 (BWC 2015).

Agribusiness and the war in Iraq

Former U.S. President, George W. Bush, has been a great friend and promoter of transnational agribusiness companies, with potentially disastrous effects in Iraq after Saddam Hussein and the U.S. occupation.

'In 2002, FAO estimated that 97 percent of Iraqi farmers still used saved seed from their own stocks from last year's harvest, or purchased from local markets' (GM Free Cymru 2005). According to Andy Rowell, writing eloquently for the Organic Consumer Association,

> By 2002, between 80 and 100 percent of many basic staples – wheat, rice, sugar, vegetable oil, and protein meals – were imported. [After years of Saddam Hussein's corrupt regime, the illegal invasion by the U.S. in 2003 and subsequent occupation, as well as the crippling years of UN sanctions,] only about half of Iraq's million hectares of agricultural land were under cultivation.
> […]
> To assist the Iraqis in their task [of making their country fertile again], the Americans appointed Dan Amstutz, a former executive with the world's largest grain company Cargill. Amstutz also served as an agricultural Under-Secretary during the Reagan administration, and chief agricultural negotiator for the US durign the GATT trade talks.
> So here is a man who understands the needs of America's multi-billion agribusiness, helping the poor Iraqi farmer (Rowell 2005).

However, and unsurprisingly, the actual intention was that Iraq should become a new market for precisely these businesses. Along with Cargill and Monsanto, Syngenta has been among the profiteers: the company 'has been especially effective in winning tenders by [the Coalition Provisional Authority] CPA' (USAID 2004:15). Initially Syngenta donated its pesticides to the Iraqis. In 2005 Syngenta staff based in Iraq received an internal award.

In October 2004, Focus on the Global South and GRAIN published a News Release, from which Rowell quoted at some length. The following excerpts are from the original:

When former Coalition Provisional Authority (CPA) administrator L. Paul Bremer III left Baghdad after the so-called 'transfer of sovereignty' in June 2004, he left behind the 100 orders he enacted as chief of the occupation authority in Iraq. Among them is Order 81 on 'Patent, Industrial Design, Undisclosed Information, Integrated Circuits and Plant Variety.' This order amends Iraq's original patent law of 1970 and unless and until it is revised or repealed by a new Iraqi government, it now has the status and force of a binding law. With important implications for farmers and the future of agriculture in Iraq, this order is yet another important component in the United States' attempts to radically transform Iraq's economy.

WHO GAINS?

For generations, small farmers in Iraq operated in an essentially unregulated, informal seed supply system. Farm-saved seed and the free innovation with and exchange of planting materials among farming communities has long been the basis of agricultural practice. *This is now history. The CPA has made it illegal for Iraqi farmers to re-use seeds harvested from new varieties registered under the law. Iraqis may continue to use and save from their traditional seed stocks or what's left of them after the years of war and drought, but that is the not the agenda for reconstruction embedded in the ruling. The purpose of the law is to facilitate the establishment of a new seed market in Iraq, where transnational corporations can sell their seeds – genetically modified or not, which farmers would have to purchase afresh every single cropping season* (GRAIN 2004; their emphasis).

An article in the Swiss left-wing weekly *Die WochenZeitung – WoZ* of 20 October 2005, reflected the News Release by Focus on the Global South and GRAIN:

> While historically the Iraqi constitution prohibited private ownership of biological resources, the new US-imposed patent law introduces a system of monopoly rights over seeds. Inserted into Iraq's previous patent law is a whole new chapter on Plant Variety Protection (PVP) that provides for the 'protection of new varieties of plants.' PVP is an intellectual property right (IPR) or a kind of patent for plant varieties which gives an exclusive monopoly right on planting material to a plant breeder who claims to have discovered or developed a new variety. So the 'protection' in PVP has nothing to do with conservation, but refers to safeguarding of the commercial interests of private

> breeders (usually large corporations) claiming to have created the new plants.
> […]
> The new law is presented as being necessary to ensure the supply of good quality seeds in Iraq and to facilitate Iraq's accession to the WTO. What it will actually do is facilitate the penetration of Iraqi agriculture by the likes of Monsanto, Syngenta, Bayer and Dow Chemical – the corporate giants that control seed trade across the globe (GRAIN 2004; see also Rowell 2005).

Dr Brian John writing for GM Free Cymru noted that the 'manner in which this Order was imposed on the people of Iraq is an outrage in itself. There was virtually no Iraqi input into the wording of the Order, since the country and its people were on their knees following the Iraq War' (GM Free Cymru 2005).

> Order 81 is also in clear contravention of the Convention on Biological Diversity (CBD) in that it will increase chemical use, reduce the number of planted crop varieties, accelerate the trend towards monoculture, extend GM contamination, and decrease biodiversity (GM Free Cymru 2005).

In other words, transnational agribusiness companies such as Syngenta are likely to destroy the 'unique "seed heritage" of Iraq' (GM Free Cymru 2005).

As we have seen, the history of Syngenta's predecessor companies is closely associated with the use of gases and herbicides in warfare. Currently, this war continues on a different plane in the form of the mass destruction of so-called weeds, cockchafers, fungi, insects, nematodes and roundworms, with agriculture as the 'theatre of war'. The next chapter explores these mechanisms, and Syngenta's position in this particular context.

Notes:

1 Entomologists are scientists who study insects.

2 Translator's note: 'Inorganic fertilizers such as ammonium sulfate or ammonium phosphate are often called commercial or synthetic fertilizers, because they go through some manufacturing process, although many of them come from naturally occurring mineral deposits. Inorganic fertilizers usually contain only a few nutrients – generally nitrogen, phosphorus, potassium and some sulfur, either singly or in combination'. By contrast, 'organic fertilizers such as manures, compost or bone meal are derived directly from plant or animal sources' (Oregon State U 2008).

3 Translator's note: 'The Hague Declaration of 1889 and the Hague Convention of 1907 forbade the use of "poison or poisoned weapons" in warfare, yet more than 124,000 tons of gas were produced by the end of World War I. The French were the first to use chemical weapons during the First World War, using the tear gases ethyl bromoacetate and chloroacetone' (Chemical warfare at Wikipedia).

4 Translator's note: The company later became Dynamit Nobel AG. The business initially exported a liquid combination of nitroglycerin and gunpowder known as 'blasting oil', which was extremely unstable and difficult to transport, leading to several disasters (Dynamit Nobel at Wikipedia). Nobel's enterprise was very successful, perhaps not least because the 'exclusion of Germany from the natural nitrate market accelerated the industrial production of synthetic nitrate. Germany took advantage of technical processes developed by the country's own scientists in the years leading up to the First World War [that] made large-scale production of synthetic nitrogen economically feasible. This process, combined with a [new] method […] for converting ammonia into nitric acid – the main ingredient for most explosives – freed Germany's military industry from its dependence on Chilean nitrate. […] the shortage of munitions [may] have cost Germany the war by 1915. Ultimately, the developments of the German chemical industry not only prolonged the war, but also transformed the world nitrogen market in the long run. Synthetic nitrates displaced Chilean saltpeter as the main source of nitrogen, thus paving the way for the end of the Latin American nitrate age' (Nitrate at Encyclopedia 1914–1918).

5 Translator's note: The original composition of Dynamite consisted of three parts 'Explosive Oil' or nitroglycerin, one part diatomaceous earth as the absorbent, and a small admixture of sodium carbonate antacid as the stabilizer. If stored incorrectly, Dynamite becomes increasingly shock sensitive over time (Dynamite at Wikipedia).

6 Translator's note: Mustard gas is now a Yellow Cross classified chemical weapon. It is also known as Lewisite, Yperite or dichlorodiethyl sulfide (Gelbes Kreuz).

7 Translator's note: Then and now the seat of the UK government.

8 Translator's note: VX: IUPAC name *O*-ethyl S-[2-(diisopropylamino)ethyl] methylphosphonothioate (VX at Wikipedia).

9 Translator's note: A smokeless propellant, 'Cordite' was patented in the UK in 1889. It consisted of 58% nitroglycerine, by weight, 37% nitrocellulose or gun-

cotton, and 5% petroleum jelly. Using acetone as a solvent, it was extruded as spaghetti-like rods initially called 'cord powder', hence the name 'Cordite'. Various formulations were later used (see Cordite at Wikipedia).
10 Translator's note: TNT, trinitrotoluene, or more specifically 2,4,6-trinitrotoluene, best known as an explosive material with convenient handling properties (TNT at Wikipedia).
11 Translator's note: For reasons, see previous section, and Jones 2001.
Moreover, Hug's report and other Swiss source texts are only available in German. Therefore, where the MultiWatch book in German quotes directly or indirectly, this version provides paraphrases of the German source texts.
12 Translator's note: The lab is now called the NBC-EOD Centre of Competence (SAF 2016).
13 Translator's note: 'Blue Cross' or *Blaukreuz*, 'White Cross' or *Weisskreuz*, and 'Yellow Cross' or *Gelbkreuz*, after the generic World War I German markings on containers as well as artillery shells with irritant or toxic chemical payloads (Blue Cross/White Cross/Yellow Cross at Wikipedia).
14 2,4-D: 2,4-Dichlorophenoxyacetic acid. The WHO's International Agency for Research on Cancer (IARC) has classified the organic compound 2,4-D as 'possibly carcinogenic to humans' (IARC 2015). Over 1,500 herbicide products contain the compound as an active ingredient (2,4-D at Wikipedia). Along with atrazine and glyphosate, it is among the most widely used chemical pesticides.
15 2,4,5-T: 2,4,5-Trichlorophenoxyacetic acid (2,4,5-T at Wikipedia).
16 Translator's note: 'The rubber plantations and tin-mining industries had pushed for the use of the term "emergency" since their losses would not have been covered by Lloyd's insurers if it had been termed a "war"' (Malayan Emergency at Wikipedia).
17 Translator's note: The 'insurgents' were the Malayan National Liberation Army (MLNA), the military arm of MCP, the Malayan Communist Party (Malayan Emergency at Wikipedia).
18 STCA: Sodium trichloroacetate
19 Translator's note: 19 million US-gallons ≈ 719,000 hectolitres; 11 million US-gallons ≈ 416,400 hectolitres.

Syngenta and capitalist agriculture

Gearing agriculture to world markets has caused global destruction – and Syngenta profits

The right to adequate and healthy food is a fundamental human right, enshrined in the UN International Covenant on Economic, Social and Cultural Rights, which defines it as 'the fundamental right to freedom from hunger' (Global Agriculture:Food Sovereignty). However, given the millions if not billions of hungry people in the world, its full implementation seems to be a long way away. If local communities are to be empowered to define whether and how they produce and reproduce the necessary food and food ingredients, and determine who produces which agricultural products for whom, they need to be in control of agricultural means of production such as land, water and crop seeds (see Stedile 2002).

However, the call for food sovereignty clashes with global capitalism, which aims to accumulate and increase capital, and to take control of rising numbers of production processes. Everything is to be commodified and monetised; everything is a merchandise. This has been particularly and increasingly true for foodstuffs and the means of their production. They, too, are being privately owned and traded, but are only available to those who have the means to purchase them. Because all the goods and commodities are subject to fluctuations in price and increasing speculation, too much food is being produced globally while outrageous numbers of people are going hungry. From one dying every five seconds (Ziegler 2012), the number of children dying of hunger and malnutrition has come down to one child every ten seconds. But: that is still a scandalously high number of 3.1 million children each year.[1] What is more, one in four of the world's children is stunted because they are not getting enough food (WFP 2016).[2] At the same time, in '2014 more grain was harvested than ever before: 2.5 billion tons worldwide. Despite this record-breaking harvest, only 43% was used to feed people. The rest was used to feed livestock [mostly in animal factories][3], or fill our petrol tanks, sup-

port industrial production processes or was simply wasted' (Global Agriculture [undated]). By far the largest proportion of Syngenta's sales are generated by pesticides and seeds for the production of such cash crops.

Capitalist agriculture and its limits

Agriculture is becoming more industrialised and digitalised in order for capital associated with and invested in agriculture to accumulate and yield optimum returns. To this end, the surface area of monocultures has increased; crop seeds are appropriated and patented; fertiliser and pesticides are applied in the highest and/or most efficient quantities; crop rotation and plant-growth rates are accelerating; agricultural equipment (including airplanes and drones) is being used in large numbers; data are collected and processed with increasing consistency; and labour costs are kept down.

Capital will attempt to overcome any boundaries it may encounter. However, agriculture is not like a factory that could be converted to Fordist or Post-Fordist production methods without disastrous impacts on the environment – even though this, too, is part of the vision of capitalist agriculture. Quite the contrary: agriculture is seasonal and subject to the weather and reproduction cycles; it requires crop rotations, healthy soils, clean water and adequate quantities of mineral nutrients. By employing chemicals and genetic engineering techniques, capitalist agriculture has attempted to reduce its dependency on ecological systems and processes. However, the massive use of pesticides has caused substantial environmental damage, especially in terms of soil degradation and water contamination – evidence that capitalist production is reaching its limits. Syngenta's business model, however, relies on industrial agriculture's continuous expansion.

Key restraints on capital(ist) returns on agricultural investments are the fact that plants reproduce by themselves, and that farmers collect crop seeds for use in the next growing season. The bosses of large agribusiness and seed companies have therefore gone to great lengths to protect their product ranges, for example by resorting to intellectual property rights that impose severe restrictions on – or even prohibit – the propagation of plants, and the collection and exchange of seeds, with the result that farmers and growers are now obliged

to buy crop seeds each year. The likes of Syngenta and Monsanto are now in a position to offer what they call optimum 'integrated solutions', i.e. sales packages including customised advice, pesticides and (GM) seeds that are resistent to those compounds. Growers are caught in a catch-22 kind of vice.

Agricultural developments

There is a close association between specific developments in capitalism and industrialised capitalist production. Agrarian capitalism preceded industrial agriculture. Industrialised capitalist agriculture is a production method which is characterised by standardised mass production, a high degree of specialisation, intensive use of inputs including seeds, fertilisers, pesticides, water and equipment, energy and capital. Globally speaking, agricultural conditions of production remain highly diverse, from subsistence production, co-operative structures, small family farms, mid-size farms employing wage labour, to large industrialised agricultural businesses, some of which own 100,000 hectares and above, with a few even operating across more than a million hectares of land.

Capitalist agriculture developed in several stages or waves that overlap in the various parts of the world. Far from complete, and involving highly complex interrelations and controversial interdependencies, the various stages are the cause – and the result – of dynamic global processes. The story could be told in many different ways. Inevitably, the following attempt at a succinct outline from an admittedly Eurocentric perspective must remain rather schematic.

Originating in the late 15th and early 16th centuries, the first wave washed across many parts of Europe. As large landowners began to enclose increasingly large areas of previously communal farmland, small-holding farmers and their families lost their means of (re-)production and were expropriated (Marx 2002:2087ff). Having been cleared off their land, many of them ended up as waged labourers or in poorhouses. It is a process that Marx in 1867 described as 'Original Accumulation' (Marx 2002:2065).[4] Agricultural productivity increased from the 18th century onwards, first when traditional 'three-field' farming made way for more sophisticated methods of crop rotation, culminating in the advent of increasingly complex mechanical and

motorised equpiment that greatly reduced the labour intensity of tillage and harvesting.

Among those technologies was the discovery of the power of steam in the 19th century. The transport revolution, both by sea and rail, made it much easier (and quicker) to import agricultural raw materials from the colonies in the Global South. There, their extraction created a persistent amalgam of colonialism and agrarian capitalism in response to specific export situations. It also gave rise to dependencies, especially in Central and Latin America, where plantations came to rely almost entirely on slave labour. Meanwhile, in the industrialised North, ever larger workshops relied on wage labourers, male and female, very young and old, who found themselves pressed into factory work. One of the outcomes has been an extreme imbalance in terms of land distribution that continues to this day.

The advent of fossil fuels triggered the second wave of agricultural industrialisation that pushed mechanisation to new heights, as well as the use of synthetic fertilisers, pesticides and high-yielding (hybrid) crop varieties. As a result, in industrialised countries the percentage of people actually working in agriculture has dropped to low single figures.

In the Global South, in India for example, the so-called Green Revolution, launched in the 1930s, brought massive production increases, which peaked in the late 1960s and have since levelled off. In a development that focused almost exclusively on highly profitable cash crops such as wheat, rice and maize, and largely benefited those farmers and producers that already had disposable capital, Syngenta predecessor companies played an instrumental part. Moreover, the 'focus on hybridization and monocropping in industrial crop production has resulted in a loss of biodiversity on farms and a decline in nutrients in a number of different staple crops' (Sustainable Table 2016). As it has also caused some dramatic environmental disasters which have not only affected human health but also left the ground and water supplies severely contaminated, the Green Revolution and its achievements continue to be hotly debated to this day.

In the aftermath of the creation of the People's Republic of China in 1949, U.S. foreign policy began to rely on agricultural policy as a key to maintaining its primacy, promoting the Green Revolution, first in Mexiko and later in India, with the objective of containing and

pushing back revolutionary movements. The brutal crushing of any resistance by peasant farmer and grassroots movements, for example in Vietnam, set a pattern of harsh treatment to this day: farmer and (landless) peasant movements that dare to challenge big agribusiness companies, or call for land reforms still face ruthless retaliation.

The advent of biotech and genetic engineering in the 1980s signalled the third wave of agricultural industrialisation. Previously, the seed market had been in the hands of small- and medium-sized seed nurseries that 'grew heirloom varieties [as] the predominant type of crops, [i.e.] plants that were grown in the past and generally not used for industrial crop production' (Sustainable Table 2016). Previously, most research and development work was carried out at state-funded experimental stations and research institutions (Brandl 2012:601). Previously, pesticides were produced and marketed by a wide range of providers.

The face of industrial agriculture. Syngenta profits at the expense of nature and human beings

In the 1950s, the rate of farm expropriations began to accelerate, including large-scale crop seed privatisation and monopolisation, especially in the U.S., which saw the 'widespread introduction of hybrid seeds accelerate in the 1970s' (Sustainable Table 2016) – not least as a response by big agribusiness companies to the excess accumulation crisis of that decade.

In the past thirty years, advances in molecular biology and biotechnology have transformed both these sectors: a mere handful of huge transnational companies such as Syngenta are now in control of crop seeds and agrochemicals – an extreme concentration indeed.

Crop seeds, one of the pillars of human civilisation and cultural development, and once a common good, have become a commodity that is privately owned by monopolists. Chemical companies found a way out of profitability issues in agrochemichals by entering the seed market (Brandl 2012:602). One eloquent example is the drop in sales of maize pesticides such as Geigy's atrazine in 1968/69, which prompted merger talks between the two Basel giants, Geigy and Ciba that, in 1970, resulted in the merger of the two Syngenta predecessor companies that at the time made headlines as the Basler Heirat or Basler Wedding (Erni 1979).

Also in those years, technological advances in molecular biology allowed the adaptation of plant breeding to more industrialised requirements. Numerous company acquisitions led to the transfer of research and development to R&D divisions at privately-owned companies (Brandl 2012:602).

The process of subjugating agriculture to the requirements of (global) capital has been ongoing. Legislation on plant variety protection (PVP), patents and biopiracy all form part of the systematic global accumulation by (land) expropriation:

> Since 2008, the term land grabbing has gained notoriety around the globe. It refers to large-scale land acquisitions mainly by private investors, but also by public investors and agribusiness, who buy farmland or lease it on a long-term basis to produce agricultural commodities. These international investors, as well as the public, semi-public or private sellers, often operate in legal grey areas, in a no man's land between traditional land rights and modern forms of property. In many cases of land grabbing, one could speak of a land reform from

> above, or of the establishment of new colonial relationships imposed by the private sector (Global Agriculture:Land Grabbing; see also *The Land Grabbers*, Fred Pearce's impressive account published in 2016).

Land concentration has increased all over the world, with the situation in Europe now little different from that in Asia or Latin America: while 'in the EU there are some 12 million farms, the large farms (100 hectares and above) […] only represent 3 percent of the total number of farms, [but] control 50 percent of all farmed land' (Borras/Franco 2013).

Wage labour in agriculture

Any discussion of capitalist agriculture must also address rural and wage labour. Nor should the relevance of family farms be underrated. After all,

> based on FAO census data, it has been estimated that about 525 million farms exist worldwide, providing a livelihood for about 40% of the world's population. Nearly 90% of these are small farms defined as having less than two hectares of land […]. Small farms occupy about 60% of the arable land worldwide and contribute substantially to global farm production (IAASTD 2009:21).

In other words, 'small-scale diversified farming is responsible for the lion's share of agriculture globally' (IAASTD 2009:392), and many of these small-scale farms employ rural workers.

However, labour conditions are particularly exploitative in large plantations that produce cash crops for the world market. Here, people are often held in bondage or forced to labour like slaves.

Many rural workers[5]

> live in extremely primitive conditions, often without adequate food, water supply or sanitation or access to health care. […] A vicious circle of poor health, reduced working capacity, low productivity and shortened life expectancy is a typical outcome, particularly for the most vulnerable groups, such as those working in subsistence agriculture (i.e., wage workers in plantations, landless daily paid laborers, temporary and migrant workers and child laborers). […] It is estimated that of the 250 million working children in the world, roughly 70% are active in agriculture [and] some 132 million children under

> 15 years of age work on farms and plantations worldwide due to lack of policies to prevent agricultural child labor (IAASTD 2009:48/212).

While equipment and other inputs may to a large extent replace human labour, industrial agriculture is anything but efficient or productive in terms of use of land, water, energy and other resources, and highly dependent, both on fossil fuels and increasingly intensified production:

> Industrial agriculture controversially promotes monocultural cropping that require[s] farm inputs such as commercial seeds, chemicals, fossil-fuel based machinery, as well as requiring an increase in water usage (IAASTD 2009:220).

Increasing numbers of scientists have therefore lost their faith in the sustainability of this model. Moreover, capitalism has failed to provide paid work to migrant workers that have either been driven out of, or fled from agricultural production due to a lack of scope in reproduction.

As Mike Davis wrote in *Planet of Slums* (2007),

> in the next year or two, […] the urban population of the earth will outnumber the rural. Indeed, given the imprecisions of Third World censuses, this epochal transition has probably already occurred. […] Cities […] have absorbed nearly two-thirds of the global population explosion since 1950, and are currently growing by a million babies and migrants each week. The world's urban labor force has more than doubled since 1980, and the present urban population [has exploded to] 3.2 billion […]. (Davis 2007:1-2).

Migrant workers have been finding themselves in ever more precarious situations; ever larger numbers of people are seeing themselves forced into migration (for details, see Maloney/Korinek 2011, for example).

Many rural (workers) movements have therefore been calling for agrarian change. It has been argued that 'small producers who practice agroecological farming – understood as low (external)-input and labour intensive – can feed the world' (Bernstein 2014). Ever since the concepts of agroecology and food sovereignty were first introduced,

their possible impact on agricultural labour has been hotly debated. There is no doubt that agricultural workers would prefer being paid a living wage to languishing in exploitative feudal structures and patriarchal production systems. Ironically, both neoliberals and food sovereignty as well as farmer and peasant movements advocate 'more decentralisation and local empowerment' (Edelman 2013:14).

What is clear is that, all over the world, labour conditions in agriculture have become widely unacceptable. To give just one example, the impact on human health of pesticides has been devastating. While it remains extremely challenging to ascertain exact figures – despite attempts to produce more systematic statistics (WHO 2008) – the actual global number of fatalities due to acute pesticide poisoning (APP) most likely ranges in the hundreds of thousands (Paraquat at BD).

In Central America, unprotected workers are regularly exposed to a herbicidal 'mixture […] of five chemicals: amine, terbutryn, pendimethalin, 2,4-D and atrazine' (Storr 2012). In El Salvador, the leader of a formal study launched in 2009 examined the high incidence of chronic kidney disease (CKD) among sugar-cane workers. He came to the preliminary conclusion that 'to have kidney damage you have to be exposed to a nephrotoxic agent. [While] dehydration is a factor, […] you would have to be very, very dehydrated for it to damage your kidneys' (Storr 2012).

An Ecuadoran study found that acute poisoning was among the top ten reasons for emergency call-outs. In just two years from 2008 until 2010, an average number of 7000 cases was reported each year, two-thirds (66%) of which had occurred either through food ingestion or due to exposure to pesticides (Meneses 2011:66).

In large quantities, Syngenta's and Monsanto's pesticides such as atrazine, 2,4-D, and paraquat[6] can cause kidney damage. While they may not be acutely toxic, the effect of mixtures of these substances could be exacerbated if they are applied in tropical climates and with no personal protective clothing, or water to drink and wash (see Storr 2012). Ultimately, Syngenta's and Monsanto's pesticides are to blame for at least 24,000 Central American deaths due to CKD in the decade to 2012 (WoZ 2012b).

Agricultural value chains

Alongside the various lines of actual agricultural production, up and downstream activities also form part of the capitalist agricultural system. In their ruthless pursuit of returns, mega businesses now control both these areas, and have transformed the work of farmers and agricultural producers. The production, marketing and transport of inputs (fertilisers, pesticides, seeds, etc) are part of the upstream or input industry, while downstream activities – chiefly controlled by giant wholesale and retail chains – include the transport, storage, processing, marketing and sales of agricultural products. Since World War II, agriculture's share in nett value added to the economy has fallen from 40% to 10%, while at the turn of the millenium, the input industry added around 25%, and (downstream) marketing and sales around 65% to the (global?) economy (see Buttel 2000; BD 2013). When it comes to cash crops from the Global South, the imbalance is greater; it is highly likely that downstream activities, i.e. processing and marketing, have increased over the past fifteen years or so.

Most industrialised agricultural businesses rely on the continual use of frequently very large agricultural equipment, pesticides and high-yield crop seeds, all of which they must purchase from businesses that are active in the input industries. The consequences have been unpleasant: for their products, farmers and growers have become almost entirely dependent on agrochemical businesses such as Syngenta, which dictate their prices. At the other end, powerful global food companies such as (Swiss) Nestlé or Unilever (Oxfam 2013) can dictate the prices they are willing to pay to farmers and growers for their agricultural products. Even without mentioning the vagaries of agriculture and traders making the most of volatile prices on the world market (Oxfam 2013), farmers and growers risk becoming slaves on their own fields (see also Part One, chapter 'Syngenta in India: High burdens of debt and poisonings').

Crises and resistance

Even the capitalist industrialisation of agriculture is unable to prevent crises in the agrarian sector due to temporary imbalances between production and (affluent) consumption. In an attempt at mitigating their impact, global companies expand and intensify industrial pro-

duction, and transfer (some of) their business to different areas. It is a process that globalises negative impacts, for example by creating worse conditions for the food production of future generations.

Multi and transnational seed and pesticide companies are driven both by the realisation of ever higher yields in monocultures and the constant threat of declining returns on investments. Unless mass products from these companies are consumed in ever larger quantities in industrial agriculture, they are ruthlessly imposed in collaboration with local elites (see Africa chapter in Part One). Strategic research, countless protective patents, plant variety protection (PVP) legislation, area-specific sales strategies and tremendous marketing efforts are tools employed by these companies to achieve ever higher annual sales and profits. Syngenta's declared goal is to increase its profitability (EBITDA margin[7]) from just below 20% in 2015, to 24–26% by 2018 (Syngenta 2015a; see also chapter, 'Syngenta, a multinational corporation').

As has been shown, capitalist agriculture and seed and pesticide companies are mutually dependent. At alarming rates, ever larger areas of agricultural land are taken over by ever smaller numbers of agricultural businesses. Small-scale farmers are being expropriated; extensive production intensifies; native forests are cut down and commodified; people are being cleared off their land – even killed. The concentration of seed, fertiliser and pesticide businesses, as well as the processing of and trade in food ingredients and foodstuffs also continue to rise, with an ever smaller number of transnational corporations controlling an ever greater proportion of the world market.

This is indeed a gloomy vision of the future. But resistance has also been forming. Ecologists have raised their voices; the past two decades have produced a significant number of agroecological alternatives. If the negative impact of capitalist agriculture has become more evident, so has the urgent need for alternatives, as well. Increasingly, those who impose their terms of production and surplus value production are seen to violate the very core of human beings and the environment alike.

However, land reforms and food sovereignty, in conjunction with the pursuit of healthy food for all and a balanced environment, clash with a capitalist desire for increased returns and capital accumulation.

Therefore, it is more than likely that capitalist elites will continue to resist both the forward-looking alternatives to industrial-capitalist agriculture and the radical reforms required to achieve this transformation.

Notes:

1 Translator's note: Calculation based on 31,557,600 seconds per year (Wikipedia > Year; 10 June 2016).

2 Translator's note: A report by the U.N. Food and Agriculture Organisation on the State of Food and Agriculture in 2010-2011 estimates that empowering more women farmers, i.e. '[c]losing the gender gap in agricultural yields could bring [the global] number [of undernourished people] down by as much as 100–150 million people' (FAO 2010–2011).

3 Translator's note: In typical 21st-century 'newspeak', the industry calls them 'concentrated animal feeding operations' or CAFOs (Sustainable Table 2016).

4 Translator's note: 'Primitive Accumulation' is the term used in Marx 1867, while 'Original Accumulation' is used in Marx 1890. As the latter is a bi-lingual English-German edition based on a new translation (2002), this easily searchable edition is being referenced here. The original German text, *Schwarzbuch Syngenta*, refers to Marx 1867.

5 Translator's note: Elsewhere, the report mentions a number of other categories of rural workers, i.e. 'tenant farmers, share-croppers, squatters, landless laborers, bonded laborers, migrant workers, or members of an indigenous community sharing common lands' (IAAST 2009:57).

6 In Latin America, Syngenta markets paraquat under the trade name of Gramoxone (see, for example, Part One, chapters 'Syngenta in Latin America' and 'Keeping an eye on Syngenta', and Part Two, chapter 'Syngenta, a multinational corporation').

7 The measurement of a company's profitability as a percentage of its total revenue, the EBIDTA margin is equal to earnings before interest, tax, depreciation and amortisation (EBIDTA), divided by total revenue.

i Population Information Program, Center for Communication Programs, the Johns Hopkins Bloomburg School of Public Health, *Meeting the Urban Challenge*, Population Reports, Baltimore 2002 (Fall), 30/4:1 [Note 3 in Davis 2007].

ii Dennis Rondinelli and John Kasarda, 'Job Creation Needs in Third World Cities,' in John D. Kasarda and Allan M. Parnell (eds), *Third World Cities: Problems, Policies and Prospects*, Newbury Park 1993:101 [Note 4 in Davis 2007].

Syngenta, intellectual property (IP) and accumulation by expropriation[1]

Syngenta uses variety protection legislation and patents to privatise nature even further

Until the 1950s, most farmers saved and used their own seeds. Conventional plant breeding and commercial seed systems were largely in the hands of small and medium-sized nurseries, who grew predominantly traditional or heirloom crop varieties. Most scientific crop-seed research and development was carried out at state-funded experimental stations and research institutions (see also previous chapter, 'Syngenta and capitalist agriculture').

The advent in or around 1980 of genetic engineering (GE) made it possible to insert 'non-plant genes into plant genomes' (EPO 2011:slide 11). Meanwhile, however, neoliberal privatisation policies led to the continual reduction in state funding for research. A report by Olivier De Schutter, the Special Rapporteur on the right to food to the U.N. Human Rights Council (2008–2014), noted that for 'almost thirty years, since the early 1980s, neither the private sector nor government were interested in investing in agriculture' (De Schutter 2010:1). That is when large biotech companies began to co-opt conventional and genetically engineered plant breeding and agricultural research. Moreover, claiming to have invented new varieties and gene sequences of crop plants, they also began to file patents for transgenic plants, imposing ever further-reaching intellectual property (IP) legislation as time went on (EPO 2011:slide 11).[2]

Not only for farmers and consumers, but also for research and small and medium-size seed breeders, consequences have been drastic indeed. A 2009 report on seed policies by De Schutter analysed the above-described shift from public agricultural research to plant breeders that use IP legislation:

> The development of a commercial breeding sector separate from farming and, more recently, of a biotechnological sector, has led to increased demands for the protection of the rights of breeders and inventors of biotechnologies, demands which now have penetrated

> at the global level. The shift from agricultural research as a public good providing farmers with seeds incorporating advanced traits to the granting of temporary monopoly privileges to plant breeders and patent-holders through the tools of intellectual property is essentially defended as a means to reward, and thus incentivize, research and innovation in plant breeding. (De Schutter 2009:3; see also Part One, chapter 'Feed the World – but how?')

In terms of crop seeds, IP legislation is of particular significance because farmers and growers can collect and store their own seeds, and propagate and breed new varieties themselves. Two specific strategies have enabled global capital to impose and promote the commodification of crop seeds, i.e. IP legislation in the form of patents and variety protection on the one hand, and technological processes that cause (new) hybrid seeds to lose their specific properties when propagated. Most of the seed varieties marketed by Syngenta and Monsanto are such hybrid varieties. An even more drastic approach has been the so-called GE 'terminator' technology that renders seeds infertile.

Protection of plant varieties and the UPOV Conventions

The U.S. have known legislation to protect plant varieties, also known as PVR, since the 1930s; in Europe, PVR legislation was introduced in the 1950s:

> The PVR system allows plant breeders to collect royalties on the production and sale of seed of their protected varieties. […]
> To qualify for Plant Variety Rights, a new variety must undergo official tests to determine whether it is distinct, uniform and stable (DUS). For most crop species, these independent tests take two years. […][3]
> For each new variety, these DUS tests are undertaken and the results considered by independent experts to determine whether all the necessary requirements for Plant Variety Rights have been met. Plant Variety Rights are granted for a period of 25 years for all species except trees, vines and potatoes, which have a period of 30 years (PVR 2013).

In the seed sector, radical 'change in the last thirty years [has led to] a highly concentrated seed market and the predominance of agrochemical companies' (Brandl 2012:Abstract).

Since 1994, plant varieties have officially been subject to international protection through TRIPS, the Trade-Related Aspects of Intellectual Property Rights. Article 27:3(b) commits 'Members [to] provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof' (WTO/TRIPS, see Part II). In other words, each WTO member state may implement a system that is geared towards balancing the rights of breeders against the rights of farmers and growers.

National governments have also been strongly encouraged, however, to join the International Union for the Protection of New Varieties of Plants (UPOV) and to ratify its Convention, which came into force in August 1961 (UPOV 1961).

However, protection only extends to registered varieties, with serious implications for farmers and growers. Moreover, new varieties must also

> satisfy the condition of novelty [i.e.,] the new variety must be clearly distinguishable by one or more important characteristics from any other variety whose existence is a matter of common knowledge at the time when protection is applied for (UPOV 1961, Art. 6, 'Novelty').

This has created disadvantages for farmers as their heirloom or land-race varieties rarely comply with these formal requirements and therefore do not fall under the convention.

Since ratification by the UK, the Netherlands and Germany in August 1961, the UPOV Convention was revised three times (in 1972, 1978, and 1991), 'in order to reflect technological developments in plant breeding and experience acquired with the application of the UPOV Convention' (UPOV 1961). More and more restrictions have been introduced in the process. By directly intervening in small-scale agricultural processes, UPOV 91 directly threatens farmers' rights.[4] Despite Article 15, 'Exceptions to the Breeder's Right', farmers must obtain the breeder's authorisation to harvest, save, re-use or exchange seeds or propagating material 'of the protected variety': Article 42 recommends that Article 15(2)

> should not be read so as to be intended to open the possibility of extending the practice commonly called 'farmer's privilege' to sectors of agricultural or horticultural production in which such a privilege

> is not a common practice on the territory of the Contracting Party concerned (UPOV 91).

In other words, in terms of protected seeds, the so-called 'farmer's privilege' was abolished; small-scale farmers and growers must either obtain authorisation – i.e., pay up! – or buy protected seeds, season on season, year on year.[5]

When it first became public, UPOV 91 caused an uproar. An analysis of the UPOV Acts by the Third World Network and the Berne Declaration published in October 2015 came to the conclusion that

> UPOV 91 hinders the implementation of farmers' rights to freely use, save, exchange and sell seeds/propagating material, which is fundamental to the realization and promotion of farmers' rights. When using a protected variety, farmers may save seeds for replanting on their own holdings, but this Article 15(2) exception is restricted to seeds of certain crops grown on their own farm, and even in this case remuneration to breeders may be required to safeguard the legitimate interests of the breeders. Farmers are prohibited from selling and exchanging farm-saved seeds/propagating material.
>
> The effects of restrictions on farmers' rights to freely use, save, exchange and sell seeds/propagating material can be quite devastating. A human rights impact assessment of UPOV […] that examined the potential impact of UPOV in the Philippines, Peru and Kenya concludes that "UPOV91 restrictions on the use, exchange and sale of farm-saved PVP seeds will make it harder for resource-poor farmers to access improved seeds.' This could negatively impact on the functioning of the informal seed system, as the beneficial inter-linkages between the formal and informal seed systems will be cut off. Moreover, selling seeds is an important source of income for many farmers. From a human rights perspective, restrictions on the use, exchange and sale of protected seeds could adversely affect the right to food, as seeds might become either more costly or harder to access. They could also affect the right to food, as well as other human rights, by reducing the amount of household income which is available for food, healthcare or education (Shashikant/Meienberg 2015).

A very limited 'farmers' privilege' allowing farmers to save, use, and sell their own crop seeds was eventually re-introduced to UPOV 91: 'Nothing in this Article shall be interpreted to limit any rights that

farmers have to save, use, exchange and sell farm-saved seed/propagating material'. However, even here a threat remains in the final line, which reads, 'subject to national law and as appropriate' (UPOV 1961:Article 9.3).

Under the heading Intellectual Property of the web-page, 'What Syngenta thinks about…',

> Syngenta agrees that the 'farmer's privilege' of saving seeds should be accorded as provided in the UPOV […] 1991 convention, i.e. all farmers are allowed to save seeds from protected varieties of certain plant species grown on their own farm, for use on their own farm, subject to the safe-guarding of the legitimate interests of the breeder, including fair royalties.

However, the next paragraph states:

> No farm-saved-seed should be allowed for high-value crops, such as vegetables and flowers. Syngenta believe that for the sake of stewardship genetically modified crops should also be excluded from the farm-saved-seed exemption. Farm-saved seed by subsistence farmers for private, non-commercial use should be exempted from any remuneration obligations (Syngenta Global).

Small-scale farmers and growers all over the world have criticised the Convention for being designed to protect plant varieties and strengthen breeders' rights at farmers' expense.[6] Farmers and their organisations have demanded the full and unrestricted reinstatement of the right to plant or propagate farm-saved seed or plant material: 'Our harvests belong to us, not to the large crop-seed breeders.' (*Unser Erntegut gehört uns und nicht den Züchtungskonzernen*: IG Nachbau 2015; see also Part One, chapter 'Keeping an eye on Syngenta').[7]

Patents on plants

Plant variety protection (PVP) has been around for quite some time. However, patents on genetic resources and living organisms constitute another, more recent system of intellectual property legislation that goes even further in terms of protecting intellectual property:[8] Syngenta has already filed large numbers of patents on pesticides and agrochemical processes, and has been at the vanguard of the move

to patent entire plants (rather than 'mere' plant genomes), not least because

> Patent protection provides a more absolute set of rights to breeders than does plant variety protection. A patent grants an individual the right to exclude all other people from manufacturing, using, or selling the product on which the patent was granted. Although patent law differs from country to country, 160 nations have signed the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and, accordingly, recognize the minimum standards of patent protection sets forth in this agreement (Public Citizen, undated).
> From the date of filing, patent protection grants a (minimum) term of twenty years to the patent holder on certain genetically engineered sequences, to the exclusion of any other potential users. While the difference between UPOV 91 and patents is minimal in terms of impact on farmers and growers, the implications for commercial breeders and research institutions are all the more significant. A 2004 Greenpeace documentation found that 'the patenting of seeds […] fundamentally alters the economic framing conditions for plant growers and farmers' (Greenpeace 2004).

Unlike Plant Variety Protection (PVP) according to UPOV 91, patent protection no longer permits breeders to use protected varieties, even if they wish to develop new varieties. Patents on seeds therefore benefit companies that can afford both to invest in the technology required to develop patentable plants such as transgenic varieties, and also to employ patent lawyers for the filing of their applications and the defense of their patent rights:

> Only these big players can survive in the million- dollar-league of patent litigation. Only they are able to accumulate the required exclusive rights by buying up competitors and also wield sufficient patent rights as a basis for negotiation in their battle with other companies (Greenpeace 2004),

Those 'big players' are of course Syngenta et al.

At the time of writing, the breeders' exemption still formed part of Swiss patent law. It was also valid across the EU (Farming UK 2016). However, despite a clear legal situation, seed companies have attempted (and managed) to create confusion. Take this claim by Syngenta, for example, found on a packet of its Aurasol sunflower seeds:

> You have purchased an Oleic Sunflower variety.
> Important notice:
> The use of this product is restricted. (…) By opening and using this bag of seed, you confirm your commitment to comply with these use restrictions. This product (…) is proprietary to Syngenta Crop Protection AG or its licensors and is protected by intellectual property rights. Use of the seed in this package is limited to production of a single commercial crop of forage, fiber or grain for food or feed. **Unless expressly permitted by law, use of the seed for producing seed for re-planting, research, breeding, molecular or genetic characterization or genetic makeup is strictly prohibited** (Gelinsky Slides 2012:11–12; the author's emphasis).

The notice is designed to confuse and mislead consumers, small-scale growers and breeders about their actual rights.

The 'rapid development of gene technology [which made it] possible to work on plant genomes to improve classical plant breeding' (EPO 2011) soon gave rise to calls for patents on living organisms. In July 1998, Directive 98/44/EC of the European Parliament and of the Council of July 1998 'on the legal protection of biotechnological inventions' was introduced. Article 3(1–2) states that

> inventions which are new, which involve an inventive step and which are susceptible of industrial application shall be patentable even if they concern a product consisting of or containing biological material or a process by means of which biological material is produced, processed or used. Biological material which is isolated from its natural environment or produced by means of a technical process may be the subject of an invention even if it previously occurred in nature (EC 1998).[9]

Allowing such transfers, agrogenetic engineering has enabled large agribusiness companies to blur the distinction between 'invention' and 'discovery', allowing them to claim and appropriate intellectual property rights to actual and entire plants. And that is the actual purpose of agrogenetic engineering in capitalist agriculture.

According to the Plant Variety Rights (PVR [UK]) website,

> In Europe, a plant variety may not be patented but a trait or a novel breeding technique may be and where the breeder has been granted such a patent, use of the variety or technique is subject to the require-

ments of patent law as well as plant variety rights. The European Seed Association is developing a database of patents in plant varieties called PINTO (PVR 2013).

Patents in the plant breeding sector

> grant the holder the right to prevent third parties from making, using, selling or importing their invention. As such any plant variety containing patented material would not be eligible for the breeders privilege as use of the patent would require a license, and this form of intellectual property would override the existing PVR [plant variety rights] system (Farming UK 2016).

The patent therefore covers all plants that contain that particular trait or gene sequence. While PVR may protect a specific pepper variety that is resistant to whiteflies, for example, a plant patent covers all plants that exhibit the same resistance to whiteflies – regardless of whether or not they are peppers. In other words, plant patents can protect a whole range of varieties or even plant species, provided they contain the specific trait or gene sequence that forms the subject of the patent. However, the paradoxical situation,

> where patents on GE plants can be granted, and can even cover plant varieties, as long as specific, single varieties are not claimed [means that] the prohibition on patents on plant varieties […] has not been relevant since [1999]. This has been especially true for plants derived from genetic engineering (GE), which incorporate genetic constructs that can be transferred from one plant species to another (Then/Tippe 2009:36).

In a recent news bulletin, 'EU co-operative[s] Copa & Cogeca have warned against using patents in the plant breeding sector, warning it will reduce the amount of new varieties on the market and add to costs'. The UK's National Farmers Union (NFU) also warned

> that patents granted for plant traits and varieties obtained through biological processes sets a dangerous precedent, and if such an approach were to continue it would undermine the existing PVR system posing a long term threat to agricultural research, genetic diversity and ultimately food security (Farming UK 2016).

In the U.S. it was Syngenta in particular that has marketed genetic traits. The company offers 'Agrisure Traits' not only in different crop

plant varieties but even in different species. Here, the patent does not protect the hybrid maize variety as such, but its genetic trait or traits, e.g. resistance to drought, to the corn borer or to corn rootworm (Syngenta Agrisure). In actual fact, however, the patent covers the plant variety or entire plant species exhibiting the trait.

As has been said before, patents may cover not merely plant traits but also novel plant breeding techniques:

> Product-by-Process patents are becoming increasingly significant in biopatenting. To precisely demarcate the product, the production conditions (e.g. breeding process) are specified in the patent. Such claims are called product-by-process claims. In one of the claims, the plants are defined as products by taking recourse to the breeding method they have been obtained by (in the case of the broccoli, a so-called smart breeding process) (Gelinsky Slides 2012:7).

One example is the notorious (or seminal)

> broccoli patent, EP 1069819, held by Plant Bioscience Ltd., UK, [which] relates both to the production method and the resulting broccoli plants, their seed and all edible parts of the plant (Feindt 2010:15).

Granted to the UK company in 2002, the patent 'set the precedent for the EPO to decide' (Then/Tippe 2009:24).

In recent years, the number of patent applications and patents granted on plant traits derived from conventional breeding has increased sharply as the large biotech companies have blurred the boundary between conventional and genetically engineered (GE) breeding, and patents on bio-engineered gene sequences have rendered the idea of patents on life socially acceptable if not altogether respectable.

A report published in 2011 by the international NGO coalition, No Patents on Seeds, found that

> some 250 patent applications on genetically modified plants and another 100 patents on conventionally bred plants were filed in 2010. Monsanto, Syngenta and Dupont in particular have increased the number of patent applications for plants derived from conventional breeding, to between 20 and 30% (of the plant breeding sector). In 2010, the European Patent Office granted approximately 200 patents on GE and conventional plants (Then/Tippe Mar2011:2).[10]

By 2001, the year after the company was created (see Part Two, chapter 'Syngenta's genesis'), Syngenta had filed just a few patent applications for plants obtained from conventional breeding. In 2005, Syngenta filed '15 global patent applications on several thousand gene sequences from rice and other highly important crop plants. […] 3) With these patents Syngenta claims for any genes with the same structure in any plants' (BD Aug 2005). By 2011, the number had risen to just below 30. One of those was for a melon hybrid, awarded by the EPO in July 2011:

> It [was] the first European patent protecting a conventionally bred plant for its taste. In the patent application (EP1587933) the taste of the melon is described as 'tart-refreshing-sour-sweet'. With this patent Syngenta claims intellectual ownership of all melons with a certain citric acid and sugar content as well as a specific pH-value, including everything from the plant and seeds to the pulp and its uses. The 'invention' is the result of common breeding and selection techniques (no genetic engineering), using, as source materials, among others, melons of Indian origin (BD July 2011).

This came just a few months after Monsanto had been 'awarded a European patent on conventionally bred melons' (BD May 2011).[11] In fact, in 2011, only 'Monsanto and DuPont [were] seeking more patents on conventional crops than Syngenta' (BD July 2011).

Since then, things have only got worse. These giant biotech and agribusiness companies are greedy. They are not satisfied with patents on plants and seeds. A report published in March 2011 by the international NGO coalition, No Patents on Seeds, found that many

> of the applications, and several of the patents granted, cover the entire food production from the farmer to the food manufacturer. In 2010 Monsanto for example applied for a patent on biscuits and margarine in which its genetically modified soybeans are supposed to be processed. At the same time Monsanto wants to use patent claims to safeguard itself against seeds and food being investigated for contamination by genetically modified plants without the corporation's consent. Monsanto, Dupont and Bayer are among the corporations which in 2010 also obtained patents which actually extend from seeds to harvests (Then/Tippe Mar2011:2).

The report goes on to provide some alarming details:

> BASF and Monsanto have as a precaution applied for patents on genes which could be important for breeding here – their applications in some cases include several thousand gene sequences. As a result of their applications en masse other breeders are impeded in their work; plant breeding is to become a no-go area occupied by multinational corporations. […]
> The specifications [of one Monsanto application], for example, claim tens of thousands of genes which are said to affect the traits of 'enhanced water use efficiency, enhanced cold tolerance, increased yield, enhanced nitrogen use efficiency, enhanced seed protein or enhanced seed oil' […] BASF's patent applications […], in which the genes and seeds of plants, varieties and the harvests of genetically modified plants are claimed, are similarly comprehensive.
> In particular, 'rice, corn, wheat, barley, millet, rye, triticale, sorghum, emmer, spelt, secale, einkorn, teff, milo and oats' […] are to be manipulated (Then/Tippe Mar2011:12).

The list goes on as 'there are patent applications which make claims on wheat and bread, pasta (noodles) and cakes […] or barley and beer […]' (Then/Tippe Mar2011:13). Even 'in cases in which breeding methods are not able to be patented, conventionally-raised sunflowers, their seed and sunflower oil can be' (Then/Tippe Mar2011:16).

The world's largest agribusiness and biotech companies are also attempting to monopolise as their 'inventions' crop plants 'such as corn and Indian mustard' that are originally from Asia and Central America. They are not interested in the plants as such, but in some of their genetic material (Then/Tippe Mar2011:2-3, passim). As a consequence, Syngenta, for example,

> claims soybean plants and seed as their invention, these naturally containing genes which protect against fungal rust disease (a mould). The soybeans in which the relevant genes are found come from the soybean plants' region of origin in Asia (Then/Tippe Mar2011:10).

Quite clearly, then, 'what is also at stake here is the appropriation of the genetic resources of the regions of origin of crop plants' (Then/Tippe Mar2011:10). This last example also provides a link to the issue of biopiracy, which will be addressed in the next section.

The scope of these patent applications has been alarming to the extreme. However, resistance against the trend has also been growing. The international NGO coalition, No Patents on Seeds,

> supported globally by over 300 NGOs and farmers' organisations, […] has collected about 100,000 signatures against patents on plants and animals. The coalition now urges the institutions of the EU to go for clear legal regulations to exclude from patentability plants and animals, genetic material and processes for breeding of plants and animals and food derived thereof (No patents on seeds 2012/2016).

Syngenta and biopiracy

Biopiracy is a particulary blatant form of expropriation by means of patents on plants. In 2006, Swiss and British firms were 'accused of using the scientific properties of plants from the developing world to make huge profits while giving nothing to the people there' (Barnett 2006). This is the definition of biopiracy with which Syngenta has been associated in (at least) two specific cases. In the first instance, reported by Antony Barnett in The Observer, Syngenta's search for the 'perfect hanging basket display' focused on a variety of Busy Lizzie (*Impatiens walleriana*). This is

> one of the most popular plants among British gardeners, providing instant colour to even the most challenging flower beds. […]
> The launch of a new strain of 'trailing' Busy Lizzie by the multinational biotech giant Syngenta is, say campaigners, a classic example of […] 'biopiracy'. This term is being increasingly used by environmental groups to describe a new form of 'colonial pillaging' where Western corporations reap large profits by taking out patents on indigenous materials from developing countries and turning them into products such as medicines and cosmetics which can be extremely valuable in western markets. In very few cases are any of the financial benefits shared with the country of origin.
> An analysis by The Observer of patents issued by the British authorities reveal[s] they have granted several companies patents for at least seven products that orginated from naturally occurring African plants or organisms.
> […]
> With great fanfare in April last year Syngenta launched the Spellbound Busy Lizzie. The company claimed that 'after many years of

> research' it had produced a Busy Lizzie that 'can achieve, at maturity, trails of 70 cm [about 28 ins with] masses of large flowers throughout the summer until the first frost'.
> […] an analysis of the British patent taken out by Syngenta for its new floral 'invention' reveals that Spellbound's magical secret comes from a rare African plant, the Impatiens usambarensis. This grows in the unique ecological habitat of the Usambara mountain range in Tanzania, just south of Mount Kilimanjaro. In its patent Syngenta describes this plant as having 'no commercial significance'.
> […] Despite admitting that such hybrids happened naturally in Tanzania, Syngenta claimed the new plant was its 'invention' and the British authorities granted the company a patent on 6 February 2004. The patent reveals that Syngenta obtained the seeds of the African plant from the Royal Botanical Gardens in Edinburgh that had cultivated them 'from a wild collection from Tanzania'. A botanical gardens spokeswoman said it had received the seeds 'in 1982 from the Royal Botanical Gardens at Kew. They had been deposited there in 1976 by [… a former president of the Alpine Garden Society'.
> […] the International Convention on Biological Diversity [of 1994] promised to recognise the property rights of developing countries. It did not prohibit the collection of indigenous material but recommended that agreements should be reached to share any commercial benefit that later emerges.
> A Syngenta spokesman admitted it had paid nothing for the seeds [and] rejects the claim of biopiracy […] (Barnett 2006).

In another case, Syngenta successfully found a way to combat one of the more 'severe pests for peppers [–] whiteflies, which attach themselves to the plants and suck out the contents. They can also act as a vector for plant viruses that cause further damage to the plants' (BD 2014).

After six years of intensive research involving marker-assisted or SMART breeding,[12] Syngenta filed a patent for resistant peppers in 2008; on 8 May 2013, despite

> the fact that the patenting of plant varieties is prohibited by European law […], the EPO [European Patent Office] granted a patent to Syngenta for insect resistant pepper plants. [However,] the patented plants are derived using conventional breeding: a wild pepper plant from Jamaica was crossed with commercial pepper plants. Since the

> wild plant is resistant to various pests [including white flies], the patented resistance already existed in nature and was not invented by Syngenta. Moreover, no benefit sharing was paid to the country of origin – Jamaica (BD 2014a).

The patent wrongly protects not only a plant that was bred conventionally but also a trait for resistance that had naturally existed long before it was discovered, rather than 'invented'. Moreover, since the company has failed to share any benefits with the people of Jamaica, the patent is also in breach of the Convention on Biological Diversity (CBD 1992:Preamble).

The two examples illustrate the purpose of patents to privatise genetic resources that were originally a common good, and to appropriate the skills, knowledge and work of farmers and growers. The appropriation of common goods by companies for the purpose of generating profits can be considered not only to constitute accumulation by expropriation (Kloppenburg 2010) but also the continuation of colonialist exploitation, fewer job prospects for workers, and increasing relevance of revenue from IP rights:

> Wholly new mechanisms of accumulation by dispossession have also opened up. The emphasis upon intellectual property rights in the WTO negotiations (the so-called TRIPS agreement) points to ways in which the patenting and licensing of genetic materials, seed plasmas, and all manner of other products, can now be used against whole populations whose environmental management practices have played a crucial role in the development of those materials. Biopiracy is rampant and the pillaging of the world's stockpile of genetic resources is well under way, to the benefit of a few large multinational companies. The escalating depletion of the global environmental commons (land, air, water) and proliferating habitat degradations that preclude anything but capital-intensive modes of agricultural production have likewise resulted from the wholesale commodification of nature in all its forms (Harvey D. 2004:75)

Broad promotion of innovation rather than private-sector profits

In the view of J.E. Stiglitz and B.C. Greenwald,

> Innovation is very risky and often entails large investments – even large firms are risk averse; capital markets are imperfect – especially

> when it comes to investments like R & D that are risky and can't be collateralized […]; hence […], there is a strong presumption that there will be underinvestment in research, and especially in the kind of basic research from which all else flows (Stiglitz/Greenwald 2015:).

Syngenta and other large biotech and agribusiness companies have a particular view of IP. Two Syngenta managers presented some of their arguments in a contribution to *WIPO Magazine*:

> IP as such does not feed the world. However, it does provide the invisible infrastructure that enables innovation and progress in plant breeding. […] Only a few decades ago, plant breeding was an empirical science based on trial and error. Today's plant innovations are developed using sophisticated science and technology, [which] is a lengthy and costly process, […] time consuming and risky […]. While PVP protection [sic] is necessary […], it is neither suitable, nor intended, to protect specific genes or traits or improved methods of breeding. For [such] highly technical processes […], the patent system is an essential protection tool (Kock/Gould 2013).[13]

However, such patents are quite clearly not designed to create a balance of interests between society and the inventor. Only a very slender proportion of the license fees and profits made by global corporate patent holders such as Syngenta goes to scientists and researchers. The actual purpose of these revenues is to finance the company, to pay hefty dividends to its shareholders, and to boost management bonuses.

Syngenta has put forward the following argument in favour of applying IP in the Global South:

> For developing nations in particular, a robust framework of intellectual property rights can encourage the growth of domestic industry and boost foreign investment (Syngenta Global – 'What Syngenta thinks about…';).

However, this argument may be unmasked by a glance at the history of Basel's chemical companies. In the so-called second industrial revolution of the 19th century, German and other chemical companies achieved a technological advantage they wanted to protect from international competitors by patent systems. By contrast, Basel's chemical industry drew great benefit from the fact that Switzerland had

no patent legislation whatsoever until 1888 (Kilchenmann 2004; see also Part Two, 'Syngenta's genesis').

Until the mid-1890s, the Swiss Society for the Chemical Industry (SGCI), was vehemently opposed to the introduction of a national patent law. It was only after 1894 that Switzerland's chemical industry, and especially the companies in Basel, felt large and important enough to follow in the footsteps of other European countries by introducing national patent legislation (see Fráter 2008). By contrast, in the 21st century countries in the Global South are to be prevented from replicating the 'Basel Model'.

However, even in the northern hemisphere not everyone benefits from IP legislation. While it may well be beneficial to the innovative power and the profits of very large companies such as Syngenta, IP legislation can 'have a strongly negative effect on research', as a survey published in *nature Biotechnology* reported in 2009:

> Here we report scientists' assessments regarding the overall effects of IP protection, as revealed in a survey of academic agricultural biologists. Scientists believe that, contrary to the current consensus, proliferation of IP protection has a strongly negative effect on research in their disciplines. Our respondents' answers on the details of access problems are highly consistent with those reported in the recent literature, but they ultimately relate these problems to the proliferation of IP protection in academia (Lei et al. 2009).

In terms of plant breeding, the patent jungle is getting more and more impenetrable and biomedical innovation may suffer for it:

> The case of beta-carotene-enhanced rice (GoldenRice™) illustrates a potential anticommons/thicket problem. This innovation involves using as many as 70 pieces of IP and 15 pieces of technical property [TP, or tangible property] spread over 31 institutions (Kryder et al 2000).[14]

This increases the likelihood that scientists and researchers will overlook existing patents and end up facing infringement charges. It is a situation that can only add to scientists' already complex work.

What is more, patents also push innovation in the wrong direction:

> […] there are many circumstances in which the returns to innovation may well exceed the social returns; much innovation in a market

> economy can be thought of as rent seeking, and some of the returns to innovation represent rents that otherwise would have accrued to others (Stiglitz/Greenwald 2015:(18)Appropriability).

In other words, patents primarily enable very large companies to secure their market power. However, these companies rarely achieve socially important innovations as they cannot be monetised:

> […] the most important innovations have large societal spillovers [and] most of the most important discoveries (such as the decoding of DNA) were motivated not so much by financial rewards as by […] other factors, such as intrinsic rewards of learning […]. Only a fraction of the social returns to innovation can be captured by the innovator. There are learning spillovers, externalitites. This suggests that, to the extent that learning depends on financial returns, there will be underinvestment in learning (Stiglitz/Greenwald 2015).

It is therefore disastrous if R&D are defined solely by large companies operating beyond the reach of any democratic structures.

Farmers' power of innovation

The relevance and significance of large companies' in-house research vis-à-vis that of the entire research community has been vastly overrated. If Syngenta manages to develop and launch a new plant variety, the company rests on other people's laurels, i.e. on the work and knowledge of farmers, and – frequently – on state-funded academic research. Attributing varieties or gene sequences to individual companies constitutes an act of private-sector appropriation and monetisation that completely disregards contributions from many other parties. Rather than being evidence of innovation, patents on seeds are expressions of power relationships.

Moreover, intellectual property legislation prevents small-scale farmers from contributing towards innovation as they have been doing. Farmers' rights, i.e. 'the right to save, use, exchange and sell farm-saved seed of any variety on the non-commercial market' (BD 2014d:13) are essential if varieties 'with specific adaptation to local conditions' such as specific soil qualities, the climate, pests and diseases, are to be developed. They are key to the independence and resilience of small-scale farming systems that rely 'heavily on the in-

formal […] seed system, and [are] the basis for farmers' livelihoods and national food security in [developing] countries' (BD 2014d:6; De Schutter 2009).

Imposition of IP by means of free-trade agreements, infringement charges and use of violence

Because intellectual property legislation is controversial and hotly debated, international agreements such as TRIPS have been designed for its implementation, not least with the support of the World Intellectual Property Organisation (WIPO). If need be, state governments are to implement them by violent means. As the global implementation of strict IP legislation is vital to large companies and their global investments, multi and bilateral free-trade agreements and the WIPO's 'advisory role' is to persuade little-developed countries in the Global South to enforce even stricter legislation than TRIPS' (Shashikant/Meienberg 2015, GRAIN 2015).

Most free trade treaties now require signatory states to endorse UPOV 91, or to introduce an equivalent system. In this way, countries in the Global South are forced to accept PVP that was drawn up by representatives from a small number of countries, mostly in the wealthy northern hemisphere. In the context of international negotiations, Switzerland also demands compliance with UPOV 91 in the less developed countries in the Global South. Syngenta is the only global agribusiness company headquartered in Switzerland that will benefit.

Nation states are among the UPOV 91 members, including the EU since 2004, and large seed and agribusiness companies enjoy observer status. Although, after a long and arduous struggle, a few civil-society organisations were also granted observed status, the input from and significance of small-scale independent breeder associations has been waning. By contrast, large companies – and Syngenta in particular – have brought their status to bear on legislation that will be to their own benefit.

> The European Coordination of La Via Campesina currently has observer status at UPOV but the new rule will prevent participation of other coordination entities such as Latin American Coordination of Countryside Organizations, they said.
> The new rule will 'further exacerbate the current imbalance in the

> representation of stakeholder groups' in UPOV, they said, claiming that the seed industry benefits from a large representation at UPOV. Syngenta, they said, is represented in UPOV by 'CropLife, the International Seed Federation, the European Seed Association, CIAPORA, the African Seed and Trade Association and the Asian and Pacific Seed Association.'
> APBREBES also reported that at the UPOV Council, Gurry called on all member states to ratify the UPOV Act of 1991 in order to ensure a 'constitutional clean-up'. UPOV 91 has been described by civil society as giving more rights to the breeder to the expense of farmers (Saez 2012).

Imposed for the benefit of the crop seed industry, UPOV has increasingly restricted farmers' rights. On the occasion of the 50th anniversary of UPOV, a protest event was held in Geneva, Switzerland, in November 2011, to call

> for the immediate recognition of the right of farmers to resow and freely exchange their seeds, and to protect them from biopiracy and contamination from patented genes. No to the stranglehold of seed multinationals, the New Plant Variety Certificate of 1991 and any form of patent on plants, parts of plants, their genes, or production methods.
> […] the situation has long been intolerable for sustainable family farmers, and may yet get worse. In fact the issue raised here affects everyone, as the question of access and of the free reproduction and exchange of seeds by farmers is the only way to prevent multinationals from appropriating and privatizing the entire food chain, and therefore life itself (La Via Campesina 2011).

To make matters worse, ruthless capitalist elites in the Global South often employ brutal tactics to implement their free-trade partners' requirements, using violence to impose free trade and the abolition of the right to free reproduction and exchange of seeds. The imposition of UPOV 91 regulations

> can make it increasingly difficult or outright illegal for farmers and peasants to use their own seeds. They may find themselves forced to use privatized commercial seeds […]. If a farmer uses privatised seeds without the permission of the owner of that variety (for example, if he or she got the seed from a neighbour, or bought seed one year and

> then kept part of the harvest to use the next season), their crop can be seized and destroyed, as well as their harvest and the products obtained from their harvest (GRAIN 2015).

In Colombia, Law no. 970 of the Colombian Agricultural Institute (*Instituto Colombiano Agropecuario*, ICA) was adopted in 2010.[15] Colombian farmers were suddenly obliged, not only

> to register their fields […] indicating the plant material to be sown, number of hectares to be sown, placement and area of the farm, sowing date, seed category […],

but numerous other obligations were imposed as well:

> Natural or legal persons [who produce seeds] shall: […] Market and/or transfer free of charge [only] seeds meeting the established requirements concerning signage, tagging, and labelling; […] Market or transfer free of charge seeds with authorized labelling, tagging, packaging, repackaging, and/or containers […] In those cases where it is found that any act of production, … storage, marketing, transfer without charge, and/or use is being performed with seeds, whether identified or not, … for the purposes of their disposal in any manner or form, in warehouses or storehouses, on lots or premises, in barns, fields, or mills, or at other sites where there are seeds and/or other plant materials that do not meet the provisions of this Decision, […] the applicable control measures and sanctions may be imposed without entitlement to any compensation.
> […]
> This kind of sanction can be imposed even before the farmer accused is actually declared guilty, as was the case in Colombia, where **tons of farmers' seeds have been confiscated and destroyed based on suspicion** of infringement (GRAIN 2015; the editors' emphasis).

Large companies will also resort to legal action to enforce their IP claims, irrespective of whether breeders, farmers and growers committed patent infringements 'accidentally' or even unintentionally without using a competitor variety' (Kock/Gould 2013) or whether their own conventional (and often traditional) seed varieties have been contaminated by patented products.

Monsanto has been one of the big biotech companies that frequently takes legal action against U.S. farmers:

> Since 1997, Monsanto has filed 145 lawsuits, on on average about 9 lawsuits every year for 16 straight years, against farmers who have 'improperly reused their patented seeds.' The biotech giant hasn't lost a single case, either. Not one (Sarich 2014).

The right to 'Seed Resistance'

Coupled with the privatisation and monopolisation of plant and seed breeding, IP legislation has an immediate negative impact on small-scale farmers and growers. Although time limited, it is tantamount to a monopoly that permits a large company such as Syngenta to dictate the price.

Even though productivity has not risen nearly as much, prices – especially for GM seeds – have increased steadily. As seeds take up an increasing proportion of agricultural input costs, the viability of farms is at stake. And that is true even without taking into account the enormous price differences between so-called quality seeds marketed by large companies and locally produced seeds that farmers often exchange or trade in traditional seed systems. In the countries of the Global South, small-scale or family agriculture relies on these systems. Where such local or regional seed-trading systems are destroyed by free-trade agreements, the impact of price increases is even more devastating.

It is not surprising, therefore, that resistance has been building against this form of accumulation by expropriation through the imposition of IP rights on living organisms. In Chile, for example, large demonstrations in 2014 led to the decision not to implement UPOV 91 in the same year that a new law was approved in Venezuela that defines seeds as a 'strategic public good', thereby restricting its patentability and privatisation, as well as prohibiting any imports of genetically modified seeds:

> The proposed Seed Law, approved by the Venezuelan parliament in its first reading in October 2014, is designed against transgenic organisms and to combat the monopolisation and privatisation of seeds, as was underscored by José Ureña, member of the National Assembly (NA) and of the NA's Permanent Committee of Finance and Economic Development, who was among those charged to draw up the legal document.

> 'The Seed Law is anti-transgenics and anti-patents because seeds are a patrimony of humanity and cannot be privatised', Ureña told the Venezuelan News Agency (AVN) in an interview […] in which he also accused transnational companies such as Monsanto, Syngenta and BASF of privatising seeds and compromising their natural characteristics (AVN 2015).[16]

In Guatemala, following protective action instituted by the Labour, Indigenous, and Peasant Movement for Guatemala (MSICG) on 29 August 2014, the country's highest court of law imposed a provisional suspension, effective from 26 September that year, of the so-called 'Monsanto Law', which

> calls for prison terms of between one and four years, and fines of between 1000 to 10,000 quetzals (130–1300 USD) to be imposed on anyone reproducing seeds that have been patented in Guatemala. The […] regulation was among the compromises accepted by the State of Guatemala, and forms part of the Free Trade Agreement (DR-CAFTA) that was signed in 2005 by Central America, the Dominican Republic and the United States (LaVoz 2014).[17]

At the time of writing, an 'open-ended intergovernmental working group' of the UN General Assembly's Human Rights Council was drafting a 'United Nations declaration on the rights of peasants and people working in rural areas' (HRC 2012), after a 2012 study

> concluded that peasants and other rural populations are among the most discriminated and vulnerable people in the world, and the major victims of hunger and poverty – they comprise eighty percent of the world's hungry, although, ironically, their farming systems play a key role in feeding the world's population. Systematic land expropriation and forced evictions, as well as unsustainable industrial development, were found to be the main factors to contribute to the peasants' plight. The […] existing international human rights framework remains insufficient to address these issues [which is why] the adoption of a new instrument [was recommended and] supported by the former United Nations Special Rapporteur on the Right to Food, Olivier De Schutter (BENELEX 2014).

La Via Campesina and other civil society groups have long been campaigning for the adoption of measures that give peasants and other rural populations

> the rights to land and territory (draft article 4), to seeds and traditional agricultural knowledge and practices (draft article 5), to means of agricultural production (draft article 6), to specific information (draft article 7), to freedom to determine price and market for agricultural production (draft article 8), to the protection of agricultural values (draft article 9), to biological diversity (draft article 10), and to preserve the environment (draft article 11) (BENELEX 2014).

It is a declaration that deserves and requires committed and solidly united support.

Scientists and researchers have also begun to resist the imposition of IP rights on living organisms. There are a number of open-source initiatives for seeds that offer a 'counterbalance' to seed patents. One such is the Open Source Seed Initiative (OSSI), which is

> dedicated to maintaining fair and open access to plant genetic resources worldwide in order to ensure the availability of germplasm to farmers, gardeners, breeders, and communities of this and future generations (OSSI 2016).

In April 2014,

> scientists, farmers and sustainable food systems advocates [assembled] on the University of Wisconsin–Madison campus [in the U.S.] to celebrate an unusual group of honored guests: 29 new varieties of broccoli, celery, kale, quinoa and other vegetables and grains [were] publicly released using a novel form of ownership agreement known as the Open Source Seed Pledge.
>
> The pledge, which was developed through a UW–Madison-led effort known as the Open Source Seed Initiative, is designed to keep the new seeds free for all people to grow, breed and share for perpetuity, with the goal of protecting the plants from patents and other restrictions down the line.
>
> 'These vegetables are part of our common cultural heritage, and our goal is to make sure these seeds remain in the public domain for people to use in the future,' says UW–Madison horticulture professor and plant breeder Irwin Goldman, who helped write the pledge. […]
>
> 'Already, many public breeders don't have the freedom to operate. They can't do what they want to do as often as they would like,' says Jack Kloppenburg, UW–Madison professor of community and environmental sociology and author of 'First the Seed,' who has pro-

vided much of the guiding vision for the OSSI group. [Kloppenburg was hoping that]
'Open source means sharing, and shared seed can be the foundation of a more sustainable and more just food system.' (UW–Madison 2014).

At the very least, the very succinct Open Source Seed Pledge printed on all OSSI seed packets forms a welcome contrast to the lengthy, wordy and inherently confusing wording of UPOV and IP legislation.

Notes:
1 IP or Intellectual Property has been taken to mean intellectual property rights, including patent rights, plant variety protection certificates, unpublished patent applications, and any inventions, improvements, and/or discoveries that may or may not be legally protectable, including all know-how, trade secrets, research plans and priorities, research results and related reports, statistical models and computer programs and related reports, and market interests and product ideas.
TP or Technical Property has been taken to mean tangible property such as computer software, germplasm and the biological materials and derivatives thereof, and related information (Kryder et al 2000:v, passim; author's emphasis).
2 Translator's note: For example, Monsanto's Roundup Ready (RR) or glyphosate-resistant plants, or Syngenta predecessor company, Ciba-Geigy's maize containing Bacillus toxin, or 'bt' (EPO 2011:slide 11).
3 Translator's note: '**Distinctness**: A variety must be clearly distinguishable from any other existing variety by one or more characteristics. **Uniformity**: Individual plants of the same variety must be sufficiently uniform in a range of key characteristics. Stability: A plant variety is considered to be stable if it reproduces true to type from one generation to the next' (PVR 2013; PVR's emphases).
4 Farmers' Rights are defined in Part III, Article 9, of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), also known as 'Seed Treaty' or 'Plant Treaty', of the Food and Agriculture Organization of the United Nations (FAO 2001).
5 UPOV 91, Article 15, 'Exceptions to the Breeder's Right': 'Notwithstanding Article 14, each Contracting Party may, within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, restrict the breeder's right in relation to any variety in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by

Brussels, Belgium: Free seeds for all! The free exchange of seeds is an ancient right of farmers and peasants. Seed swaps such as this one challenge large crop seed companies


freies Saatgut für alle!
www.saatgutkampagne.org
semences libres pour tous!
ww.seed-sovereignty.org

planting, on their own holdings, the protected variety or a variety covered by Article 14(5)(a)(i) or Article 14(5)(a)(ii)' (UPOV 91).
6 Translator's note: On 25 June 2015, the Court of Justice of the European Union found that two German farmers had to pay 'equitable remuneration' for planting propagating material obtained from a protected plant variety (farm-saved seed) without having concluded a contract with the holder of the rights (CJEU 2015).
7 Translator's note: An entry at IG Nachbau dated 13 November 2015 seems to indicate that at least some German courts are more in favour of farmers making use of their farmers' privilege, i.e. the right to plant or propagate farm-saved seed or plant material (see IG Nachbau 2015; *Wichtiges OLG-Urteil im Saatgutstreit*).
8 Translator's note: Public Citizen (undated) give a useful overview in English on the differences between Plant Variety Protection and Patent Protection on Plants: https://www.citizen.org/documents/differences-between-plant-variety-protection-and-patents-on-plants.pdf (14 June 2016).
Another useful resource in English is a 2004 Greenpeace documentation (Greenpeace 2004).
9 Translator's note: 'The European Patent Convention (EPC) provides the legal framework for the granting of European patents via a centralised procedure [and] establishes the European Patent Organisation.
'The EPO will grant and administer the EU unitary patent once the relevant legislation enters into force.
1973 – Diplomatic Conference in Munich [let to] signature of the EPC by 16 countries.
1977 – Entry into force of the EPC in 7 countries [France, Germany, Luxembourg, Netherlands, Spain, Switzerland, UK]' (EPO 2011:slides 2/3).
There are 38 EPO contracting states, including all EU states: Albania, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Former Yugoslav Republic of Macedonia, Malta, Monaco, Netherland, Norway, Poland, Portugal, Romania, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom' (EPO 2011:slides 2/3, passim).
10 English by the translator.
11 Translator's note: In January 2016, a Press release by the Berne Declaration stated that the EPO had 'revoked a patent held by Monsanto on Melons (EP1962578) for technical reasons' (BD 2016).
12 Translator's note: SMART or marker-assisted breeding is 'a conventional breeding method based on crossing and selection that is supported by technical means, such that the desired traits [….] can be identified and specifically transferred into the progeny' (BD 2014a).
13 Translator's note: The two authors concede that 'while the impact of patents on traditional plant breeders is currently limited, it is fair to assume that the pro-

gress of science in breeding will lead to an increasing number of patents, which in turn may decrease breeders' freedom to operate (FTO). Under PVP, infringement is essentially caused by what a breeder does, whereas under patent law, it is caused by what a breeder uses. In contrast to the PVP regime a patent infringement can occur 'accidentally' and even unintentionally without using a competitor variety.' They therefore propose a 'change in the way breeders work', for instance by placing 'greater emphasis on building legal and IP capabilities, monitoring FTO and IP landscapes, filing for oppositions and negotiating licenses' (Kock/Gould 2013). Very clearly, they do not have small-scale farmers in mind.

14 Translator's note: 'Under the product deconstruction process of GoldenRice™, we reviewed plant/seed source; gene constructs (TP and IP) of cloning vectors pBin-19hpc, pZPsC and pZLcyH; transformation, plant regeneration, and other techniques; and DNA amplification technologies' (Kryder et al 2000:vi).

15 Translator's note: The introduction of this law eventually brought many Colombian farmers' organisations together in a nationwide strike on 19 August 2013; they 'blocked roads, dumped milk on cars and basically stopped producing food for the cities. The problem? Farmers are being driven out of existence by the government's policies.' As a consequence, in early September 2013, the Colombian government 'announced that it [was] suspending Resolution 970, which was the subject of massive public outcry in recent weeks thanks to the huge peasant mobilisation launched on 19 August. The Resolution, adopted in 2010 and sometimes referred to as Law 970, made it illegal for Colombian farmers to save seeds in order for private companies and transnational corporations to gain monopoly control over the market. Resolution 970 will be suspended for a period of two years, and this will only apply to domestically produced seeds (not imports). The government says it will use the two-year freeze to write new rules on seed use "which will not affect small farmers".' However, it was clear that this was 'NOT a reversal of policy' (GRAIN 2013b).

16 English by the translator; Spanish original text: *El proyecto de Ley de Semillas, aprobado por el Parlamento venezolano en primera discusión en octubre de 2014, se caracteriza por ser antitransgénico y por luchar contra la monopolización y privatización de las semillas, destacó José Ureña, diputado de la Asamblea Nacional (AN) miembro de la Comisión Permanente de Finanzas y Desarrollo Económico del ente legislativo y uno de los encargados del documento legal.*

'La ley de semilla es antitransgénica, es antipatente, porque la semilla es un patrimonio de la humanidad y no se puede privatizar', afirmó Ureña en entrevista con la Agencia Venezolana de Noticias (AVN) […], al tiempo que denunció que empresas transnacionales como Monsanto, Syngenta y BASF privaticen las semillas y desmejoren la naturalidad de las mismas (AVN 2015).

17 English by the translator; Spanish original text: *La Corte de Constitucionalidad (CC), la máxima instancia jurídica de Guatemala, dejó hoy en suspenso provisional la entrada en vigencia de la polémica "Ley Monsanto", que legaliza los derechos de propiedad de semillas vegetales en Guatemala […].*

La decisión fue adoptada por los magistrados ante una acción de amparo interpuesta la semana pasada por el Movimiento Sindical, Indígena y Campesino Guatemalteco [MSICG], que pidió la derogación de la normativa por ser nociva para el país. […]
La ley establece de 1 a 4 años de cárcel y multas de entre los 1000 a 10,000 quetzales (130 y 1300 dólares) contra quienes las reproduzcan semillas que estén patentadas en Guatemala.
La aprobación de la normativa fue uno de los compromisos asumidos por el Estado de Guatemala, como parte de los acuerdos del Tratado de Libre Comercio (TLC) firmado en 2005 entre Centroamérica, República Dominicana y Estados Unidos (LaVoz 2014).

Monopolisation and Syngenta's global strategy[1]

A few companies dominate the global market for pesticides and seeds

In the highly monopolised production and trade of pesticides and crop seeds, Syngenta is a global operator and frequently a key player in strategic conflicts in the agribusiness sector. Due to its high market share in pesticides and in crop seeds, and with its strong research departments, the group is among the spearheads of global tendencies of monopolisation.

Multinational corporations and their global strategies

Many voices have warned about the limits of internationalisation. Since the 1980s, however, the trend has acquired a new quality which deserves the label of 'globalisation'.

Multinational corporations have been driving the increasing integration of world markets. Globalisation now encompasses all regions of the world. Global capital uses their markets and resources to reproduce itself and create surplus value. This has to worldwide centralisation and concentration processes, and to the creation of transnational innovation, production and distribution networks (Chesnais 1994, Fischer et al 2010). Raw materials in particular are being extracted, developed and processed in non-OECD countries, while labour-intensive activities have been relocated to low-wage areas and countries. By contrast, however, the centres have largely retained control of technologies and innovation, i.e. of research and development.

Since the 1990s, vertically integrated, spatially concentrated MNCs with diversified divisions have undergone a transformation, and have grown into highly complex business structures with a great number of stakeholders in every part of the world. The main objective of such global giants is to organise value chains that allow them to appropriate the largest possible share of globally created surplus value (Fischer et al 2010).

MNCs' global strategies are designed to achieve the following

goals: secure advantages in their home countries; acquire strategically important resources including technological and scientific know-how and commodities; select the most cost-efficient production methods; and control the global marketing of their products. MNCs benefit from optimisations in transfer prices. As taxation is an important portion of costs, these corporations seek out the most advantageous combinations and locations. In this context, R&D and the quickest possible implementation of new technologies are considered to be key factors in terms of competitive advantage.

Capital concentration and centralisation

In the post-war period, most multinational corporations pursued strategies of diversification and increased exports. Since the 1990s, more modest economic growth rates have prompted a shift of focus to acquisitions and mergers. This is a phenomenon also known as a company's external rather than internal growth.

Due to the strong concentration of capital, oligopolies have developed in different markets. Oligopolies usually consist of a few companies and economic structures; they are characterized by a specific interplay of competition and cooperation. While competition does not fall away in oligopolies, businesses enter into a range of both explicit and implicit agreements with each other. Their chief purpose is to tailor and adapt the general political and business environment to their own interests.

Defined by their great market power, and by their ability both to secure profits and realise unrestrained extra profits, oligopolies thrive more easily in growing markets. The domination of a specific market by a handful of corporations enables each company to achieve above-average profit rates. However, if and when growth rates slow down, competition grows fiercer; companies are then likely to intensify their internal efforts in order to maintain their high profitability levels. In such circumstances, smaller companies, or companies with unresolved or foreseeable problems are often acquired by large corporations; less profitable areas are likely to be outsourced.

The result of these mechanisms is even greater monopolisation, with even fewer dominant companies enjoying still larger market shares and higher profit levels, as we could see when Syngenta was

created in 1999 and 2000 (see also Part Two, 'Syngenta's genesis'). This is the kind of development that will likely be at the core of future strategic mergers in the agribusiness sector.

The world economy is a highly complex affair. In recent decades, there has been a significant increase in the number of multinational companies. A study carried out at ETH Zürich in 2011 found that no more than '147 multi and transnational corporations (MNCs)' were in control of the global economy (Vitali et al 2011).

Securing extra profits

Monopoly or extra profits can only be achieved if a company is able to maintain outstanding dynamics in the longer term, or to operate under specific market conditions, such as patents.

Patents protect specific areas from investment by other companies. The extraordinary rise in patent applications in recent decades owes much to the certain prospect of royalties or monopoly rents over a clearly defined period of time. Companies that have registered patents for long periods are usually highly profitable, due to the steady accrual of extra profits. However, once patents expire, and if no new products are in the pipeline, analysts may issue warnings of impending profit weakness. Such warnings usually cause stock prices to drop, and fuel rumours about mergers or acquisitions. There is no doubt that, these days, patents are among the key strategic elements considered by multinational corporations (Serfati 2012).

State and anti-trust legislation

State government legislation and legal enforcement mechanisms protect the production of commodities. At the same time, social disputes have led to the protection of labour rights and improved standards of working conditions. This has imposed some constraints on corporate market power. In the course of globalisation, however, states have transformed themselves into competition states[2] whose primary focus lies on attracting international capital, and on providing the best possible terms of exploitation to national capital.

Occasionally, anti-trust legislation has been applied to constrain large businesses, to prevent mega mergers, or even break up cartels. In the neo-liberal era, however, there has been a lack of political will-

power to do so; state legislators have been on the retreat, claiming that only international agreements will be able to curb monopolies.

However, none of these instruments are designed to curb and regulate corporate power. On the contrary: most of these agreements only enhance privileges accorded to TNCs. This is particularly true for the latest agreements that were being negotiated at the time of writing – TTIP, the Transatlantic Trade and Investment Partnership, for example; CETA, the Comprehensive Economic and Trade Agreement between the EU and Canada; or TPP, the Trans-Pacific Partnership. Each one of these agreements is designed to accord even greater powers already powerful multinational corporations, and to prevent national governments from intervening against them.

Pesticide and seed oligopolies

Owing to consolidation processes, the agribusiness sector is now dominated by a mere handful of global corporations. In the pesticide and seed industries, where Syngenta is among the global corporate leaders, consolidation has been particularly intense. However, Syngenta has lost market shares due to issues in terms of unfulfilled promises of profitability and stagnating returns.

In the global pesticide industry, just nine pesticide companies achieved sales in excess of one billion US dollars in 2009. Continuing in the tradition of its predecessors, Syngenta has long been leader in the pesticide market. In 2014, Syngenta generated sales of 11.4 billion USD, way ahead of Bayer CropScience, which was ahead of BASF, Dow AgroSciences, Monsanto, DuPont, Makhteshim-Agan Industries (Israel), Nufarm (Australia) and Sumitomo Chemical (Japan).

In terms of pesticide market shares, in 2011, the three most powerful companies – Syngenta, Bayer and BASF – claimed almost 53% of global returns (BD 2013). However, owing to Syngenta's recent loss of market share (down by 3% in the past two years), the top three slipped to 51% of global returns in the pesticide sector.

The global seed industry is also dominated by three large corporations – Monsanto, Syngenta and DuPont. In the 1990s, their consolidated market share was still below 10%, with the nine largest companies achieving only about 17% in 1996 (Mammana 2014:10). By 2011, however, the market share of these top three had risen to over

53%. While Syngenta's share has shrunk (down 1.2% since 2011), DuPont has managed to increase its share to 21%; the three dominant groups together control 55% percent of the global seed market (ETC Group 2015:5).

A possible mega merger in the seed sector could target the 50% mark, while Monsanto's acquisition of Syngenta (in 2015) would have resulted in a market potential of almost 40%. Switzerland's conservative media, however, rather dismissively described the trend as a 'wave of consolidation' (NZZ 2015b).

In 2013, the Big Six agrochemical corporations – BASF, Bayer, Dow, DuPont, Monsanto and Syngenta – controlled 75% of the global agrochemicals market, 63% of the commercial seed market, and more than 75% of all private-sector research in pesticides and seeds. Also in 2013, the global pesticide market was estimated at 5 billion USD; and estimates placed the global seed market at 39 billion USD (ETC Group 2015:6).

The degree of monopolisation differs in terms of individual crop seeds. The three largest companies control virtually all of the sugar beet and over 50% of the maize and soybean seed markets (BD 2013:10). In 2013, Monsanto, DuPont and Syngenta controlled 60% of the field crop seed market (commercial grain, forage, sugar, oil and fibre crops); the field crop seed market reached 86% of the total global market for seeds (ETC Group 2015:11).

However, market share is not the only measure of the actual power of the Big Six. As they enter into cooperation agreements that resemble cartels, the largest firms are increasingly networked through cross-licensing agreements that place other competitors at a disadvantage. In this regard, the focus has been on license fees for patents in the form of one-off payments or even free swaps; on mutual agreements about patent disputes and access to generic biotechnological traits; and – perhaps even more importantly – on R&D alliances (compare Howard 2013 and ETC Group 2015). These constitute powerful networking connections between the Bix Six.

Companies that can dictate conditions in the crop seed markets are in control of food production and 'Who controls the food supply controls the people', as has been said.[3] This kind of global control is precisely what big agribusiness is all about.

Syngenta's strategy

Being world market leader in pesticides, and the world's third largest seeds and biotech traits company, Syngenta has been pursuing the strategy of 'One Syngenta', marketing to farmers large and small its so-called 'integrated solutions' that cover pesticides and seeds, customised advice and supplementary offerings.

In this context, IT services have acquired far greater significance in terms of consulting software for farmers, and the capability to process vast data quantities. Syngenta has developed a tool called AgriEdge Excelsior. This is a

> whole farm program [that] combines secure data management across digital platforms, innovative product choices for every crop, and [an] on-farm service with the opportunity to earn financial rewards, helping growers maximize and sustain their return on investment (AgriEdge 2016).

The personalised online advice portal for farmers allows Syngenta to gather increasing amounts of data about its customers and their farms. Data on climate and soil conditions, progress plans, the farmers' own knowledge and skill sets, and on purchasers of agricultural products are collected, linked, stored in databases. Indeed, Big Data is also the future in the seed sector. By contrast, the farmers are losing ownership of their data and are fast becoming 'transparent customers' in so-called 'whole-farm management'.

What we are experiencing is a leap into digital capitalist agriculture. The growing significance of Big Data and bioinformatics will exacerbate the issue of intellectual property (IP); new skills and investments are highly likely to provoke yet another wave of concentration.

Since the time Syngenta was created in 2000, the corporation has tried to catch up on Monsanto by means of an impressive array of acquisitions of companies in the genetic engineering and seed markets. Its failure to do so (as of early 2016) is most likely related to the fact that Europe's agrarian sector has been more resistant to genetic engineering than that in the U.S.

Paradoxically, despite many millions of people starving every day, the food sector has seen overproduction; returns on pesticides and seeds have fallen as a consequence. Syngenta managers have seen

this as a transitory slow-down in the economy, and have wagered the company's product portfolio on global demographic changes that should lead to longer-term rising food prices.

There are significant differences in terms of strategic perspectives for pesticides and seeds. Pesticides are part of the chemical industry that has seen years of challenges in terms of profits. Here, high fixed capital investments are the norm. As Chinese producers have en croached on the market, Syngenta has disappointed shareholder expectations; its glyphosate business has shrunk, too. To reduce costs, the company has outsourced more and more of its production.

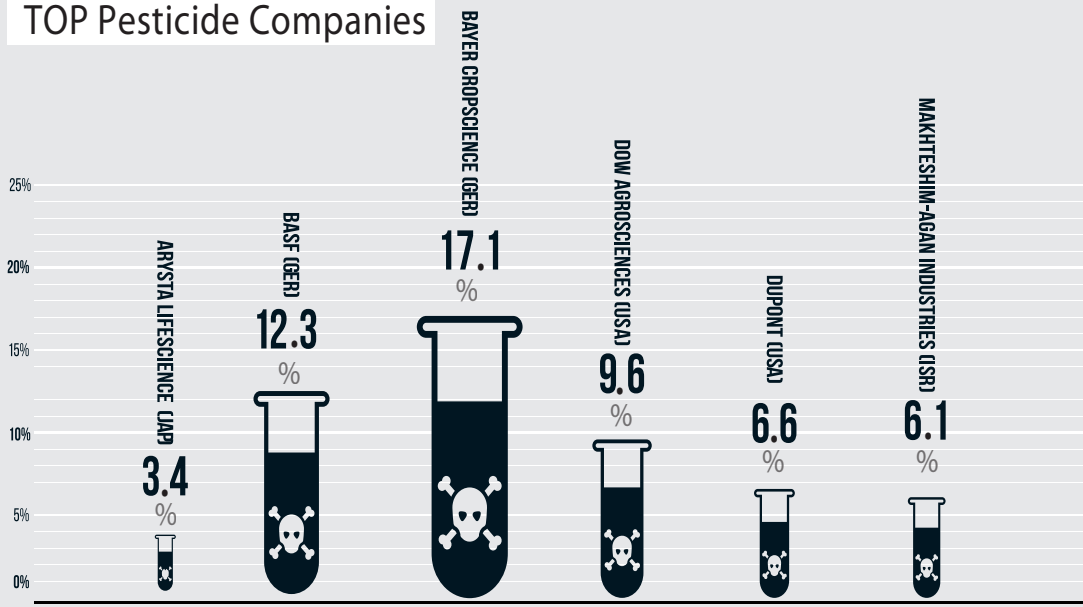
While profitability is higher in the labour intensive seed industry, the market for GM seeds has grown far less quickly than forecast twenty years ago. Since agricultural genetic engineering has not made the expected breakthrough, Syngenta has adopted the stance of benefactor, pushing GM rice in Africa and Asia, as well as aggressively licensing GM products and marketing genetic traits. In Europe, Syngenta has pushed so-called non-GM hybrid varieties in the hope of cornering the wheat market with its conventional hybrid varieties.

In northern and southern America, the pesticide market appears to have levelled off. Only Elatus, a soybean rust fungicide and Syngenta's star product, appears to have the potential to achieve a higher market share than its competitors. In the seed sector, the situation is different in these geographical areas. The challenge for Syngenta is to catch up on Monsanto in terms of innovation, which did not look likely at the time of writing. The company's best prospects of growth clearly lay in Africa and Asia. However, that is where small-scale farmers play a much greater part, and Syngenta has been challenged to reach them via its usual distribution channels. Here, therefore, the company has engaged more with government and development agencies to tap into their more direct access routes to rural populations (see also Part One, chapters on Africa and India).

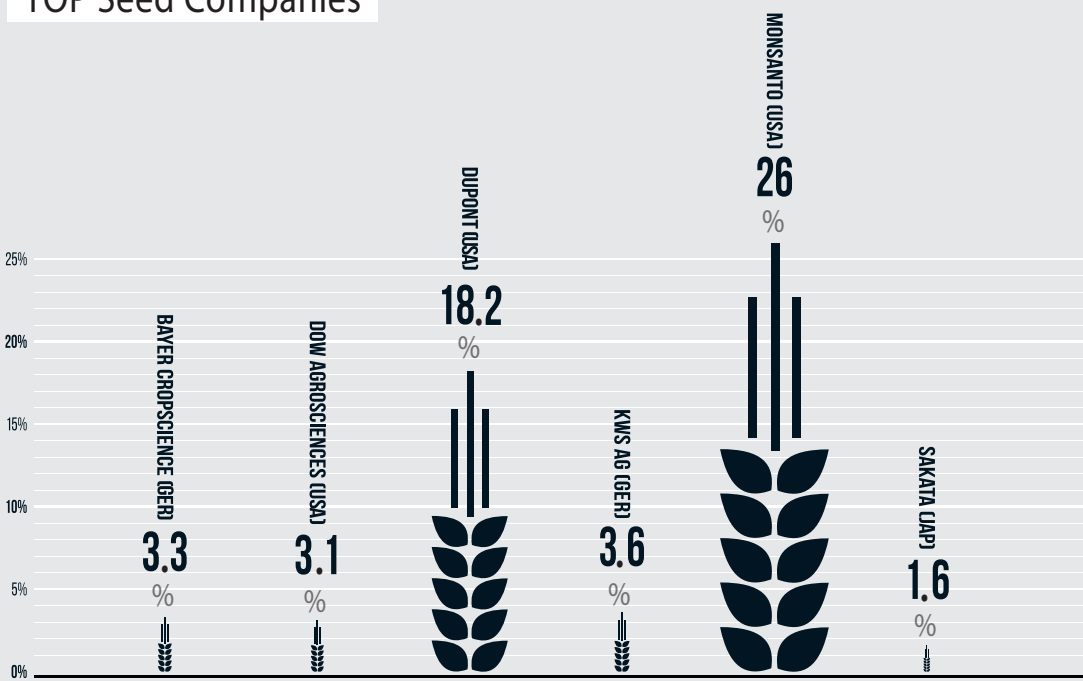
Mergers as a strategic tool

In the world of big agribusiness, divestments, acquisitions and mergers have become key strategic tools and part of daily business – even for Syngenta. The media easily go into a frenzy, often over mere rumours, causing dramatic spikes and troughs in share prices.

TOP Pesticide Companies



TOP Seed Companies



MONSANTO (USA)
7.4
%
NUFARM (AUS)
5
%
SUMITOMO CHEMICAL (JAP)
3.9
%
SYNGENTA (CHE)
23.1
%
REMAINING COMPANIES
5.5
%
25%
20%
15%
10%
5%
0%

SYNGENTA (CHE)
9.2
%
TAKII & COMPANY (JAP)
1.6
%
VILMORIN (FR) (GROUP LIMAGRAIN)
4.8
%
WINFIELD (USA) (LAND O'LAKES)
3.9
%
REMAINING COMPANIES
24.7
%
25%
20%
15%
10%
5%
0%

Acquisition and merger offers from other corporations have come as no surprise to Syngenta's management nor to its Board of Directors. Merger talks with Monsanto were reported in early summer of 2011, and again about a year later, in 2012. More wild speculations followed in 2014, about a takeover of Dow's agrochemical division, or about a merger with DuPont's agrochemical division. Monsanto again became involved in April 2015, when the American company made Syngenta a more concrete offer, which it eventually withdrew after months of hostile struggle. The agrochemical industry seems to be facing further 'consolidation' (see NZZ 2015b) and anew round in the struggle to reduce the number of oligopolistic global players appears to be looming.

As Syngenta found itself in the still 'eye of the storm', its room for manoeuvre was clearly shrinking. A new round in the global oligopoly was going to be a challenge. Everyone takes notice when a very few oligopolistic giants begin to converge in the direction that Monsanto was pushing.

In December 2015, a new company with a market capitalisation of between 120 and 130 billion USD emerged from the largest ever all-stock deal in the chemicals industry, hailed as a 'Merger of Equals' between DuPont and Dow.

In mid-January 2016, Syngenta's board was reported to have 'voted in favor of pursuing advanced takeover talks' with ChemChina (Bloomberg 15/01/2016). In February 2016, the Syngenta Board accepted ChemChina's take-over offer.

From this perspective, it seems to be perfectly clear that, in this most controversial, most problematic and least acceptable version of a monetised world, TNCs and their managements are driven by the exploitative interests of global capital.

Our position is equally clear: mergers between global players are not only undemocratic, they are also diametrically opposed to the interests of company employees, workers and farmers, and society as a whole. By increasing profitability, share prices and market capitalisation, mergers of global players favour global capital and the notorious top one per-cent of our globalised society. Therefore, any such mergers must be opposed. However, if there is to be any chance of success, trade unions, farmers' associations, civil society organisa-

tions and other social movements must come together to organise and coordinate resistance at an international, global level.

In fact, it is very likely that the largest part of the food sector will be controlled by even fewer giant corporations. At the time of writing, the oligopoly consisted of the Big Six. At some point in the future, it may consist of only the Big Three. The only question now is how rapidly and how extensively things will move in that direction, and – more importantly still – how the trend could be broken.

One key strategy, therefore, is to provide far better protection and support to local food producers. Another, more important strategy is to put a stop to the patenting craze that has enabled companies to take up monopolist positions, to enjoy specific but illegitimate protection of their products and sales, and to make extra profits from royalties and other monopolistic rents.

Notes:

1 Adapted from German by Ueli Gähler and Margret Powell-Joss.

2 Editor's note: German state theorist Joachim Hirsch coined the term *Wettbewerbsstaat* in 1995 (Hirsch J 1995).

3 'Who controls the food supply controls the people; who controls the energy can control whole continents; who controls money can control the world', and 'Control oil and you control the nations; control food and you control the people' are unsourced statements ascribed to Henry Kissinger (Kissinger at Wikiquote).

World trade: WTO to TTIP

Free-trade agreements largely protect investments by multinational companies

Several chapters in this book have mentioned so-called free-trade agreements. Alongside the International Monetary Fund (IMF) and the World Bank, a third organisation that would be of extreme relevance to international capital came into being when the World Trade Organization (WTO) was created on 1 January 1995. The WTO rests on the dogma that trade is good and must be as free from restrictions as possible in order for goods, services and capital to circulate around the globe without impediments; that liberalisation will lead to more trade and therefore to more growth; and that liberalised markets will redress all ills and increase everyone's wealth. This set of arguments essentially undermines laws set in place to protect not only national economies but high social and environmental standards as well.

However, increasing numbers of economic crises and rising inequality across the globe over the past few decades clearly show that trade does not benefit all. Trade chiefly benefits multi and transnational corporations, which already enjoy many privileges, and brings them closer to their goal of creating global markets. We must agree with Petra Pinzler's analysis that 'transatlantic elites dominate the world' (Pinzler 2015:55). As many of the several hundred such bilateral or multilateral free trade agreements contradict each other, the global economy is caught in an impenetrably tangled net.

However, launched in 2013, the most controversial negotiations concern the Transatlantic Trade and Investment Partnership (TTIP). If implemented, the partnership would constitute the world's largest economic area: 'The EU and the US economies account together for about half the entire world [gross domestic product] GDP and for nearly a third of world trade flows' (EC 2015).

However, TTIP is not primarily a free-trade agreement designed to lower tariffs or trade duties, for instance. Rather, it would provide unilateral support to capital interests and protection to the in-

vestments made by corporate giants. Democratically agreed limits and standards that were set up to protect human and environmental health would be undermined; regulations, norms and approval procedures would be reduced to the 'lowest common denominators' on both sides of the Atlantic Ocean. This was revealed in a document leaked in September 2014 which showed that TTIP

> negotiations favour business interests over the protection of citizens' health and the environment. The [annex] closely follows the chemical industry's agenda for TTIP to minimize regulatory differences between the US and the EU (CIEL 2014).[1]

Among the many achievements at stake are the EU's precautionary principle for the approval of chemicals, and hence the EU's science and hazard-based system involving scientific cut-off criteria. While the EU system is far from perfect, it does, in essence, oblige companies to prove the harmlessness of new products prior to launch. In the U.S., by contrast, a risk-based approach is taken to pesticide regulation:

> In addition to an unreasonably high degree of uncertainty in exposure and variables in risk assessment calculations, substances are authorized for use without adequate scientific evidence on their risks, especially health and safety information. […] as of October 2012, more than 65% of active pesticide products in the United States [were] conditionally registered (CIEL 2015:10).

This means that higher quantities of pesticides are allowed on food in the U.S. than in the EU. Alarmingly, 82 pesticides – including the endocrine disruptor atrazine, a Syngenta product – are 'banned in the EU, but allowed in the US' (CIEL 2015:11).

Bio-engineering, intellectual property (IP), and chemicals such as pesticides are the three core sectors in which Syngenta stands to profit most from TTIP. In its appraisal, the Centre for European Studies (CEPS) expects an increase in EU imports and exports, especially in chemicals, metals and motor vehicles (Pelkmans et al 2014:61). According to Chemdata International, in 2013 EU chemicals accounted for 35.2% of global sales (CEFIC 2013:10).

TTIP, like most free-trade agreements

> negotiated outside the WTO, especially those initiated by powerful economies in the global North, […] require countries to (a) patent plants or animals, (b) follow the rules of the [International] Union for the Protection of New Varieties of Plants (UPOV [91]) to provide a patent-like system for seeds and/or (c) join the the Budapest Treaty on the recognition of deposits of micro-organisms for the purpose of patent protection. These measures give strong monopoly powers to agribusiness companies at the expense of small and indigenous farming communities. For example, UPOV and patenting generally make it illegal for farmers to save, exchange or modify seeds from so-called protected varieties (GRAIN 2016).[2]

In other words, TTIP is the 'royal road' for agribusiness companies wishing to impose their own interests, in particular in areas where they have failed so far. That would include the global imposition of genetic engineering, patents on living organisms and lifting the EU ban on many pesticides. Evidently, the agrochemicals and agribusiness lobbies have been extremely active on either side of the Atlantic.

To Jean Ziegler, Swiss sociologist, publicist and vocal critic of globalisation, the discussion raging around TTIP is 'Armageddon, the ultimate struggle' against greedy agribusiness and other global companies. Ziegler expressed his fear that, it 'TTIP is accepted in its current form, we will have lost a decisive battle' (Wirtschaftsblatt 2015).

What is more, TTIP would allow big agribusiness companies to make gigantic savings insofar as it would lower production standards, consumer protection and labour rights and remove social and environmental legislation. In the agricultural sector, TTIP would strengthen the power of agribusiness companies including Syngenta, enabling them to dominate markets to a degree never known before.

However, while governments conduct near secret back-room negotiations and try to push TTIP and other agreements through as rapidly as they can, popular resistance has been growing. In the EU, 'more than 500 European organisations' created Stop TIPP, a 'self-organised European Citizens Initiative'. On 9 November 2015, 3,284,289 million signatures calling a halt to TTIP and CETA were handed over to Martin Schulz, President of the European Parliament (Stop TIPP). There is some prospect that this and similar movements may be successful.

Notes:
1 For details, see Pelkmans et al 2014:11, footnote 25; for a collection of articles and links on TTIP and chemicals, see S2BN 2015.
2 For details on UPOV 91, see Part Two, chapter 'Syngenta, intellectual property (IP) and accumulation by expropriation'.

Graz, Austria, September 2015: At Graz main train station, ATTAC warn about TTIP and CETA and collect signatures for the European citizens initiative against the trade agreements

Syngenta's shareholders[1]

A few large international investor groups control the company and want to see returns

In this age of shareholder capitalism, weighty shareholder groups wield substantial power over corporations' business strategies. But who are they? Who has how much clout? What do their interventions look like? Answers to these questions are seldom known. It is very rare for relevant information to leak out into the open. Nevertheless, in the following chapter we will attempt to throw some light on a rather murky world.

During the debate about a Federal Popular Initiative 'Against Fat-cat Payouts', the conservative Swiss daily, *Neue Zürcher Zeitung (NZZ)*, published the article 'The Myth of Shareholder Democracy' (*Der Mythos der Aktionärsdemokratie*). The article clearly stated that individual shareholders in listed Swiss public companies were insignificant; that shareholder power lay with institutional shareholders; that, on average, even Swiss pension funds only held between 5 and 10% of shares in listed companies and that, in these companies, private or public-sector investment funds, pension funds, investment or holding companies controlled two thirds of shares. The article concluded that the majority of shares in the largest Swiss corporations were in foreign hands, with decisions made by British holding companies, U.S. hedge funds and sovereign investment funds from Kuwait to Singapore (NZZ 15/01/2013). That is precisely Syngenta's situation.

Investing in Syngenta shares was not generally considered to be a speculative undertaking. But when companies enter into merger negotiations, a share price higher than stock-market values tends to be negotiated. Both Monsanto's offer in spring 2015 and that of ChemChina in autumn 2015 promised significant shareholder premiums.

On the one hand, Syngenta is a fairly regular capitalist corporation. In view of the crucial significance of the food sector coupled with permanent population growth, investors believe that the value of shares in agribusiness companies will continue to rise. Only when

there is talk of mergers or acquisitions in this sector do financial sharks and locusts descend on the scene. On the other hand, however, in its two sectors, Syngenta occupies global top positions which it has attempted to protect by means of the greatest possible number of patents. The company also aims for high returns on equity. Both aspects have attracted investors who have different specific and strategic interests in Syngenta shares.

A few investors hold substantial majorities in shares and voting rights
At 31 December 2015, Syngenta's nominal share capital amounted to just under 9.3 million Swiss francs.[2] 61,631 registered shareholders (*eingetragene Namenaktionäre*) held 58.4% of the nominal capital, while 41.6% of the shares were held 'in dispo', i.e. not recorded in the register of shares, and did not therefore represent shareholder votes. 4.4% of registered institutional shareholders held 51.5% of the total share capital, while just under 59,000 registered individual shareholders held 7.3% of the total share capital.

A breakdown by domicile shows that 83% of them (2015: 51,068; 2014: 55,094) were resident in Switzerland but held a mere 18.1% of the total voting share capital (registered shares). 244 British and 1986 U.S. investors held 20.8% and 10.9%, respectively, while 10,134 shareholders with 8.6% registered shares had their official residence elsewhere. Given this shareholder structure, Syngenta is no longer a Swiss company, but one controlled by international capital.

Most registered shareholders, each with more than 100,000 shares, are institutional investors. Just 49 of them jointly control 41.8% of the nominal share capital. Moreover, the 434 largest shareholders together control a little over 50% of Syngenta's share capital. By contrast, 46,646 shareholders each have fewer than 100 shares and together control a marginal 1.8% of the share capital. Syngenta staff in Switzerland may purchase shares at half price, limited to 5000 Swiss francs annually; some of them also form part of the marginal group, which mainly consists of former Novartis and Syngenta employees.

Most shares, then, are in the hands of institutional investors. However, as Board Chairman Michel Demaré noted in December 2015, as Syngenta lacked an anchor shareholder that could provide stability (FuW 22/12/2015), the company was more vulnerable to attack. In

July 2015, during a stop-over in Switzerland while on tour in Europe, Monsanto CEO Hugh Grant tried to pull important Syngenta shareholders into the merger camp. He did not, however, speak to any of the numerous Swiss investors, as he admitted to *Basler Zeitung* (BaZ 08/07/2015), probably because that would only have been a waste of time.

Large (institutional) shareholders must be registered with the SIX Swiss Exchange in Zürich; such shareholders are listed both on the publicly accessible SIX database and in Syngenta's Annual Reports (see Syngenta 2014b). Most of them are financial societies that manage and invest funds on behalf of both high and ultra high net-worth individuals, each of whom are able to invest disposal incomes of US$ 30 million or more.

At 31 December 2015, at the head of the list of Syngenta's institutional shareholders, with 13.3% of registered shares, was JPM Chase Nominees Ltd., London,[3] the British arm of JP Morgan Chase & Co. Headquartered in New York City, JP Morgan Chase. With its hedge fund, JP Morgan Chase specialises in managing the portfolios of the world's wealthiest companies and individuals.

Second on the 2015 list of Syngenta's institutional shareholders, with 6.05% of registered shares, was Nortrust Nominees Ltd. in London, the British arm of the Northern Trust Corporation, an international financial services company headquartered in Chicago, Illinois, U.S.A.. Northern Trust Corp. specialises in 'investment management, asset and fund administration, fiduciary and banking services' (Northern Trust at Wikipedia).

Most likely, the high number of shares held by these two British daughters of gigantic U.S. financial institutions is related to the history of ICI and Zeneca (see Part Two, chapter 'Syngenta's genesis'). In the summer of 2015, neither of them commented publicly on Monsanto's attempt to acquire Syngenta.

Third and fourth on the 2014 list of Syngenta's institutional shareholders, holding 5.08% and 4.98% of Syngenta's registered shares respectively, were BlackRock, Inc., New York, and the Capital Group of Companies, Inc., Los Angeles, a U.S. investment conglomerate that an ETH-Zürich study named as the world's second most influential transnational corporation (Vitali et al 2011).

Fifth and sixth on the list, with 4.96% and 3.43% respectively, were Mellon Bank N.A. for its Client (Nominee), Everett, and New York based Bank of New York Mellon Corporation (BNY Mellon at Wikipedia). Both are so-called custodian banks responsible for safeguarding a firm's financial assets, including mutual and pension funds (Custodian bank at Wikipedia). Among Syngenta's other large investors have been the U.S. companies, Dreyfus Corporation, Lockwood Advisers and Pershing Group, and Walter Scott and Partners from Edinburgh, Scotland. The primary focus of all of these institutions is on returns on their investments.

In total, and 'to Syngenta's knowledge', the top six of Syngenta's 49 largest shareholders (or nominees) controlled 38.28% of Syngenta's share capital (Syngenta 2014b:2). However, tens of thousands of individual shareholders who hold up to 100 shares each are of no consequence, nor of any relevance whatsoever – although they do shape the visual impression of Syngenta's annual general and shareholder meetings in Basel, which often resemble events for retired former employees.

BlackRock Inc., a 'colossus' of capitalism

According to German finance export and *Die Zeit* journalist Heike Buchter, BlackRock, Inc. is the world's 'most powerful institution in the financial system' and therefore 'the most powerful company in the world' – the 'secret world power'. On its own website, the company boasts of managing 'more money than any other investment firm [based on US] $4.6 trillion assets under management' as at end December 2015 (BlackRock 2016:About us). When Buchter's book was launched in August 2015, BlackRock were managing some US$ 4.72 billion.

BlackRock was founded in 1988 as 'a firm devoted to risk management' by a group of bankers led by Laurence D. 'Larry' Fink, who became its chairman and CEO. The company went public in 1999 (BlackRock at Wikipedia). Vice chair is Philipp Hildebrand, former Chairman of the Board of the Swiss Central Bank (SNB), and since 2008 a member of the Group of Thirty (G30). G30 is a select – and notorious – group of thirty leading financiers and academics; it has been called the world's most influential 'shadow government'.

There is no doubt that BlackRock is the world's most important so-called shadow bank with a global investment strategy. *Finanz und Wirtschaft (FuW)*, a highly regarded Swiss financial daily, has estimated that two thirds of its funds were invested passively, reflecting indices such as Switzerland's blue-chip stock market index, the SMI. *FuW* called the company a consummate master in passive investment, a strategy reflected in the fact that BlackRock holds US$ 50 million worth of Syngenta shares – a mere one-thousandth (0.01%) of the roughly US$ 5 trillion managed by BlackRock.[4] The tentacles of this financial colossus reach into every corner in the world. At the time of writing, *FuW* believed that BlackRock investments in listed Swiss companies amounted to at least 35 billion Swiss francs (FuW 30/06/2015). Given its trillion-dollar portfolio, BlackRock could easily absorb all of the companies listed at the SIX SWISS Exchange.

Sharks and locusts: Hedge funds …

Bridgewater Associates, LP, in Westport, Connecticut, is the world's largest hedge fund. In 2014, Bridgewater was reported to have 'exited its position in Monsanto'. The reasons given were worldwide protests about Monsanto's genetically modified seeds (Garner 2014).

One of Syngenta's shareholders is Kenneth Laurence Fisher. He is an American investment analyst and the founder, chairman and CEO of Fisher Investments. As at 31 March 2015, Fisher's Asset Management, LLC, Investments held 23,067 Syngenta shares worth almost US$ 68 million (Fisher 2015).

Finally, in June 2015, Paulson & Co., the hedge fund of billionaire investor John Paulson, took a stake that put Paulson & Co. among Syngenta's twenty largest shareholders. In the tussle between Monsanto and Syngenta, Paulson was evidently interested in the promised share premium, and perhaps also in securing a longer-term position from which to exert pressure.

… bankers …

If hedge funds are important, asset management banks and large pension funds matter even more to Syngenta. The European Financial Group (EFG) is among Syngenta's top twenty investors. EFG Bank is part of EFG International, a global private banking group headquar-

tered in Zürich, Switzerland (EFG Bank 2016), which in turn is part of EFG Group headquartered in Luxembourg. Its asset management arm operates in many countries including Jersey, Luxembourg, Miami, the Cayman Island, the Bahamas and Singapore. In June 2015, Swiss EFG AM portfolio manager Urs Beck[5] described Monsanto as a serious buyer for Syngenta (FuW 19/06/2015). It is interesting to note that the Chairman of the EFG Group is Spiros Latsis, a Greek business magnate resident in Geneva.

… pension funds …

Several Swiss pension funds hold Syngenta shares. However, as has been said, even the largest of the funds control far smaller portions than large UK and U.S. institutional shareholders. In April 2013, for instance, the pension fund for civil servants in the canton of Zürich, *BVK Personalvorsorge des Kantons Zürich*, held Syngenta shares worth some 120 million Swiss francs. By late 2014, the portfolio had almost halved, to 61.2 million Swiss francs (BVK 2013; BVK 2014). At the 2013 Syngenta AGM, BVK rejected Syngenta's compensation system and refused to grant discharge to the Syngenta Board.

In July 2015, Syngenta Chairman Michel Demaré was rebuked in a letter sent by Henderson Global Investors, a traditional British investment management company, because Syngenta didn't examine seriously Monsantos offer. (Swissinfo, 17.7.2015)

… and so-called 'sustainable' equity funds

Another investment fund that holds Syngenta shares is Oddo & Cie., a large French-Luxembourgish investment and management bank. As at 30 June 2015, the fund's fourth largest investee was Syngenta (4.4%), after BNP Parisbas, BC Group PLC and Volkswagen Oddo Asset Management Generation Europe also carries 'ESG' in its company name. ESG stands for 'Environmental, Social, Governance'. Financial institutions that use the ESG handle aim or claim to be sustainable, and to combine ecological standards with economic success. The latter is what really matters, while the former is usually more of a pretext. Nevertheless, Oddo does have a degree of affinity to Syngenta's sustainability ideology as expressed in its Good Growth Plan), targeted not only at the political classes but also at a specific group of

investors (Barmettler 2013).[6] Little surprise then, that the most likely author of Syngenta's Good Growth Plan, Juan Gonzalez-Valero, Syngenta AG's Head of Public Policy and Partnerships (Guenther 2016), previously advised ESG investors (from 2006 until 2010). The UBS International Sustainable Equity Fund at UBS Fund Gate, Luxembourg,[7] is among other 'sustainable' funds that hold Syngenta shares.

Perspectives

In this age of shareholder capitalism, any company's development has increasingly come to rely on hedge and share funds, which are capital's new 'character masks'. Returns on invested capital are being watched constantly; a key factor is the relation between share price development and dividend distribution. In the evaluation and assessment of companies, so-called shareholder value has become the most important index that triggers restructurings, mergers and acquisitions.

Large investors tend to exert their influence on management, which may find resistance challenging. Fluctuating exchange rates affecting sales[8] and profitability or the fear of losing top positions in leading markets increase the pressure to act and negotiate. Syngenta Chair Demaré told Swiss daily *Tages Anzeiger* in November 2015 that Syngenta shareholders did not want to lose out in the company's ongoing consolidation and fall behind number one or two in the sector (Tages Anzeiger 24/11/2015). About a month later, in an interview with *Finanz und Wirtschaft*, Demaré stated that Syngenta would be unable to meet short-term shareholder expectations as the whole industry was in a period of consolidation. The Board were therefore exploring three options, i.e. acquiring, merging with, or being acquired by a competitor (FuW 22/12/2015).

At the time of writing, however, Syngenta share values fluctuated wildly. In October 2015, one share cost around CHF 300. Owing to rumours of a takeover or merger, by end 2015, the share value rose to almost CHF 400. Some shareholders, then, did actually realise substantial gains. The share was declared a top performer in 2015 and, at an average gain of 23% in 2015, came first in the Swiss Market Index (Cash 31/12/2015). By 19 January 2016, however, the rate had dropped again, to around CHF 370 and falling, and exhibiting considerable volatility.

It was to be assumed, therefore, that ChemChina would need to substantially increase its offer of between 450 and 470 Swiss francs per share, which would result in a merger in the region of US$ 50 billion, yet higher premiums for investors, and would enable the Demaré/Ramsay tandem to realise an 'uptrend' price (*Hochzykluspreis*) for the company's shares (FuW 22/12/2015).[9]

In the shareholders' world there is little scope for moral values and decisions. Karl Marx suggested that the power of capital power has no subject. Indeed, capitalism is largely a faceless, anonymous system in which established algorithms are applied to calculate and evaluate decisions such as the potential purchase or sale of Syngenta shares in the event of a Monsanto takeover. What matters, ultimately – and always in the light of risks associated with uncertain situations, is maximum profit and maximum speculative gain. This is also how the agribusiness sector is controlled. The fact that important shareholder groups are primarily interested in maximum stock return does not necessarily run counter to the interests of top managers, whose salaries in the form of bonuses and shareholdings, for instance, also depend heavily on share-price fluctuations.

However, relationships between top management and key shareholder groups are volatile. A CEO's autonomy depends on how successful she or he is. This is where Syngenta's wheels have been creaking. At the time of writing, the CEO's aim to increase his company's profits to 25% EBITDA margin[10] continued to be too ambitious. However, using some rather unconventional methods, Syngenta managed to reject Monsanto's advances. A short time later, the company also 'rejected a first takeover offer by state-owned China National Chemical Corp' (Tages Anzeiger 13/11/2015).

In this era of 'dog eat dog', total stock returns play a key part. Those who pay the actual price are small-scale farmers, everyone who relies on food, and especially workers who are under constant pressure to perform and/or threatened by staff cuts.

Notes:

1 Translation/adaptation into English by Ueli Gähler and Margret Powell-Joss.

292,945,649 registered shares at a nominal value of 0.10 Swiss francs each, or a total share capital of 9,294,564.90 Swiss francs; see also Syngenta AG, Minutes of Annual General Meeting Tuesday, 29 April 2014, 9.30 a.m. St. Jakobshalle Basel, Switzerland (Syngenta 2014a; no longer available online).

3 Institutional shareholders are 'acting in their own name or in the capacity as nominees for other investors or beneficial owners [holding] 3 percent or more of Syngenta's share capital' (Syngenta 2014b:2).

4 Translator's note: On 22 June 2016, it was reported that BlackRock had increased its stake in Syngenta AG by 10.1% (11,241 shares) during the first quarter (Mideast Times 2016).

5 Translator's note: On 10 February 2014, EFG Asset Management announced that it had hired 'award winning Swiss equity fund manager' Urs Beck (EFG AM 2014). He went on to launch the bank's New Capital Swiss Select Equity Fund.

6 Translator's note: In his review of the Bilanz Eco Ranking 2013, Barmettler noted that Syngenta did well in terms of environmental and social reporting as well as Corporate Governance, but fell through because of its pesticides for intensive agriculture and genetically modified seeds (Barmettler 2013).

7 Translator's note: The fund changed its name from UBS Global Sustainable Equity Fund on 28 October 2015 (see https://fundresearch.fidelity.com/mutual-funds/summary/90262H379; accessed on 27 June 2016).

8 Syngenta reported on third quarter 2015 sales that they 'were affected by the depreciation of most currencies against the dollar and were 12 percent lower. Excluding glyphosate and the change in sales terms in Brazil already announced, sales were 8 percent lower at constant exchange rates' (Syngenta 2015d; the link to a 'presentation illustrating the third quarter 2015 sales' was no longer active on 28 June 2016).

9 Translator's note: On 2 February 2016, Syngenta was widely reported to have agreed to a US$ 43 billion takeover by ChemChina (IPSA 2015; WSJ 2016).

On 20 April 2016, the Swiss financial paper CASH reported another substantial drop in Syngenta returns by 7% to US$ 3.74 billion, owing to a strong US dollar and challenging markets in North and South America (CASH 20/04/2016).

10 The measurement of a company's profitability as a percentage of its total revenue, the EBIDTA margin is equal to earnings before interest, tax, depreciation and amortisation (EBIDTA), divided by total revenue. See also Part Two, chapter 'Syngenta, a multinational corporation'.

Basel, Switzerland, May 2015: MultiWatch and other activists hold a protest rally at the entrance to the Syngenta AGM


shalle
Basel
syngenta
NO Pesticides Near Schools
Hawai'i Is
GMO
SYNGENTA DOW PIONEER
SHAME ON YOU
SUING KAUA'I COUNTY
FOR THE RIGHT
TO SPRAY POISONS NEXT TO OUR
SCHOOLS, HOMES & HOSPITALS

Basel: a 'chemical city' and its unholy alliance with Syngenta

Pampered by Basel's politicians, Syngenta capitalises on global inter-urban competition to attract business

Basel is Switzerland's third largest city (pop. 190,000). Situated on the Rhine River at the Swiss-German-French tripoint, it has long been an important centre for the chemical and pharmaceutical industry. This is where the headquarters three global chemical companies, F. Hoffmann-La Roche AG, Novartis International AG and Syngenta AG, are located.

The influence wielded by Basel's multinational corporations was illustrated by Syngenta's presence at Expo Milano 2015, Italy, whose handle was 'Feeding the planet, energy for life'. In September 2013, the environmentalist Dr. Guy Morin, the President of the Executive Council of Canton Basel City (elected in 2004), proudly announced that Syngenta would be Basel's 'main partner' in Switzerland's presence at the Milano fair; the emphasis would be on three of Switzerland's key qualities – loyalty innovation and sustainability. Both conceptually and in terms of contents, Syngenta and the External Affairs and Marketing Department of canton Basel-Stadt would work very closely together, with the biotech company leading on knowledge transfer, examples of best-practice, and arranging topical specialist events (Basel MM 2013; see also BS Milano 2015a/b).

However, Syngenta plays a major part in an unsustainable globalised agricultural system based on fossil fuels, chemistry and genetic research. The MultiWatch symposium on Syngenta held in Basel in April 2015 therefore described the part that Syngenta was playing at Expo Milano 2015 as an 'unholy alliance'.

Basel and the chemical industry

Basel has long had an ambivalent relationship with the multinational corporations headquartered in the city. On the one hand, a highly critical light has been shining on them since the 1970s when Basel's residents joined in protests against plans to build a nuclear power

plant in nearby Kaiseraugst.[1] Moreover, in a city that boasts a 'green' image, a 2000 study found that over half the households in the inner city of Basel were car-free (Müller 2000). On the other hand, multinational companies have not only paid substantial taxes, but have also provided jobs for highly qualified and well-paid staff. As a result, the economic situation has been better for Basel's residents than elsewhere. Morin himself, a medical doctor, member of the Green Party of Switzerland (GPS), and one-time environmental activist, is the very embodiment of this ambivalent and contradictory constellation.

Since the rise of the chemical industry, its relationship with the city of Basel has gone through several stages. In conjunction with globalisation and a general shift towards neoliberalism in the 1990s, corporations began to call the shots, while the cantonal executive has worked openly to maximise the attraction to business of the outstanding location.[2]

A key event and turning point, however, was the chemical disaster of 1 November 1986 at Schweizerhalle,[3] which, at least in part, led to mass redundancies: In the aftermath, many of Basel's big chemical companies set up production facilities elsewhere. Ever since, the city's chemical industry has repeatedly threatened to move jobs to more amenable and 'compliant' locations.

A heavy hint came in the early 1990s. In 1989, Syngenta predecessor Ciba-Geigy had submitted a planning application for *Biotechnikum* at its Basel headquarters. It needed new microbiotech facilities for the production of genetically modified organisms. When the application was granted in 1991, one member of Basel's Executive Council upheld their objections; more flooded in from the locals and the 'GM-free' movement. In response, the company decided to build the Biotechnikum on its French site in nearby Huningue just across the border (*Biotechnikum* 2008). These days, the city of Basel has become more of a hub for the large businesses' research and administration divisions rather than for their production facilities.

At any rate, as globalisation and internationalisation has made big business a great deal less bound to specific locations, multinational corporations have had even wider scope to define the terms: unless location advantages materialise, companies threaten to go elsewhere. In Basel as elsewhere, big business manipulatively claims to be local

and Swiss if benefits are likely to materialise. However, when faced with unwelcome public sector regulations, corporations pull the global card and claim that activities and headquarters can easily be transferred elsewhere.

Moreover, today's top executives and staff tend to have an international background, are not involved in local politics, and have few, if any, ties to influential local circles (see *Daig* at Wikipedia). In the case of Syngenta, at the time of writing, the only person of Swiss origin on the nine-strong Executive Committee was Christoph Mäder; there were three Swiss nationals, a man and two women, on the eight-strong Board of Directors (Syngenta Global June 2016).

Basel, a 'chemical city'

As Basel's chemical industry grew in the course of the twentieth century, so did its influence on the city's policies. After all, many of the numerous biologists and chemists, economists, lawyers and other academics were part of the city's élite (see *Daig* at Wikipedia). At the other end of the political spectrum, growing numbers of chemical industry workers together with Basel's many civil servants formed the backbone of a strong labour movement that expressed itself in the Social-Democratic Party (SP) and the Communist *Partei der Arbeit* or Workers' Party (PdA). They helped to create an image of Basel as a 'Labour' or 'Red' city (see Stirnimann 1988). In other words, since before World War II, i.e. at least from the mid-1930s onwards, the chemical industry exerted a strong influence right across the city's economic, political and social spectrum. And in the post-war boom times, when the 'chemical city' had few if any issues with an industry that was generating greater wealth to the benefit of most, people rather lost sight of any dependencies (Simon 2000).

This began to shift in the late 1970s. For one thing, the worker demographic was changing as the chemical companies employed more white-collar workers and cross-border commuters while traditional production jobs were disappearing. Moreover, scientists in key executive positions were being replaced by McKinsey-ist managers who knew more about downsizing and profit maximisation than chemical production processes.

In the public arena, the critical generation of 1968 began to wield

greater influence. In 1975, a broad-based popular anti-nuclear movement prevented the construction of a nuclear power plant in Kaiseraugst, outside Basel's medieval city walls. Anti-nuclear and environmental activists became very vocal in their criticism of the excessive power of big business, of the close alliance between the chemical industry and the the city's politicians, of business policies in what then became known as the 'Third World', and of serious environmental problems.

The chorus of critical voices came to a crescendo when a fire broke out on 1 November 1986 at a Sandoz chemical warehouse in Schweizerhalle, less than ten kilometres (5.6 mi) upstream of Basel city centre. Water from the fire hoses along with tons of toxic agrochemicals flowed into the Rhine River next to the site dyeing the river red and killing the fish and other aquatic organisms along one of Europe's most important waterways as far as Rotterdam in The Netherlands. It was sheer luck that prevented the recurrence of a disaster on the scale of Bhopal.[4] Resistance greeted several large construction projects related to the chemical industry, such as a toxic waste incineration plant and the *Biotechnikum* already mentioned above, to which the chemical industry responded in a spirit of aggression, threat and even blackmail.

The 1990s brought downsizing and neoliberal restructuing even to Basel's large businesses; the labour market came under pressure. Critical voices grew silent as large corporations began to embrace uncompromising shareholder values. Around the turn of the millenium, Basel's legislative and executive councils elaborated strategies to promote the city as a European centre for Life Sciences that promised optimum conditions to global businesses in the high-yield food, agrochemical and pharmaceutical sectors.

During a period when Basel was successfully implementing fundamental urban policy transformations described by David Harvey, any criticism of big business shenanigans was largely voiced in private and had little public impact. In this respect, Basel was a perfect example of 'the transformation in urban governance in late capitalism' due to 'inter-urban competition', to the benefit of global capital (Harvey D 1989).

The city as a service provider to multinational corporations

The Executive Council of Canton Basel City's *Legislaturplan* 2013–2017 (Legislative Planning Report) reiterates and highlights earlier focal points, in particular the intention to strengthen the city's international competitive ability by positioning Basel as a centre of excellence, a strong and reliable partner. The report explicitly states that the Basel metropolitan area as a strong economic player in an international context will feature in more large events, not least in an effort to establish twin-city partnerships (Legislaturplan 2013). While Basel's Executive was criticised for being too willing to accommodate Syngenta, Expo Milano 2015 evidently provided a welcome opportunity.

The Basel metropolitan area mentioned in the *Legislaturplan* emerged from studiens carried out by metrobasel, a neoliberal think-tank that identifies itself as the motor of an economically successful region. The 'Platform for the Development of Metropolitan Basel' (metrobasel website) receives most of its funding from the private sector and has entered into a wide range of individual and group partnerships (metrobasel 2009:II [G]; metrobasel 2009:30 [E]). The German version of the 2009 metrobasel report published on 19 November 2009 lists as partners the experts in Life Sciences and Speciality Chemicals, Dr Geo Adam of F. Hoffmann-La Roche, and Dominique D. Zygmont of Syngenta. Little surprise, then, that agricultural technology is seen as a key sector (metrobasel 2009:16/28 [E]).

Virtually all the important elements in the metrobasel report made their way into Basel's Legislative Planning Reports. The city Executive is highly proactive in accommodating big business in order to keep these good tax payers in Basel.

Little surprise, then, that Syngenta Chairman, Michel Demaré, praised Basel in a video interview in June 2015, especially the company's 'deep roots' going back 250 years, and its 'great relationship with the local government'. Demaré also noted that Syngenta shareholders 'enjoy a hundred percent of the benefits coming from the very competitive tax rate we enjoy in Basel' (Syngenta video 2015–11:00–11:24).

As a matter of fact, Syngenta's Head Group Taxation, Peter Schreiner, told a Swiss radio journalist that the company has enjoyed a business tax rate of around 14–16% on returns, or around 2% lower

than the international average (SRF 2015–8:32–9:50). By comparison, ordinary Basel businesses pay 22% tax on returns; in St. Louis, Missouri, USA Syngenta competitor Monsanto pays 27% tax on returns. Monsanto's

> plan to acquire Swiss chemical maker Syngenta AG and incorporate the combined company in the U.K. would [have been] one of the largest U.S. tax inversions ever, potentially cutting its taxes by more than $ 500 million (Bloomberg 8/06/2015).

Moreover, U.S. legislation forces businesses to reveal exact figures. By contrast, Basel's fiscal secrecy has made it impossible to know exactly how much tax Syngenta has been paying on its returns.

Business associations are the mouthpieces of multinational corporations

A useful lobby for Basel's multinational corporations are the city's business associations that jointly represent the interests of its chemical industry, and have close personal ties to conservative parties. This enables big business to pull strings without having to reveal themselves too much on the political scene.

The business associations usually speak with one voice to the public and the public executive and administration. Christoph Mäder, Syngenta's Head of Legal & Taxes and Company Secretary, is

> Vice Chairman of economiesuisse, the main umbrella organization representing Swiss economy. He is also a member of the Board of scienceindustries, the association of Swiss chemical, pharmaceutical and biotech industries, a member of the Board of the Basel Chamber of Commerce and a member of the Executive Board of the Business and Industry Advisory Committee (BIAC) to the Organization for Economic Co-operation and Development (OECD) (Syngenta CGR 2015:13).

However, Syngenta has been an even more active lobbyist in Brussels, London and Washington.

Basel, seat of multinational corporations' command centres

Neoliberal politics have exacerbated developmental inequalities. While some areas are in the ascendant, others are in recession, hit

by regional crises, de-industrialisation, rising rates of unemployment and zero-hour contracts, poverty and instability. In today's globalised economy, Syngenta has ceased to be a truly Basel-based company; its research and production facilities and sales chains have spread across the globe. Cities, 'global cities' in particular, are 'the strategic territories that articulate the new system' (Sassen 2005:27). While Basel is by no means one of the vast global cities, the trinational Basel metropolitan region does have European significance, and the command structures of the pharmaceutical and agrochemical giants and their global value chains make their presence felt more than clearly, not least in the urban fabric. At the time of writing, on its Basel campus F. Hoffmann-La Roche Ltd. had just inaugurated Building 1, also known as Roche Tower and Switzerland's tallest building (H&M 2016). For Novartis Basel Campus, an entire neighbourhood has been fenced in (Novartis Campus 2016). Syngenta has also been busy refurbishing its headquarters overlooking Schwarzwaldallee and Basel's German Badischer Bahnhof railway station.

It is from their Basel headquarters that these industries decide on appropriation and expropriation processes; it is from here that the flow of goods, investments and returns is controlled. The rise and development of the chemical and pharmaceutical industries in the city of Basel reveal innovation mechanisms in urban areas and ways in which entire industries can be regenerated. Key factors in such regeneration are complex networks between smaller and global companies, close cooperation with banks, publicly funded research institutions and a benevolent public sector. Some criticism from the multinational élites has been found to be tolerable. It was in particular the merger of Ciba-Geigy and Sandoz, i.e. the creation of Novartis, that marked the end of a period of intense competition, ringing in a new era of more or less peaceful coexistence among several multinational corporations focused on different sectors.

Given increasing shareholder expectations in terms of dividends, risks have been externalised and fixed capital has been reduced, leading to spin-offs of less profitable divisions. That, however, can lead to vertical disintegration and to purchases of external intermediates, components, technologies and knowledge. It is particularly in this 're-scaling' process (Sassen 2005:27) that supra-national regions such

as Basel acquire great significance. Spatial concentrations of biotech firms and supportive institutions in […] various European high-tech regions have been described as 'bioscience mega centres':

> In these privileged knowledge- and technology-intensive urban regions, collaborating, competing and conflicting actors in specific socioeconomic contexts contribute to localised learning, innovation and exclusion processes (Zeller 2010:2871).

Global technological developments, then, are reliant on strategically placed globalised centres of innivation. The Basel metropolitan area has provided and can continue to provide highly concentrated knowledge and technology platforms, strong research networks and integrated project teams used to operating across national borders. All of these aspects are crucial to a global corporation such as Syngenta.

In the global biotech and pharma complex, Basel is therefore a weighty region, whose socio-economics and policies are defined and shaped to a large extent by multinational corporations, albeit not without ambivalences and contradictions (Storper/Walker 1991).

Resistance against the power of multinational corporations

Despite deregulation and inter-urban competition, Basel has found itself in a special and largely positive situation. There is little if any political conflict, at least for the time being. Under the leadership of Social-Democratic-Environmentalist Executive Councils, Basel and other privileged Swiss cities such as Bern and Zürich have embraced modernisation. Urban cultural values have been successfully marketed, largely to the benefit of the rather more moneyed classes and the banking and property sectors, as well as big business, and usually without any significant opposition. So-called 'watermelon' executives – green-environmentalist and red-left-leaning progressives – are particularly well disposed as they can quite easily marginalise opposition against capitalist renewal and restructuring. Basel's President of the Executive, Dr. Morin, for example, called for 'tolerance' towards the chemical sector. During a panel with Syngenta on 8 May 2015, he explained that society had to live with the chemical industry's darker aspects, such as the dioxin disaster at the Roche plant in Seveso near

Milano, Italy, in 1976.[5] Critical voices and NGOs such as Multi-Watch have been called anti-progressive and accused of soiling their own beds.

However, the co-operative and community spirit in the tradition of 1930s 'Red Basel' lives on. And so it comes that the occasional spanner gets thrown into the works of the Executive Council, occasionally pulling down to earth its soaring visions of transforming Basel into a gleaming cultural metropolis with countless consumer temples for the upper middle class and the urban élites.

The fact that the Executive Council of Canton Basel-Stadt chose Syngenta as its main partner for Expo Milano 2015 shows very clearly who has been in charge. The powerful global giants have largely managed to penetrate public-sector agencies including the Executive Council, who have kow-towed to their interests. The chemical industry is as much part of Basel as Basel FC and the Rhine River. They are part of the urban fabric. Their global activities and exploitative structures, however, are brushed under the carpet; no-one mentions them. No-one examines their behaviour and holds them to account regarding human rights, for instance. And no-one reflects on the responsibility that rests on Basel's public sector and the general public.

More recently, however, some fairly successful signs of resistance from alternative civil-society organisations have indicated that the people of Basel are beginning to resent and reject the global businesses' dominant and arrogant behaviour. Recent debates about public platforms such as Expo Milano 2015, or about food, soil and water show a growing public awareness of the many economic contradictions – and of the fact that fundamental change is required.

As has been mentioned, Syngenta has been articulating its interests via intense lobbying efforts and some fairly transparent 'greenwashing'.

Basel, the 'chemical city' and its new symbol, the Roche Tower

Notes:

1 Translator's note: For more information, see next section, 'Basel, a "chemical city"'. See also Anti-nuke CH at Wikipedia.

2 Translator's note: See, for example, Guy Morin's statement on a website 'promoting collaboration between expats and locals in the Basel region' (Baselconnect 2016).

3 Translator's note: For more details on the disaster, see next section, 'Basel, a "chemical city"'.

4 Translator's note: The gas leak at the Union Carbide India Limited (UCIL) pesticide plant in Bhopal, Madhya Pradesh, India, on the night of 2-3 December 1984 is still considered one of the world's worst industrial disasters. See also Industrial disasters at Wikipedia.

5 Translator's note: This was another one of the world's ten worst industrial disasters. It resulted in the highest known exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in residential populations, which gave rise to numerous scientific studies and standardized industrial safety regulations. The EU industrial safety regulations are known as the Seveso II Directive (Seveso at Wikipedia; see also Industrial disasters at Wikipedia).

The sector's lobbying champion

Syngenta exerts great influence on national and international public-sector agencies

Syngenta ranked 443 on the 2016 Forbes Global 2000 List (Forbes 2000 2016) and, in September 2015, was no. 17 on the list of Switzerland's largest corporations (Segmentas 2015). However, in terms of lobbying, it is a world leader above and beyond other agribusiness companies. The enormous sums of money Syngenta has spent on lobbying efforts should come as no surprise given its dependence on public-sector support, primarily from government departments of agriculture, public and environmental health. Syngenta lobbyists have long been advocating the company's interests in terms of agricultural policies.

According to most definitions,

> lobbying (also 'lobby') is the act of attempting to influence decisions made by officials in a government, most often legislators or members of regulatory agencies. [The word] 'lobbying' finds its roots in the gathering of Members of Parliament and peers in the hallways ('lobbies') of the UK Houses of Parliament before and after parliamentary debates where members of the public can meet their representatives (Lobbying at Wikipedia).

Going back to the very roots of trade and capitalism, lobbying sees many different kinds of people engaging, including civil society and interest groups, 'associations and organized groups, including individuals in the private sector, corporations, fellow legislators or government officials, […] advocacy' (Lobbying at Wikipedia).

On the subject, Syngenta claims on its website

> to maintain strict internal control of lobbying activities and conduct them in full compliance with local law and guided by honesty, completeness, respect, accuracy of information and transparency.
> Any lobbying activities carried out by appointed external agencies or through our industry associations must be guided by the same principles that apply for Syngenta.

> At Syngenta, we are committed to conducting business with the highest standards of integrity and responsibility, and to preventing any form of public and private bribery in our organization. Our Code of Conduct and our Anti-Bribery Policy demonstrate our commitment to corporate responsibility, help to foster an ethical company culture, and build confidence among our external stakeholders in the way we do business (Syngenta Business Integrity).

In other words, rather than denying that – in a strategy to avoid open, democratic debate – its lobbyists quite regularly attempt to influence officials, the company openly stands by its strategy. Evidently, in present-day neoliberalism, large corporations intent on imposing their market power try to co-opt public-sector agencies.

No prospects of democratic support

In July 2013, in a survey commissioned by Syngenta, market research company Edelman Berland contacted a total of 7759 individuals in 13 countries[1] representing 'informed Publics (college educated, high income, media-engaged)'.

The question was how best to address the 'important challenge in the next decade, [which is] the need to produce more food for a growing global population in an environmentally sustainable way' (Edelman Berland 2013:2–3).

The results were sobering: in terms of technology use, 'respondents are open to using technology […] but want specifically to minimize the use of pesticides, fertilizers and genetically modified seeds' (Edelman Berland 2013:3).

With the exception of those in the UK, respondents in all of the European countries – and even those in the U.S. – felt that the same or a smaller amount of genetically modified seeds should be used and a substantial majority in each one of the 13 countries preferred 'organic/local/urban farming […] over higher production methods utilizing new technologies' (Edelman Berland 2013:13–14).

In view of these responses, Syngenta must surely be aware that it will not be able to implement its global agricultural and genetic engineering project any time soon, least so if it takes the democratic route. Syngenta perceives itself as a representative of an enlightend élite and of progressive science. The company has issues with what

it diplomatically calls 'an often skeptical and entrenched audience', i.e. people who don't know better and are irrationally opposed to progress. In his Chairman's statement, Michel Demaré wrote that the

> disconnect between urban and rural society continues to pose a threat to the industry's reputation, and is predicated upon beliefs that our products harm human and environmental health and that smallholder farmers are somehow exploited (Syngenta Annual Report 2014:03).

By contrast, Syngenta hopes for support from public sector agencies and international organisations in order to push through what it considers to be progressive policies, from which it stands to benefit. Public and private-sector lobbying activities are therefore of extreme significance to the company.

Lobbying in the U.S.: donations to election campaigns; influencing agricultural policy

Since Ronald Reagan became President of the U.S., if not earlier, big business and the super wealthy have exerted an astounding degree of influence on U.S. politics. Little surprise there, as it is usually the candidates that can call in the most substantial donations that win U.S. elections to high office.

Along with other large Swiss multinationals, Syngenta Corp. regularly contributes to election campaigns through the company's Political Action Committee (PAC). No sooner was the Syngenta merger complete, that a report by Business Insider noted that

> in December of 2000, Syngenta filed papers to create Syngenta PAC. With a primary $ 5000 donation from Astra-Zeneca's PAC, [it] was formed in Delaware, a tax-shelter state. The creation of a political action committee provided Syngenta with a legally sanctioned financial mechanism inside the U.S. through which to funnel corporate money and distribute it as campaign contributions (McEnery 2011).

As most Republicans look favourably on Syngenta's activities, significantly higher donations from Syngenta Corp PAC have gone to Republican than to Democrat candidates. In early 2004, Silvia Jelenz, a journalist writing for the *Handelszeitung*, a Swiss financial daily, reported that Syngenta had contributed 9,000 USD (75% of the total amount) to G. W. Bush's Republican campaign, while just 3000

USD (25%) went to John Kerry's Democrats (Jelenz 2004). According to the Center for Responsive Politics, during the U.S. 2004 election campaign, 41'700 USD (a little over 73.5%) went to the Republicans while the Democrats received 15,000 USD (little short of 26.5%). In all, 35 members of Congress and 7 senators received donations; seven Syngenta executives[2] together donated 5400 USD (CRP 2004). By comparison, Syngenta Corp PAC 'contributions to federal candidates' stood at 197,700 USD, '(31% to Democrats, 69% to Republicans)'; contributions 'from individual donors of $ 200 or more' stood at 51,714 USD as of 2 July 2016 (CRP 2016).

Syngenta also involved CropLife America, 'a trade association representing the manufacturers of pesticides and other agricultural chemicals' (CropLife 2016) in funding election campaigns. In March 2011, *Business Insider* reported that *'Enogen'*, Syngenta's GM bioethanol maize, had been approved by the USDA, a decision that upset 'the North American Miller's Association, who warn that contamination would have "significant adverse impacts."' The approval was due to a

> surge in lobbying activity from Swiss biotech firm Syngenta, during which they created campaign funding relationships with almost every high-ranking agricultural official in Congress. From 2000 to 2010, Syngenta spent a remarkable $ 15.4 million on campaign contributions through its PAC and both direct and third party lobbying activities (McEnery 2011).

Lobbying the EU

In the EU of the 1970s, there were quite a few who expressed their criticism of globalisation and multinational corporations. Since then, however, the latter's lobbyists have taken charge. At the time of writing, some 25,000 of them stood ready in Brussels to provide their ghostwriting services to the EU administration and members of the European Parliament (MEPs). In other words, lobbyists support, or rather influence EU policymakers, taking advantage of EU intransparencies and democratic deficits to impose their clients' interests through the back door.

When it comes to Syngenta International AG, five of its representatives enjoy access to the premises of the European Parliament, led

by Alain-Dominique Quintart, Syngenta's Head of Government and Public Affairs EAME (EU Transparency Register 2015/2016). These days, their primary focus has been on TTIP, the Transatlantic Trade and Investment Partnership. Global agribusiness companies are hoping for less restrictive regulations regarding pesticides and biotech/genetic engineering in Europe. Moreover, Syngenta has been strongly opposed to any EU-wide ban on neonicotinoids in response to massive honeybee decline (see below, section 'Syngenta threatens EFSA').

Six of the seven members of the Executive Committee, and one member of Syngenta's Board are of British origin (Syngenta Annual Report 2015). The company has quite a tradition of maintaining close ties to UK government circles. For instance, Michael Pragnell, who was Syngenta's first CEO and CropLife[3] president, visited London's no. 11, Downing Street[4] in December 2005

> to give a talk about poverty in Africa at No 11 Downing Street. Listeners included [UK Development Secretary, Hilary] Benn, Treasury and Department for International Development officials, and some of the Commons international select committee. Syngenta's extraordinary access to No 11 came courtesy of the Smith Institute – named after former Labour leader John – which was launching a publication, sponsored by Syngenta and with an essay by Pragnell (Vidal 2005).

Could it have been a coincidence that Pragnell was in London the week before Benn unveiled Britain's new strategy for agriculture in poor countries in which GM crops were expected to play a significant part? *The Guardian* certainly did not think so (Vidal 2005).

In more recent years, Syngenta has made good use of its ties to the Conservative UK government in order to protect its interests against EU regulations, not least in regard to the 'proposed moratorium on some uses of neonicotinoids' (Goulson 2015: Abstract; again, see below, section 'Syngenta threatens EFSA').

Industry associations

Much of Syngenta's influence on the public sector is done through its membership with trade and industry associations. Syngenta is a member of CropLife International, the global pesticide trade association based in Brussels,[5] whose other members include agrochemical giants

BASF, Bayer, Dow, Dow AgroSciences, DuPont, FMC Corporation, Monsanto and Sumitomo Chemical (Croplife.org). CropLife International has numerous national and regional member associations in Africa, Argentina, Brazil, Japan, Mexico, the Middle East, the U.S. and elsewhere (Croplife.org). Syngenta is also part of European and global networks of national agricultural, biotechnology and pesticide associations. All of them practice intense lobbying in Brussels.

In the EU, CropLife member EuropaBio represents the interests of industrial biotech and agrochemical businesses. It is the European arm of BIO International, a major promoter of agrobiotechnology (i.e., genetic engineering). In the 1990s, the first chairman of EuropaBio was Hoffmann-LaRoche's Jürgen Drews (see Balanya et al 2000). In 2013, EuropaBio appointed as its new chairman André Goig, Syngenta's Regional Director for Europe, Africa and the Middle East (André Goig at LSG).

On its website, EuropaBio uses different colours for different sectors, i.e. green for Agricultural biotech, red for Healthcare biotech and white for Industrial Biotech (EuropaBio). It is therefore a platform where life-sciences companies such as Hoffman-LaRoche and Novartis join up with agrobiotech giants Syngenta and Monsanto. According to EuropaBio, 'an independent survey by APCO and EurActiv ranked the association as the most effective trade association in Brussels in 2013 (EuropaBio Homepage).

Another important global network for Syngenta is AmCham, the association of American Chambers of Commerce, which is also very active in Brussels through AmCham EU (AmCham EU). It is a strong lobbying group for a more centralistic EU and for TTIP, the Transatlantic Trade and Investment Partnership. Syngenta is represented on numerous AmChams worldwide, including the American Chamber of Commerce in Ukraine, which describes itself as 'the most active and effective […] internationally oriented business community'. Its self-declared mission in Agriculture is to support and promote the development of a market-based agricultural sector as core for the overall development of the Ukrainian economy (AmCham UA, passim).

Syngenta threatens EFSA

Bees and other pollinators have been declining at an alarming rate all over the globe. TV channel *3sat* aired a programme on the subject on 16 March 2015. The impressive documentary highlighted the massive pressure that big European and Swiss agribusiness companies – especially Syngenta and Bayer – exerted on the EU Commission to prevent the ban on bee-killing pesticides, in particular those that contain neonicotinoids (see also Part One, chapter 'Global Bee Decline').

For once, in early 2013, however, Syngenta's lobbying failed to succeed fully. The official headline of a media bulletin released by EFSA, the European Food Safety Authority, contained the words 'risks', 'bees' and 'neonicotinoids': 'EFSA identifies risks to bees from neo nicotinoids' (EFSA 2013). The word constellation prompted a response from Syngenta to EFSA's Media Relations Office that highlights the company's determination to protect its vast business interests come what may:

> The current draft has the potential to seriously damage the integrity of our product and reputation […]. efsa should seriously consider its responsibility and liability for an inaccurate statement which would have a significant business impact.
> We ask you to formally confirm that you will rectify the press release by 11 o'clock. Otherwise […] we will consider our legal options (3sat 2015, 34:58-35:11).

When the Head of EFSA's Media Relations team refused to change the wording, Syngenta threatened to take legal action against EFSA Executive Director, Catherine Geslain-Lanéelle, in person (3sat 2015, 35:18-35:26).[6]

Syngenta's message had an impact insofar as the European Commission's neonicotinoid ban, approved on 29 April 2013, only affected three out of seven chemicals[7] that have been found to be most harmful to honeybees (EEA 2013; EC 2013).[8]

The authors of the *3sat* documentary claimed that big agribusiness lobbying activities delayed the neonicotinoid ban to protect honeybees and other pollinators by several years (3sat 2015).[9]

Clandestine conferences and networks

A former chairman of Syngenta AG, J. Martin Taylor, illustrates the very close ties between the company and the UK's powerful political élite. In 2008, he was one of several UK participants at the Bilderberg Group's 'Secret […] annual gathering of some of the world's most powerful figures' (Time 2016). Among his fellow UK participants were Kenneth Clarke MP; John Kerr, Member, House of Lords, then Deputy Chairman of Royal Dutch Shell plc; Tom McKillop, then Chairman of the Royal Bank of Scotland Group; and then Shadow Chancellor of the Exchequer, George Osborne (Public Intelligence 2008).[11]

Taylor was also a member of the UK government's Independent Commission on Banking (ICB), the so-called Vickers Commission, which was set up in the wake of the 2007–2008 financial crisis (Bank of England 2016; GOV.UK 2010).

In Switzerland, for the past thirty-something years, Nestlé, the world's largest food company has hosted very discreet and informal meetings at the Nestlé International Training Centre Rive-Reine in La Tour-de-Peilz, Switzerland. Every year some fifty members of the country's political and economic élite, especially the CEOs of large corporations, gather to discuss topical issues behind closed doors during what has been dubbed 'Switzerland's most secret conference' (BD 2011; Bilan 2012), and has been compared to the Bilderberg Group. Then Syngenta CEO, Michael Mack,[12] was introduced to the illustrious Rive-Reine circle by Nestlé CEO Peter Brabeck-Letmathe.

When global business and industry leaders meet with leading political figures and other celebrities at gatherings such as Bilderberg and Rive-Reine, as well as the World Economic Forum (WEF) in Davos, Switzerland, lobbying of the purest kind occurs.

Revolving doors

Influential individuals who switch from the public to the private sector can contribute a great deal to successful lobbying activities. The phenomenon has become known as 'the revolving door (effect)'. It appears to link public institutions 'directly to the private sector, allowing employees to move almost effortlessly between the two' (CEO Revolving Doors 2008).

During their terms of office, most politicians and civil servants are

well aware of the fact that their future careers may lie with the likes of Syngenta or Monsanto, powerful agribusiness and life-sciences corporations that wield a great deal of influence, not least in the labour market. Public-sector employees are fully aware that if they make critical remarks or approve decisions that are unwelcome to large corporations their own career perspectives may be affected. Hence, they may keep silent against their own better knowledge, handing even more power to big business.

Andrew Bennett provides one example of such a 'business-government link'. Bennett was the

> Director [of] Rural Livelihoods and Environment, for the British Department for International Development [DfID] in London, and principal advisor to government ministers on policy and programs for the improvement of rural livelihoods, better natural resources management, environmental protection, sustainable development and research in international development (Vidal 2002).

Before joining the Syngenta Foundation for Sustainable Agriculture in 2002, Bennett was known to be

> a supporter of GM technologies for developing countries, and to have helped to frame the department's policies and influenced its decision to contribute £ 600,000 a year to GM crop research in poor countries. He is also believed to have backed a controversial £65m British aid programme in Andra Pradesh, India, that supports a state plan to introduce prairie-style farming and GM crops. Critics in India and Britain say the aid will help to force 20 million poor farmers off the land […] (Vidal 2002).

The UK government approved Bennett's move to Syngenta 'on the basis that he was going to the company's charitable arm' (Vidal 2002).

Another UK example of Syngenta and the revolving door effect concerns a key government scientist. While at the UK government's Food and Environment Research Agency (FERA), Dr. Helen Thompson

> led a field trial of the effect of neonicotinoids – the world's most widely used insecticides – on bees. [Her] research was used by ministers to argue against a ban on pesticides thought to harm bees. […] Thompson also worked on a Fera project on bees and pesticides paid for by Syngenta, as well as having worked on the registration of some

> pesticides. [Thompson] is to join Syngenta, the chemical giant which manufactures one of the insecticides (Carrington 2013).

A UK government policy paper cited Thompson's study (DEFRA 2013). The information was used 'in a vote against a proposed moratorium on some uses of neonicotinoids' thought to harm bees (Goulson 2015:Abstract). However, a later reanalysis of Thompson's study showed that

> the first study describing substantial negative impacts of neonicotinoids on colony performance of any bee species […] strongly suggests that wild bumblebee colonies in farmland can be expected to be adversely affected by exposure to neonicotinoids (Goulson 2015:Abstract).

Syngenta has also been known to tap into another particularly valuable human resource, i.e. officials working in EU institutions. It is 'not uncommon' for such people,

> especially in very senior policy-making or decision-making roles, [to go] straight into an industry or corporate lobby job […], with senior policy officials often moving to work on issues closely related to their former public role (ALTER-EU 2011).

One such official was the Head of the EFSA GMO unit, which provides risk assessments on GM applications to the European Commission. In 2010, after five years in her post, Dr. Suzy Renckens left to join Syngenta as a Regional Manager for Biotechnology Regulatory Affairs (CEO Revolving Doors 2008).[12]

Syngenta has pursued the same strategy outside the EU. In Hawai'i, for instance, long-standing Kauai County spokeswoman, Beth Tokioka, left her post in March 2015 to join Syngenta as 'community outreach manager' (West Hawaii Today 2015).

Burson-Marsteller Communications Programmes for EuropaBio

As early as 1997, Burson-Marsteller (B-M), the world's largest international PR firm[13] created the PR strategy for EuropaBio, the European industry association for biotech companies (see Ruiz 1997).

It soon emerged that B-M advised EuropaBio to 'stay off the killing field' and to leave it to the public sector to convince consumers:

> Public issues of environmental and human health risk are communications killing fields for bioindustries in Europe. […] the industry voice cannot be expected to prevail in public opposition to adversarial voices on these issues. […] the industry must accept that it is for those charged with the public trust in this area – politicians and regulators – to assure the public that bio-industry products are safe (OCA 1997:item 13).

B-M also urged EuropaBio to 'create positive perceptions' and to 'fight fire with fire':

> It no doubt seems banal to assert that until strong positive public perceptions of bio products are created in Europe, there will be no effective counterweight to the negative perceptions generated by adversaries on their chosen killing fields. It may seem doubly banal to add that positive perceptions dereived from perceived benefits.
> Stories-not issues: for EuropaBio to make the transition from effective policy interlocutor to effective public communicator, it is essential to shift from issues-based communications to stories-based communications. There are no issues-orientated media with any broad appeal, and the selling of complex issues coverage is a difficult task in any event because it contains little or no news value. Good stories, on the other hand, go around the world in minutes. That's the way adversaries play. That's the way industry must play (OCA 1997:item 15/16).[14]

In 1995, the EU Parliament roundly rejected the draft for a directive 'on the legal protection of biotechnological inventions' (Crespi 1995; EU 1998), i.e. a directive on patents on living organisms, also known as the 'EU Life Patent Directive'. However, in a 'massive disinformation campaign', lobbyists argued that Europe's competitive edge was in jeopardy:

> EuropaBio for instance, the largest biotech industry association with members such as Smithkline Beecham, [Syngenta predecessor] Novartis, Unilever and Monsanto Europe, has mainly focused on convincing decision-makers that government should support the European biotech industry to be more competitive in the global market, and by so doing, the formula goes, create more jobs (CEO 1998).

Scandalously, in 1997 the lobbyists even co-opted patients to agitate in favour of a new draft of the directive:

> On the day of the July '97 vote, a number of people in wheelchairs from some patient interest groups demonstrated outside the main hall in Strasbourg, chanting the pharmaceutical industry's slogan, 'No Patents, No Cure' in an emotional appeal to Parliamentarians to vote for the Directive (CEO 1998).

It did not take long, however, for the lobbyists advice to become public:

> After the 1997 vote […], some patient interest groups became aware of the fact that […] that they [had been] manipulated and abused by industry and industrial lobbyists, and have since restated their positions against the patenting of genes (CEO 1998).

Nevertheless, in an example that shows how easily government agencies and the general public can be manipulated with a clear PR concept and consistent lobbying,[15] Burson-Marsteller's then costliest lobbying campaign (July 1998) had managed to persuade the EU Parliament to agree on the directive (EU 1998).

In their 2008 study, Antje Lorch and Christopher Then referred to big business employing 'stealth tactics' (*Tarnkappen-Strategie*; Lorch/Then 2008:7,10,37). They found that Syngenta and other large biotech companies quite transparently attempt to pass themselves off as benefactors and problem solvers. The same strategy is behind agribusiness companies' much practiced so-called 'greenwashing', which we will explore in the next chapter.

Notes:

1 Translator's note: The countries surveyed were, in alphabetical order, Argentina, Brazil, China, France, Germany, India, Indonesia, Kenya, Russia, South Africa, Switzerland, the UK, and the U.S. (Edelman Berland 2013:2)

2 Translator's note: Information as at 1 July 2016, according to http://seedquest.com/News/releases/2004/april/8360.htm (John Sorenson, Global Head of Corn and Soya for Syngenta Seeds); http://people.equilar.com/bio/michael-mack-syngenta/salary/714513#.V3e4Yjd9dEc (Michael Mack, then CEO of Syngenta Seeds); http://www.targetedgrowth.com/pages/About/Board-of-Directors (Robert Woods, then Chair of Syngenta Corp); http://www.bizapedia.com/al/SYNGENTA-CROP-PROTECTION-INC.html (Vincent Alventosa); http://www.zoominfo.com/p/Brenda-Riggleman/-2141421531 (Brenda Riggleman); http://agfax.com/updates/misc/2008/pr/agraquest0508.pdf (Sam Newsom);

http://www.city-data.com/elec/elec-PASADENA-TX.html (Irwin Saltzman); by order of size of contribution.
3 CropLife is a member of CropLife International (see next section, 'Industry associations').
4 Translator's note: 11 Downing Street, London, is 'the official residence of Britain's Second Lord of the Treasury who is formally recognised as the Chancellor of the Exchequer (11 Downing Street at Wikipedia).
5 Translator's note: According to ETC Group, 'CropLife International [is] better known to its environmental critics as the "necrofieldiac" of organic farming. [Its] growing influence […], and [that] of Syngenta in particular, has resurrected concerns that FAO's past close collusion with multinational agribusiness is returning' (ETC Group 2015).
6 Online source (3sat 2015) transcripts by the Translator.
7 Translator's note: The three chemicals are lothianidin, imidacloprid, thiametoxam (EC 2013).
8 Translator's note: The EEA bulletin noted that the ban 'is limited in scope and […] only applies to three of seven neonicotinoids and only for use with "crops attractive to bees", so it does not take into account [their] impacts […] on aquatic invertebrate species, birds or other insects which are also major areas of concern. Neither does the ban cover new neonicotinoid insecticide Sulfoxaflor which may come onto the market soon' (EEA 2013).
9 Translator's note: On the massive global bee decline, see also Imhoof 2012 and many other videos and docmentaries.
10 Translator's note: Also present were Jean-Claude Trichet, President of the European Central Bank; and then Novartis Chairman Daniel Vasella (Public Intelligence 2008).
11 Michael Mack was Syngenta CEO from 1 January 2008 until 31 October 2015 (see also Part Two, chapter 'Syngenta's genesis').
12 Translator's note: 'The European Court of Auditors […] looked at conflicts of interest issues in four EU agencies, including EFSA in its critical 2012 report' (CEO Revolving Doors 2008).
13 Translator's note: See also Burson-Marsteller at Wikipedia.
14 Translator's note: On B-M's involvement in Monsanto's 1980s campaign to launch a GE cow growth hormone, rBGH/BST, one of the first ever biotech products, see Corporate Watch 2002.
15 Translator's note: Such strategies include providing the media with 'practical, editor-pleasing, deadline-beating, connect to interesting stories and personalities – even adversarial – relevant to their readerships' (Corporate Watch 2002).

Greenwashing and The Good Growth Plan: Syngenta's ideology

Syngenta's attempts at greenwashing despite mass bee decline and pesticide victims

Co-authored by MultiWatch editors and Margret Powell-Joss

It is striking how much energy and funding the Basel agrochemical giant and the Syngenta Foundation for Sustainable Agriculture have invested in disseminating their ideology. Syngenta and the Foundation have taken every possible opportunity to participate in the greatest possible number of panel discussions about the future. Putting a simplistic spin on important issues, they have adopted, used and manipulated puns and soundbites; their experts have engaged in ritualistic pseudo-debates that quite deliberately leave the layperson bemused and confused. Complex issues are frequently reduced to simple black and white, positive/negative arguments. Valid criticism is dismissed by arguing that one can very well be of a different opinion on issues such as evidence of poisoning due to highly toxic pesticides. What is also striking is the ritualistic invocation of sustainability.

Greenwashing

In analogy to 'whitewash', a colloquial term for the kind of manipulative obfuscation and spin-doctoring already described in the late 1940s in George Orwell's dystopian novel 1984, the term 'greenwash' was introduced by sociologists and discourse analysts in the 1980s. More recently, 'greenwashing' has been used to describe companies, PR agencies and lobbyists whose expressions of environmentalist concerns disguise products, policies and activities that actually fly in the face of environmentalism. That is precisely what Syngenta's ideology amounts to.

Generating respectability by working with international organisations

Cooperation projects and partnerships with positively connoted international agencies that are associated with environmentalist and ecological commitments are a particular form of greenwashing. Syngenta boasts of its good relations with U.N. organisations at every possible opportunity and is keen to share the limelight with them. The previous chapter in Part Two, 'The sector's lobbying champion', described how the company has learnt to don the cloak of respectability offered by such events: Syngenta has no need to engage in public debate, let alone be on the winning side (see OCA 1997).

Selective interpretation of ecological system interactions

What, then, is the 'sleight-of-hand' Syngenta has slipped into its line of argument? Millions if not billions of people are being displaced by global climate change due to greenhouse gas emissions, for instance. They flee from violent conflicts due to crises of state legitimacy and contracting economies. Socio-economists and the scientific community agree that our system is at breaking point: 'global capitalism now couples human and natural history in such a way as to threaten to bring about what would be the sixth mass extinction in the known history of life on earth' (Robinson 2014:15).

In terms of ecological complexities, Syngenta tends to neglect what environmental sociologists John Bellamy Foster, Brett Clark, and Richard York have identified as the global ecological and metabolic rift in their award-winning book, *The Ecological Rift: Capitalism's War on the Earth* (Foster et al 2011b).

> Enormous rifts have been driven through the delicate fabric of the biosphere. [The authors] argue that the source of our ecological crisis lies in the paradox of wealth in capitalist society, which expands individual riches at the expense of public wealth, including the wealth of nature. In the process, a huge ecological rift is driven between human beings and nature, undermining the conditions of sustainable existence: a rift in the metabolic relation between humanity and nature that is irreparable within capitalist society […] (Foster et al 2011b).

Metabolic rifts have occurred owing to chemical pollution, changes in the nitrogen cycle and rampant loss of biodiversity, to name only

three causes. In other words, there are a great many possible causal interactions. Focusing on the climate crisis, however, Syngenta has brushed less comfortable aspects aside, cherry-picking those aspects that place the company in a positive light.

In a highly selective interpretation of ecological system interactions, Syngenta has chosen to employ a kind of Orwellian 'newspeak' that stops people from seeing the bigger picture. In its emphasis on water conservation, for instance, the company fails to mention the fact that extensive bodies of water are now polluted by agrotoxins such as atrazine.

What matters more than any factual argument is the 'story' (OCA 1997) and the mantra-like repetition of terms and expressions such as 'sustainability', 'corporate responsibility', and 'green economy', terms that have all but lost their meaning due to flippant overuse.

Schmidheiny and the World Business Council for Sustainable Development WBCSD

Syngenta is by no means the only global (agribusiness) company to engage in this type of discourse. Hugh Grant, the CEO of Monsanto, the world's largest seed company, has used similar language when describing the challenge of feeding 9 billion people, which his company offers to do by selling genetically engineered, 'improved productivity' crop seeds and plants. It would seem that farmers' worries pale into insignificance when compared with these huge problems.

In March 2015, the WHO's International Agency for Research on Cancer released its assessment that glyphosate, the active ingredient in Monsanto's star product Roundup, 'probably' causes cancer in humans.

> When asked directly about the issue, Grant said [that] the company will continue to support the product. He called it 'unfortunate noise' and a 'distraction rather than a reality.' […]
> Sales of what Monsanto labels its 'agriculture productivity products', which includes Roundup and similar items, account for about a third of the company's annual revenue (Fortune 2015).

Monsanto and Syngenta both seem to be singing to the same tune composed by the World Business Council for Sustainable Development (WBCSD).

BCSD, the Business Council for Sustainable Development, was created by Swiss billionaire Stephan Schmidheiny in the run-up to the 1992 Earth Summit in Brazil. On 1 January 1995, BCSD became a global think tank of green capitalism when it merged with WICE, the World Industry Council for the Environment, to form WBCSD (WBCSD 2016).[1]

In 1992,

> Schmidheiny […] produced the book *Changing Course*. Showcasing an array of case studies of best practice, the book coined the term 'eco-efficiency' and argued that sustainable development was not only good for business, it was 'good business'.
>
> The ideas […] became the basis of a formalized BCSD [which] brought together business leaders at the highest level to […] portray [environmentalism] as a common concern, and break the prevailing mould of expressing the issue only in simplistic and antagonistic 'business *versus* environment' terms (Najam 1999:65–66; see also Schmidheiny 1992).

Syngenta joined as soon as it was created in 2000; CBCSD, a network of large Chinese companies, joined the partnership in 2004 (see GreenBiz 2004). Monsanto, BASF and many other large corporations are partners. Michael Mack, Syngenta's former CEO, was WBCSD co-chair (WBCSD 2010).

Schmidheiny had inherited Swiss industrial giant Eternit Group SEG in 1976, and headed the company until the late 1980s (Schmidheiny 2016).[2] Schmidheiny is also on the Boards of Swiss food giant Nestlé and UBS AG, the Swiss banking giant. Towards the end of 2009, Schmidheiny and a Belgian co-defendant stood trial in Turin, Italy, for negligently exposing workers and communities to asbestos at and near Eternit AG factories in Italy and elsewhere. More than 2,890 injured parties were seeking damages in a class action suit on their own behalf and over the deaths of a total of 3000 people who had worked at or lived near Eternit asbestos plants worldwide (see Schmidheiny at Wikipedia).[3]

The WBCSD report, *Vision 2050: The new agenda for business* (Vision 2050), provides the template for Syngenta's Good Growth Plan (GGP) and for Monsanto's Sustainability Report. In 2015, Monsanto (not for the first time) delegated social issues to Business

for Social Responsibility (BSR) 'to identify the sustainability issues that matter most to the success of our company and to our many stakeholders, both internal and external' (Monsanto 2015 SR:18).

The CEOs of both companies must have dreamed up their visions on the golf course. They make no difference between wealthy and poor countries; economic, cultural and social conflicts are blanked out; fair distribution is not an issue. The emphasis lies purely on how productivity and returns on investment can be increased.

The Good Growth Plan – mostly a sham

Syngenta presented its first Good Growth Plan (GGP) in a brochure in 2013. The Plan also features on a dedicated web-page with frequent updates and success stories. Warning that the global population 'is rising by 200,000 every day', the company came up with the handle, 'One planet. Six commitments':

> The Plan comprises six measurable commitments for the year 2020 to help address the global food security challenge. These include increasing farm productivity while boosting resource efficiency, rejuvenating ecosystems and strengthening rural communities. […] a global network of 893 reference farms [use] tailored crop protocols with the aim of increasing productivity without using more land, water or inputs (Syngenta GGP 19/09/2014).

The Plan also promises to 'help people stay safe' by 'teaching them how to use and dispose of products safely' and 'look after every worker' by striving 'for fair labor conditions throughout our entire supply chain network' (Syngenta GGP 19/09/2014).

These are commendable and ambitious goals. Reading closely – and between the lines – reveals that the Plan is chiefly designed to legitimise sales strategies: 'The Good Growth Plan['s …] mission is to improve the sustainability of […] our business' (Syngenta GGP 2016). It is also designed to divert attention away from Syngenta's hazardous chemicals that endanger human, animal and environmental health, and from the fact that the company continues to sell its pesticides even though they have been banned in numerous countries.

Many details in the Plan would merit critical attention. Let us examine just four points of particular relevance. For one thing, Syngen-

ta's rationale for the GGP is to increase agricultural productivity in order to feed larger numbers of people. What Syngenta fails to note, however, is the fact that food production is already adequate. There are other reasons why millions go hungry every day lie. Moreover, Syngenta focuses on using new technology to increase the productivity of a narrow range of crops. Reading the so-called success stories soon shows that most targeted plants, maize and soybeans in particular, are not primarily destined for local consumption but are cash crops destined for export (Syngenta GGP 2016).[4] This debunks the repeated false claim that production needs to be stepped up to cope with population increase.

Secondly, another aspect is the fact that the Plan cherry picks those interaction effects that are easy to integrate into the concept, while it disregards others. For example, rather than using tried and tested indicators and assessment instruments such as those used by the United Nations Food and Agriculture Organization (FAO),

> Syngenta's rating system appears to be restricted and simple [creating] the impression that the goals and indicators were chosen very selectively' (BD 2014c:04; see also Florianne Koechlin, 'Feed the world – but how?' in Part One).

The suspicion is justified that this is being done to make the company look good. Moreover, when Syngenta refers to soil degradation and water pollution, it fails to take into account the damage caused by its own pesticides. It looks like a clear case of greenwashing when Syngenta pledges to use pesticides more efficiently without, however, addressing the toxicity of these chemicals, many of which kill and damage the very honeybees and pollinators that the company claims to be supporting through its so-called Operation Pollinator (BD 2014c:12).

Thirdly, as several chapters in Part One of this book have described, Syngenta has failed on several occasions to assume responsibility for all of its workers. In a clear case of whitewashing, the Good Growth Plan obfuscates and embellishes the past. The company is evidently aware of the rising tide of criticism. A few projects and pretty words are unlikely to improve matters.

Finally, as Swissaid's Tina Goethe noted in 2014,[5] Syngenta received no instruction with democratic legitimacy or under international law

to devise such a plan. It is not private multinational corporations but the public sector, i.e. national governments, that is responsible for implementing the human right to food. This was underscored in the Food and Agriculture Organization of the United Nations' 'Rome Declaration on Nutrition' and 'Framework of Action', endorsed in November 2014. The Framework of Action 'recognizes that governments have the primary role and responsibility for addressing nutrition issues and challenges' (FAO 2014).

Syngenta's apparent philanthropy merely distracts from dirty practices and monopolistic power (see also GMWatch 2011). In true neo-colonialist fashion, the company attempts to talk farmers in the global south into adopting so-called progressive technology that actually works against their own interests.

By contrast, the company has repeatedly failed to implement human rights and comply with environmental standards. So, while Syngenta claims to provide self-help tools to farmers in the global south, its actual interest lies in selling its products in the largest possible quantities. Rural populations are considered inferior and dependent. It is tempting to see a connection between the vast monoculture plantations (that use equally vast amounts of Syngenta's products) and the large-scale displacement of rural populations into the shanty-towns that have sprung up around all the large conurbations in the southern hemisphere (and many in southern Europe). Syngenta, however, has ignored such causalities of social misery; its commitment has not included making sure access to means of production for small-scale farmers, nor has it included a fairer distribution of land by means of land reforms that fell off the political radar when neoliberal regimes came to power.

In sum, Syngenta's Good Growth Plan is a sham. Its goal is the opposite of food sovereignty. Its aim is to introduce industrial capitalistic agriculture to peripheral markets all over the world, thereby opening them to Syngenta's production chains. The Plan ignores serious environmental problems that Syngenta has helped to create. As Tina Goethe has noted, the Good Growth Plan is far more about 'Bad Business' than about 'Good Growth' (Goethe 2014:78).

Syngenta and USAID

Explicitly stated in the Good Growth Plan, Syngenta's intention to work in partnership with USAID, especially in Africa, is becoming reality. In August 2014, for example,

> the U.S. Agency for International Development (USAID) and Syngenta Nigeria signed a three-year memorandum of understanding (MOU) to train more than 500,000 farmers and agro-dealers across multiple states and crops. This MOU builds on a global MOU between USAID and Syngenta and will ensure that Nigerian farmers have access to the best agricultural technologies to boost their productivity (USDM Nigeria 2014).

The 'global MOU' mentioned in the quotation above was signed in Cape Town, South Africa, in May 2013. USAID and Syngenta stated their intention

> to support agriculture and food security activities in Africa, Asia and Latin America. [The two entities] will further collaborate in research and development and smallholder capacity building, working with key agriculture and food security partners including scientists, entrepreneurs, policy makers and other donors. Syngenta and USAID already work together in many countries and will broaden their relationship through this MOU (USAID 2013).

Created in 1961, USAID is not just any aid agency but a U.S. federal agency 'with apparently legitimate ends [but] officially dependent on the State Department, with a budget of $ 850 million per annum' (Allard 2008). According to its Mission Statement, USAID is a 'partner to end extreme poverty and promote resilient, democratic societies while advancing our security and prosperity' (USAID 2016).[6]

Controversially, USAID has a long tradition of being (mis-)used as a formidable instrument in U.S. foreign policy. In his excoriation exposé published in September 2008, Jean-Guy Allard noted:

> Dozens of its agents operate in the shadow of right-wing organizations, invented according to circumstances and sponsored by the International Republican Institute (IRI), the National Democratic Institute (NDI), Freedom House […] and a whole series of fronts, always under CIA directives […] not just in Cuba, but all over Latin America (Allard 2008).

On 18 July, the agendy admitted having 'squandered taxpayers' money' on a large number of involvements (Allard 2008). USAID was

> the same U.S. federal agency charged with fomenting subversion and espionage in Cuba to the tune of tens of millions, and which the Bush administration has just proposed to the island as the intermediary in a hypocritical and reduced offer of humanitarian aid in the wake of Hurricanes Gustav and Ike.
> In Haiti, [it] is among a number of U.S. agencies that organized, directed and funded Haitian political organizations to provoke the kidnapping and grotesque eviction of President Jean-Bertrand Aristide.
> In Venezuela, the agency was scandalously active in backing and financing the sectors responsible for the coup of April 11, 2002.
> In Bolivia, the USAID program is focused on the country's Balkanization and the funding of violent activities against the authority of the president. A few weeks ago, various farmers' federations and five municipalities in the Cochabamba region expelled agents from this organization after exposing their involvement in plotting a coup d'état (Allard 2008).[7]

According to a leaked cable, after the failed 2002 coup in Venezuela, the USAID Office of Transition Initiatives (OTI) in 2006 sought again to destabilise Hugo Chávez' government by 'Penetrating Chavez' Political Base, […] Dividing Chavismo, […] and Isolating Chavez internationally' (WikiLeaks 2006).

The Syngenta Foundation and the World Bank

Many of the ideas propagated by the Syngenta Foundation for Sustainable Development originated with the World Bank, a neoliberal instrument *par excellence*. The World Bank and its policies have had a significant impact on so-called 'market-assisted land reform', which disregards the human right to adequate food enshrined in the UN's Global Compact. Its implementation relies on distributive land reforms, i.e. state-led, due-process expropriation of unused land held by large landowners (Paasch 2003). By calling for market-led changes in landownership, the World Bank has effectively excluded most smallholding farmers as few of them have been and would be able to purchase land on the free market. Along with other agencies, the

World Bank is therefore jointly responsible for the end of distributive land reforms (see Paasch 2003).

Before joining the Syngenta Foundation in 2008, Marco Ferroni, its Executive Director, worked for the Inter-American Development Bank and the World Bank in Washington DC (Syngenta Foundation: Team). One other member of the Foundation Board used to work for the World Bank (Syngenta Foundation:Board; see also below, section 'Marco Ferroni…').

In a talk given at ETH Zürich in 2008,[9] Ferroni noted that smallholders must be regarded as part of the solution of the global food crisis (Ferroni 2008:2). Since then, he has stated on numerous occasions that the Foundation 'focuses on smallholders, productivity, and markets' and that its aim is to help smallholders 'become more professional growers' (Syngenta Foundation:Strategy). Echoing the World Bank, Ferroni has called for smallholders to produce cash crops, and for 'functioning markets on the output side' as well as market development 'from the business sector' (Ferroni 2009a/b).

In Africa, the Syngenta Foundation has been working closely with the International Finance Corporation (IFC), for example in the form of grants that provide

> index-based insurance to small-scale farmers in Kenya, Rwanda and Tanzania. Index-based weather insurance can protect against the adverse effects of climate change and help to strengthen food security in rural communities (IFC 2014).

The IFC is an international financial institution established in 1956 to encourage private-sector development in developing countries. In 2009, the IFC launched the Global Trade Liquidity Program for international trade among developing countries (IFC at Wikipedia).

From the above it becomes clear that the Syngenta Foundation is actually a political organisation. International policies are shaped at the Syngenta headquarters on Schwarzwaldallee in Basel that bypass any democratic controls or accountability.

Marco Ferroni, Thomas Malthus and population growth

In his 2008 talk at ETH Zürich, Ferroni identified a slow-down in agricultural productivity and booming demand for agricultural out-

puts as the fundamental underlying problem of the food crisis that hit the poorest of the poor in 2007. In his opinion, the situation vindicated Thomas Malthus and his warnings that resources for the world's growing population would always be limited (Ferroni 2008:1).

When she was Manager of Public and Government Affairs at Syngenta International AG (Zimmermann F 2012), Franziska Zimmermann's article in *Die Volkswirtschaft*,[10] in which she, too, alluded to Malthus and expected agroindustrial progress to be able to provide the solution to the global food problem (see Zimmermann 2010).

Thomas Malthus (1766–1834)
The English cleric and economist Thomas Malthus (1766–1834) is a key figure in demography, having famously developed the theory of population growth in his treatise, *An Essay on the Principle of Population* (1798). He predicted a grim future, arguing that, as food supplies were unable to keep up, unchecked population growth would lead to starvation. Often misinterpreted, Malthus called for ameliorations of 'the condition of the labourer' and for 'preparing the funds necessary to support' a 'suprplus' population. He did not, however, feel that the 'Poor Laws' then in existence were in any way adequate as they tended 'to create the poor which they maintain' (Malthus at Wikipedia).
Friedrich Engels was scathing in his critique of Malthus: 'Surplus population is engendered rather by the competition of the workers among themselves, the division of labour, the introduction of machinery, [...]'. Therefore, Engels argued, surplus population 'lies in the nature of industrial competition and [its] commercial crises' (Engels 1844:81–83).
Surplus population, then, is not a technological problem but but a socio-economic one.

The Syngenta Foundation also holds with populationism, an ideology that blames social and ecological problems on the steady increase of the number of people living on our planet. This discourse distracts from the capitalist system and takes excessive human fertility as the cause of most (humanitarian) crises (see Angus/Butler 2011:review; Butler 2010).

Syngenta Foundation Board member Margaret Catley-Carlson 'was President of the Canadian International Development Agency [...] and from 1989 to 1992 Canada's Deputy Minister of Health and Welfare' (Syngenta Foundation:Board). She was the second-ran-

king administrator of UNICEF, the United Nations Children's Fund (NYT 1992). In 1992, she became the first woman President of the Population Council, a post she held until 1999, and is a patron of the Global Water Partnership, Canada. She also enjoys excellent connections with the World Bank.

The Population Council, an international non-profit group created in 1952 by John D. Rockefeller 3rd, is widely recognized as a leader in contraceptive research; it has its roots in eugenics, a set of racist beliefs that aims at improving the genetic quality of the human population. During the Post-War population boom, the Council endeavoured to reduce population growth by distributing contraceptives. In the 1960s, the Council 'began sponsoring research on ways to reduce growth rates in urban and rural African-American areas' including a racially motivated 'pilot program conducted in poor, African-American areas of Chicago' (Ziegler 2008:335–336). One of the researchers was Donald Bogue; he was 'hoping to develop "principles and theories which could be exported overseas"' (Infowars 2012 re Ramsden 2001). Angus and Butler expressed the opinion that the Population Council has been one of the most significant exponents of populationism (Angus/Butler 2011).

It is therefore problematic that the former President of the Population Council, who probably still believes in Malthusian populationism, now sits on the Syngenta Foundation Board.

As one New Zealand reviewer of Angust and Butler's study has noted,

> We need to be careful not to equate causation with correlation. The fact is that carbon dioxide emissions are a problem of rich countries not poor ones, there is no correlation between emissions and population density, and population growth rates do not correspond to carbon dioxide emissions. It also can be stated that per capita numbers can be misleading because not all individual produce the same amount of greenhouse gas emissions (Angus/Butler 2011:Review).[11]

The notion of overpopulation must be regarded as obsolete and unscientific. There is no doubt about causal links between the global food crisis and land reform issues, monetary rather than demand-driven regulation, a lack of purchasing power, a rush to grow

crops for fuel and meat production, high consumption of resources and the loss or waste of 'roughly one third of the food produced in the world for human consumption' (FAO Save Food 2016).

The preceding paragraphs have made clear that a lot of spin has gone into Syngenta's greenwashing to disguise highly questionable system interactions and manifest capitalist interests. The next chapter will focus on the company's wide range of attempts to exert greater influence on scientific research. ETH Zürich, arguably the leader among Switzerland's excellent educational and research institutions, has served as a case in point.

Notes:

1 Translator's note: From 1990, Schmidheiny was chief adviser to the Secretary General of the United Nations Conference on Environment and Development (UNCED), better known as the 1992 Rio de Janeiro Earth Summit.
On his own website, Schmidheiny of course presents an entirely philanthropic image; see Schmidheiny 2016.

2 Translator's note: Asbestos was banned in Italy in 1992, and elsewhere in Europe in 1999; it is still used widely in many threshold countries (see Guardian 2014 for details).

3 Translator's note: Schmidheiny and his co-defendant were convicted in February 2012. In early 2014, the court of appeals 'upheld [the] criminal conviction of the former industrialist and sentenced [Schmidheiny] to 18 years in prison' (Hartford Courant 2014). In November 2014, however, Italy's Supreme Court quashed the guilty verdict (Guardian 2014). Schmidheiny claims that by late September 2015, 'some 1800 people in northern and southern Italy [had] accepted the humanitarian offer that has been in place since 2007. The compensation payments are based on international standards' (Schmidheiny 2016).

4 See also Miguel A. Altieri's Prologue, 'Dismantling the pesticide mafia with agroecologically based social movements'.

5 Translator's note: Swissaid is a Swiss development aid NGO, see www.swissaid.ch.

6 Translator's note: The foreign policy element to U.S. aid efforts was present long before USAID was created: Building on the success of the Marshall Plan, President Harry S. Truman proposed an international development assistance program in 1949 (USAID 2016).

7 Translator's note: The 2002 coup was a failed attempt to oust Hugo Chávez.

8 Translator's note: In its 1975 *Land Reform Policy Paper*, the World Bank noted that land reform in itself 'is not sufficient for improving land productivity and distribution of income.' It warned that 'changes in patterns of landownership' will only be realised 'if adequate provision is made for the supply of necessary inputs and mandatory services to the users of the land'. The paper also recognised that 'a policy for land reform for a given situation cannot be stated in simple terms' (World Bank 1975:6).

9 Translator's note: Only available in German, Ferroni's paper addressed the rampaging food crisis of 2008 and attempted to provide a diagnosis of and possible solutions to the problem.

10 Translator's note: *Die Volkswirtschaft* is a business magazine published by the Swiss State Secretariat for Economic Affairs (SECO) and the Swiss Federal Department of Economic Affairs, Education and Research (EAER); see www.dievolkswirtschaft.ch.

11 Translator's note: It would appear, after much searching, that only a review but not the study itself is available online.

Syngenta's influence on publicly-funded research[1]

Syngenta uses funding and pressure, and discredits scientists to expand its control of research

kriPo – kritische Politik an den Hochschulen Zürichs[2]

Multinational agrochemicals and seed corporations rely on scientific research and development for new products intended to be protected by patents. The only way for Syngenta to stay among the world's leading agribusiness companies is to launch new products at regular intervals, and to provide credible assurances that more are in the pipeline. To Syngenta, what matters as much as in-house research, however, is to maintain contacts and close ties to academic research institutions. It is therefore no coincidence that this is exactly the case between Syngenta's important research site in Durham, NC, USA, and Durham's universities and their schools and institutes.

This raises a few questions: Who benefits to what extent? How does the company take influence? What synergies or dependencies are there? The following chapter examines the relationship between Syngenta and Eidgenössische Technische Hochschule Zürich, *also known as the Swiss Federal Institute of Technology in Zürich (ETH-Z).*[3]

Free science: corporations attempt to exert pressure

Education is a fundamental human right and a public good. Both ETH Zürich and *École polytechnique fédérale de Lausanne* (EPF-L), the ETH's sister institution in French-speaking Switzerland, are controlled by the Swiss federal government. They should therefore receive all their funding through state subsidies. Since the 1980s, however, both ETH Zürich and EPF Lausanne have received increasing amounts of corporate funding and Syngenta has been one of these corporations. On 11 November 2010, ETH Zürich and Syngenta published this joint statement:

Syngenta and ETH Zurich […] have entered into a partnership to launch a new professorship in the field of Sustainable Agroecosy-

stems. Syngenta will donate CHF 10 million to ETH Zurich Foundation in order to finance a new professorship and associated research staff for the next ten years. This represents the first milestone in ETH's strategic World Food System initiative, which aims to contribute to food security through new research initiatives (Syngenta 2010b).

The plan was to integrate the new group into the ETH Zürich's World Food System Center, a new centre of competence. According to ETH in-house magazine, *ETH Life*, ETH would 'seek a research leader who focuses on scientific approaches to maximizing agricultural output while minimizing inputs, economic losses and ecological damage'. Different land-use and cultivation scenarios would be studied to ascertain their ecological budgets, including the entire range of agricultural inputs such as fuel and fertilisers; outputs such as produce for food and biofuels; and all losses incurred in the process, either due to disease or the release of carbon dioxide (see ETH Life 2010/Syngenta 2010b).

The media release immediately reveals that selected objectives are described in such a way that an objective assessment of Syngenta's involvement becomes a challenge. If we are to study agroecosystems, for instance, holistically and with a focus on sustainability, the use of pesticides and genetically modified organisms (GMOs) must form part of the picture. Syngenta is a leader in the markets for both of these inputs, however, and sales of both paraquat and atrazine, Syngenta's highly toxic and controversial herbicides, and of neonicotinoids,[4] have generated vast profits for the company while causing social and ecological harm to agroecosystems and their sustainability.

Partnerships between universities and corporations are regularly presented as creating win-win situations. From an ETH perspective, there is a clear advantage in terms of funding received. But what are the benefits that Syngenta can draw from this venture? At the time of writing, neither the Syngenta logo nor the company name featured on the homepage of the group for whose creation it provided the funding. However, even without being promoted directly, the company may be able to exert informal pressure on scientific research: without Syngenta funding, the group and its chair and staff would not exist; ETH might have lost PhD students and other scientists, which might have had a negative impact on the institution's international ranking.

Syngenta also benefits from ETH research in developing countries. The company has been able to access various studies and support those publications that may accelerate the creation of new markets. Interestingly, when the new group was created, it was expected to focus on research issues including so-called Conservation Agriculture, a no-till system that minimises disturbance to soils and soil organisms. Ironically, however, plenty of herbicides –which are among Syngenta's key products – are usually applied in the process, particularly in no-till monocultures.

A key advantage to Syngenta of this kind of research partnership is the fact that ETH Zürich 'provides the next generation of decision makers with the knowledge and skills necessary to be effective leaders in creating sustainable food systems' (WFSC 2016). In Syngenta's own words, the 'research activities will […] provide advanced training for future leaders in the area of world food systems' (Syngenta 2010b). The subtle shift in emphasis is noteworthy.

As it helps to train these 'future leaders', Syngenta is also hoping to win their interest. At the end of lectures or field trips involving the company, Syngenta highlights interesting job opportunities. In other words, ETH Zürich gains support for the company and raises its profile through the Sustainable Agroecosystems group, which was the earliest initiative of the World Food System Center. The centre receives funding from donors including Syngenta, the Coop Cooperative Group,[5] Stiftung Mercator Schweiz[6] and Bühler,[7] who in return are privileged members of the Partnership Council. Less moneyed environmental and farmers' organisations, who also represent key stakeholder interests in the 'world food system', however, are not allowed to participate.

Syngenta provides funding for PhD and post-doc scholarships. Via the Plant Science Center Syngenta Fellowship, the company also funds important research work carried out at ETH-Z, and at the universities of Basel and Zürich (see PSC 2016).[8] The company has also sponsored various events, including the Trade Fair at the 2015 IAAS World Congress of the International Association of Students in Agricultural and Related Sciences.

As if that was not enough, Syngenta's brochures, annual reports and other promotional materials are on prominent display in the

Media & Coffee Corner at the Institute of Agricultural Science at ETH-Z, and Syngenta representatives give talks during lectures on pesticides. Syngenta organised a field trip for students, and was invited to give a talk on the global food situation in the context of ETH-Z's *Treffpunkt Science City.* This is how Syngenta has insinuated itself into a privileged position at ETH Zürich.

However, politicians have realised that the kinds of partnerships described above have the potential to jeopardise the independence of research and science. As a first – voluntary – step, professors at EPF Lausanne are now expected to declare their interests. The names of large multinationals including Novartis,[9] Holcim and Lonza feature frequently on lists at EPF-L.[10]

In the U.S. similar partnerships between the corporations and academic research institutions have been found to jeopardise the integrity and independence of scientists and research programmes. In November 1998, for example, the Department of Plant and Microbial Biology at the University of California, Berkeley, 'signed a five-year collaborative research agreement worth up to $ 25 million with Novartis', Syngenta's corporate predecessor. 'In 2000 Syngenta agreed to carry on this programme of funding' (Corporate Watch 2007).

According to a report in the progressive Swiss weekly, *WoZ – Die WochenZeitung*, Novartis/Syngenta prevented one of its leading critics, Ignacio Chapela, from obtaining a professorship at Berkeley (WoZ 2014).

Moreover, the company was instrumental in the suppression of two significant research papers – by Tyrone Hayes and Ignacio Chapela, respectively – whose results were found to go against its interests. In 1997, the American biologist, Dr. Tyrone Hayes, professor of Integrative Biology at the University of California, Berkeley (UC Berkeley), and his team were commissioned by Novartis/Syngenta to undertake a risk analysis of atrazine, the company's leading selective herbicide.[11] In the course of their work, the scientists found that the reproductive organs of frogs were damaged when exposed to atrazine solutions.[12] Syngenta refused to publish the study. Hayes in turn refused to accept the company's refusal, and undertook further studies that produced the same alarming results (Slater 2012).

In the eyes of Syngenta, Hayes' findings threatened the company's

highly lucrative atrazine sales on the U.S. agrochemicals market. In his turn, Hayes soon had reason to be wary of the company's activities:

> The company documents show that, while Hayes was studying atrazine, Syngenta was studying him, as he had long suspected. Syngenta's public-relations team had drafted a list of four goals. The first was [to] 'discredit Hayes. […] Syngenta's communications manager […] wrote that the company could 'prevent citing [his work] by revealing him as noncredible.' […] Syngenta looked for ways to 'exploit Hayes' faults/problems.' 'If [Hayes] involved in scandal, enviros will drop him.' (Aviv 2014).

The company also put pressure on Hayes by using personal information about his family and background. In 2011, Hayes was invited to the session of the Permanent People's Tribunal on Agrochemical Transnational Corporations in Bangalore, India, where he was able to tell his side of the story (PPT 2011).

In late 2001, assistant professor Ignacio Chapela and graduate student David Quist, also from the Department of Plant and Microbial Biology at UC Berkeley (UC B), published a rigorously peer-reviewed article (Quist/Chapela 2001) in the *Nature*. It 'concluded that the native Mexican corn population had been contaminated by GM varieties, something that shouldn't be possible as the commercial growing of GM corn is still illegal in Mexico' (Corporate Watch 2007).

Syngenta attempted to discredit the study. Chapela and Quist, who are among those Berkeley scientists who opposed the alliance between UC B and Syngenta, were quickly condemned by two members of the same department, Matthew Metz and Johannes Fütterer, who pulled the contribution apart, claiming that the evidence presented was 'flawed' and 'a key reference' misinterpreted (Metz/Fütterer 2002). Fütterer 'was a strong proponent of the alliance' (Wirz 2003). This triggered letters from several hundred scientists to *Nature*, demanding the retraction of Chapela and Quist's article. It soon became quite evident that,

> although such critics tried to maintain the guise of scientific objectivity, it's hard not to see an ideological component in their campaign

> against Quist and Chapela. […] One has to ask how much of the attempt to discredit Quist and Chapela's research was owing to biotech companies and their proponents, who saw the research as an attack against the commercial cultivation of GM-crops (Wirz 2003).

Corporate Watch noted that it 'has been suggested that anxiety to maintain good relations with a major source of funding has been influential in the department's backlash against the work of two of its academics' (Corporate Watch 2007).

Owing to pressure from all sides, and possibly due to the journal's dependency on corporate funding, *Nature* eventually retracted the article – a first

> in the 133-year history of this highly respected journal. […] Scientists from an internationally acclaimed institute in Mexico (Center for Research and Advanced Studies – Department of Plant Genetic Engineering) randomly selected 2000 maize plants from the Oaxaca Valley. In sixty-three percent of the cases, they detected genetic contamination. This is a clear confirmation of Quist and Chapela's research (Wirz 2003).

However, the journal rejected the Mexican research results 'on technical grounds' (Wirz 2003). It is a blot on the journal's reputation that it never published the confirmation of Quist and Chapela's work.

Both these cases illustrate Syngenta's great interest in influencing scientific studies and findings. The company attempts to minimise any risk to its business and/or products, employing various strategies in the process, from low-level pressure on scientists, to tougher methods: spreading defamatory information about independent scientists, for instance, or discrediting scientists who insist on their critical stance and carry on conducting research whose outcome may displease Syngenta.

The question therefore arises how ETH Zürich can engage in this kind of controversial corporate research partnerships while at the same time safeguarding the independence of faculty, students and staff. How can ETH Zürich remain a critical research institution?

Agriculture of the future: what kind of science is being taught?
Agriculture is a complex system that requires a great deal of interdisciplinary knowledge and must take all system components into consideration. Most thematic focus areas of research sponsored by Syngenta scholarships, however, address a selected range of issues – phytopathology, genetics, genomic, plant biochemistry and Conservation Agriculture (Plant Science Center). Most of the studies in these research areas are conducted in different groups – the Plant Pathology Group ETH Zürich, the Groups of Plant Development Genetics and of Molecular Plant Biology/Phytopathology at the Department of Plant and Microbial Biology, University of Zürich (UZH), and the Groups of Plant Biotechnology and Plant Biochemistry (ETH-Z).

Claiming to promote sustainable agriculture, Syngenta has been funding the World Food System Center and the professorship in Sustainable Agroecology. It would appear, however, that the definition of what is sustainable, and therefore worthy of being studied, primarily rests on what looks most likely to generate profits for the company.

The same kind of influence is brought to bear on students. In their introductory lectures, most lecturers present the same simplified dogma, i.e. that climate change poses a great challenge and that resources are becoming increasingly scarce. For example:

> By the year 2050, 9 billion people are expected to live on Earth. How to feed that world population while at the same time preserving limited natural resources is one of the biggest challenges facing mankind (ETH-Z Foundation 2016, Focus World Food System).

It is argued that food production must therefore become twice as efficient. By the same logic, the objective of fighting world hunger justifies the use of products developed and sold by multinational companies such as Syngenta.

In order not to sound too dogmatic, lecturers often refer to integrative solutions that enhance the relevance of multinationals as partners in the fight against hunger. From this perspective, corporations are no doubt more important than small-scale farmers and their organisations.

Ethical issues or the goal of achieving food sovereignty are not ad-

dressed by courses on agroeconomics and agricultural politics, which are defined by neoclassical ideology and the theory of comparative cost advantage. While lectures in these fields ought to examine the causes of poverty among farmers and their families, as well as the need for improvements in resource distribution, the only focus is on the world-market integration of developing countries. There is no in-depth discussion of whether or not this actually makes sense, and whether it is both ethically and morally justifiable.

Much has been made at ETH-Z of sustainability and its three levels – economy, ecology, societal. The societal aspect, however, is frequently ignored. The only course teaching the societal dimension of sustainability was discontinued in 2012.[13] At ETH Zürich, a simplistic, purely economic definition of sustainability – to produce more with less input – is applied. Corporations expect scientific solutions. Rather tongue in cheek, one might ask which of them would support a study that recommends reducing production – and profits.

Who decides? Research on whose behalf?

At the time of writing, the funding contract for the chair in Sustainable Agroecosystems was not in the public domain. It should, however, be available from the ETH Foundation, which describes itself as 'an independent, non-profit organization [that] promotes teaching and research at the ETH Zurich. The Foundation allocates resources to ETH Zurich, which are received in the form of charitable donations from companies, foundations and individuals' (ETH-Z Foundation 2016:Code of Conduct). However, no information is passed on by e-mail. A phone-call to the Foundation office elicited the question of why we were asking for this information and how it was going to be used. Only then was the information supplied that either the Foundation's Managing Director or the ETH-Z directorate would need to be contacted. It appeared that someone wanted to keep the contents of the funding contract a secret.

But why should a school overseen by the Swiss Confederation that receives federal funding[14] make it so difficult to consult its contractual agreements? Berne Declaration's agriculture expert François Meienberg eventually managed to see a copy of the Syngenta/ETH Zürich contract, and found that a Syngenta representative sits on the ETH se-

lection committee for this particular professorship – the reason being that Syngenta provides the funding for the Group, its chair, etc. The contract further stipulates that the ETH-Z President will be obliged to 'take note' of any such intervention (WoZ 2012).

At the time of writing, the only corporate representative on the committee was a Syngenta delegate. Syngenta is no academic entity. So, if Syngenta is allowed to participate in the selection process of professors, should NGOs or other companies not also be represented? Their participation would be democratic, politically legitimate and advisable.

Both ETH-Z and EPF-L take pride in the fact that they regularly feature among 'the best universities in the world […] in international rankings'; both schools offer numerous so-called 'Excellence' scholarships and fellowships, and claim to provide their students with 'an ideal environment for independent thinking' (ETH-Z 2016:The ETH Zurich). But how can these schools claim to be independent while they engage in countless corporate partnerships and agreements?

Science should assist politicians to make policy decisions that benefit the population, particularly in the fields of agriculture, food production and the environment. Science should be in the service of the general public; it should answer questions and not be subservient to industry. However, especially in agriculture and biology,

> the line between fundamental science and applied technology appears particularly thin […] where corporate funding has become the driving force of research (Haerlin/Parr 1999).

Scientific collaboration may not only lead to conflicts of interest. Controversial partnerships between academic institutions and corporations also affect public credibility, as was noted as early as 1999:

> The scientific community has a credibility problem. […] Sound science is about the best possible way to answer a given question; to present with rigour the certainties and uncertainties of knowledge, and the assumptions underlying certain conclusions. But, crucially, it is not a method for deciding which questions should be posed, or for determining the acceptable risks and desirable benefits of technologies (Haerlin/Parr 1999).

Through its elected Members of Parliament, it is the Swiss voters that ultimately approve the public funding for the country's two 'leading universities for education and research'. These kinds of processes lead to a vicious cycle: the less funding parliament provides, the more likely it is that research institutions will turn to the private sector as only it appears to be able to provide the vast sums required for academic research projects.

Although ETH Zürich claims to be a neutral, non-political institution, it has actually taken a highly political decision by accepting research funding from Syngenta. Syngenta is a global corporate giant that has violated human rights in Asia and Latin America. Its pesticide, atrazine, has polluted U.S. water supplies. Syngenta is responsible for suicides committed by Indian farmers who despaired when the price for seeds and cereals went through the roof. Syngenta is also responsible for the rapid decline in bee populations worldwide.

Students at ETH Zürich cannot accept such collaboration without protest. At ETH Zürich, left-wing students and scientists will continue to fight for their right to conduct critical research in the interest of humanity, biodiversity, health, nature and the environment.

Notes:

1 This is a slightly modified version of the original contribution published in German in Schwarzbuch Syngenta – Dem Basler Multi auf der Spur, MultiWatch (eds), 2015.

2 Translator's note: kriPo are a left-wing group of students at the universities of Zürich, Switzerland.

3 ETH-Z claims to be 'the top university for education and research in continental Europe and an important member of the international scientific community' (ETH-Z 2016). It is one of several hundred publicly funded academic institutions around the world that have received Syngenta funding (Aviv 2014).

4 Translator's note: Neonicotinoids have been blamed for the massive drop in honeybee and other pollinator populations (see Part One, Zenger, 'Syngenta and the Great Bee Decline').

5 Coop is a Swiss retail and wholesale chain with 'one of the largest and most varied sustainability ranges in the world' (Coop 2016).

6 Stiftung Mercator Schweiz is 'an independent private foundation [that wants] to strengthen Europe, improve integration through equal educational opportunities for everyone, drive forward the energy transition as a trigger for global climate

change mitigation and firmly anchor cultural education in schools.' (Mercator 2016).

7 Bühler is an international, Swiss-based technology company 'for food, mobility, ... communications [that specialises in] technologies and methods for processing grain into flour and feed, [and] for the production of pasta and chocolate' (Bühler 2016).

8 Translator's note: 'In March 2003, the ETH Zurich, the University of Zurich, the University of Basel and Syngenta agreed to a long-term research collaboration. Each year, PSC professors and group leaders are invited to apply for PhD or Post doc fellowships. An Advisory Committee, consisting of representatives of the three universities as well as Syngenta, selects projects for funding based on reviews of invited experts' (PSC 2016).

9 Translator's note: Novartis Excellence Scholarship: http://partenariats.epfl.ch/page-76882-en.html; Béton Holcim prize: http://prix-etudiants.epfl.ch/page-51585-en.html; Lonza: http://www.chemie.unibas.ch/chemistry/index.html (25 May 2016).

10 See https://www.oeffentlichkeitsgesetz.ch/francais/befreite-dokumente/?department=7.

11 Translator's note: Owing to growing concerns about atrazine's health effect, the chemical had come under scientific review by the U.S. Environmental Protection Agency (EPA) in the mid-1990s (see Aviv 2014).

12 Translator's note: Solutions of 0.1 part per billion or the equivalent of 'a thousandth of a grain of salt in a half gallon of water' (see Slater 2012).

13 See http://www.vvz.ethz.ch/Vorlesungsverzeichnis/lerneinheitPre.do;VvzSessionId=R_tyU63XGi2N_TsazIWZGh-IWvFK--7OsEK6bLtQiJwix5aaoddm!-201271574?semkez=2011W&lang=de&ansicht=ALLE&lerneinheitId=73657 (link provided by authors; accessed on 16 June 2016).

14 Translator's note: According to 'Facts & Figures', Portrait, ETH Z homepage, Swiss Federal government funding amounts to 1.3 billion Swiss francs (annually): https://www.ethz.ch/en/the-eth-zurich.html; in 2015, EPF-L received 653.9 million Swiss francs from the Swiss government: http://information.epfl.ch/facts (27 May 2016).

Prologue to Part Three: We must intensify our criticism and resistance

Part Three will present a summary of the many movements that have been campaigning against Syngenta's business activities and its arrogant behaviour and display of power.

At the end of its Session in December 2011 on Agrochemical Transnational Corporations (TNCs) in Bangalore, India, the Permanent People's Tribunal gave its clear verdict that six TNCs – BASF, Bayer, Dow Chemical, DuPont, Monsanto and Syngenta – were responsible for 'gross, widespread and systematic violations of the right to health and life', of 'economic, social and cultural rights', of 'civil and political rights', and of 'women's and children's rights'. The Tribunal also found that the national governments of the 'U.S., Switzerland, and Germany', 'where the six corporations are registered and headquartered', 'failed to comply with their responsibility to promote and protect human rights, especially of vulnerable populations'.

These governments 'failed to adequately regulate, monitor and discipline' the six TNCs; 'promoted double standards' by 'prohibiting the production of hazardous chemicals at home', while giving free rein to produce these highly toxic chemicals to their affiliate companies, especially in the Global South (see Bangalore Verdict 2011).

The Permanent People's Tribunal urgently called for the immediate implementation of four key recommendations summarised here (see Bangalore Verdict 2011): Firstly, the 'establishment of an appropriate international mechanism to investigate gross and flagrant violations of human rights by TNCs, host and home states', 'before which individual or collective victims could bring their claims and demands for justice.'

Next, no new trade or investment agreements that disregard universal human rights must be ratified; agrochemical companies shall be 'prevented from harassing and intimidating scientists, farmers and human rights and environmental defenders'; TNCs shall be 'denied

immunity from criminal liability'; victims shall 'face a less heavy burden of proof'.

Thirdly, the Rome Statute shall be amended 'to extend its jurisdiction to legal persons and include the most serious crimes against the environment, in addition to those already provided for crimes against humanity and war crimes.'

Finally, EU institutions shall 'subject their international economic policy and cooperation to the international rules for the protection of human rights and the environment' and shall 'extend environmental liability to the activities of corporations with registered offices in the EU' (see Bangalore Verdict 2011).

Patents on crop seeds and plants are another aspect of Syngenta's activities (see Part Two, chapter 'Syngenta, intellectual property [IP] and accumulation by expropriation'). The Longo Maï communities and agricultural co-operative network has been among the most active groups, farmers' movements and organisations in the campaign for a ban on seed and plant patents.

The first chapter of Part Three is dedicated to Dr. Vandana Shiva, who expresses her outrage at Syngenta's presence at Expo Milano 2015, Italy, on 'Feeding the planet, energy for life'. Given Syngenta's impact on our planet, she feels betrayed, and expresses her solidarity with MultiWatch.

The next chapter focuses on significant differences in terms of working conditions at Syngenta's various sites. While highly qualified specialists enjoy great privileges, the situation of contract and rural workers is extremely precarious. The chapter specifically explores situations in the UK and Switzerland. It also highlights the struggle for decent workplace health and safety.

The next chapter focuses on peasant movements in many continents that have been fighting Syngenta's greedy practices. In particular, La Via Campesina's campaign for food sovereignty offers a clear perspective whose gradual implementation would bring the kinds of changes that are so urgently required.

The final chapter in Part Three presents the most relevant demands from the perspective of oppressed, dependent, vulnerable people, chiefly in the Global South. Deprived of their rights, they nevertheless refuse to be silenced and have remained strong in their resistance. The

chapter is a call to show solidarity with them, to mobilise and join in the 'March against Syngenta'.

MultiWatch has come to the conclusion that the wide array of criticism levelled against Syngenta urgently requires a fundamental change of direction for this transnational agribusiness giant. At least in the medium term, it may well be that this Basel-based company, along with its competitors in the seed and pesticide sectors, has lost its right to exist. Far-reaching bans have already been imposed on these highly toxic and destructive products. The wholesale worldwide ban of these dangerous chemicals would fundamentally alter or even completely disrupt the business models of these global agribusiness giants.

A message of solidarity from Dr. Vandana Shiva

The environmental activist and feminist calls for resistance:
'We must liberate ourselves from these corporations!'

Dr. Vandana Shiva is an Indian scholar, feminist, environmental activist and author, currently based in Delhi. She is the founder of Navdanya, the Movement for Earth Democracy, and the author of more than twenty books, many of them critical of globalisation. Her resistance to global agribusiness including Syngenta takes many forms. In Spring 2015, she sent a message of solidarity to the conference Agro statt Business – Gegen die unheilige Allianz von Basel und Syngenta/*'Agriculture not business – against the unholy alliance of Basel and Syngenta'.*

Dear Friends[1]
You have come together in Basel to protest against the fact that Syngenta – and not the people of Basel – will represent the city of Basel at Expo 2015 ['Feeding the Planet, Energy for Life', in Milan]. The people of Basel have alternative visions for a future for agriculture, visions that are based on biodiversity, agroecology, local food systems. Visions of a just and fair food system that allows farmers and their families to stay on the land, that stabilises the climate and makes food nutritious.

Your gathering is important because it shows that our local, national, international governments have been hijacked by big business. This poses a threat to democracy, a threat to our freedom and a threat to our planet.

Together with other corporations, Syngenta, the agrochemical company that formerly was Sandoz and Ciba Geigy, claims that patents on seeds are the only way towards future growth. The only way for them to patent seeds is to produce genetically modified seeds. This is how they can claim to have created something new. They argue that these are new organisms, that they are their own corporate inventions, and can therefore be patented. Collecting license fees from GM seeds has been their only goal.

Dominant science and technology serves the interests of powerful, mis-using international legislation on intellectual property to make it illegal for farmers to keep and propagate seeds. That is why the World Trade Organisation (WTO) agreed on Trade-related aspects of Intellectual Property Rights (TRIPS) and that is why in 1987 I left academics to found the Research Foundation for Science, Technology and Ecology, a participatory, public interest research organisation [to dedicate myself to] conserving seed [which] is conserving biodiversity, conserving knowledge of the seed and its utilization, conserving culture, conserving sustainability', and to the right of all living creatures to evolve in freedom. I have been fighting for the right of our farmers to keep and swap their seeds; I have been fighting for the right of our societies to seed freedom.

(Transcript2 starts here) When now Syngenta, one of the five giants trying to control our food supply through our seed supply – when they represent Basel in an expo dedicated to 'Feeding the Planet', an expo for which the government of Italy has appointed me as an ambassador, I feel a deep sense of betrayal.

These industries only know how to steal – through biopiracy, and how to kill – through the experience of making chemicals for warfare, and chemicals, agrochemicals that kill as pesticides, and now GMOs that are killing.

Syngenta has now got hundreds of patents on climate-resilient traits, patent after patent after patent – to prevent farmers from having access to the seeds that can evolve into the future in times of climate change. Is creating sterile seeds the future of farming? Or protecting and defending and evolving seeds of life and living seeds that can reproduce and can be shared? The contest today is between these five giants, with Monsanto and Syngenta at the top, out to destroy the biodiversity of our beautiful planet.

To protect our farmers, to protect our health, to protect the planet, we've got to liberate ourselves from these corporations and their poisons, [we've] got to liberate ourselves from the hijacking of our governments.

Your conference is such an important step in this. I join you in solidarity and I join you in building the real alternative that fits the planet. *(End of transcript)*

Alongside Dr. Vandana Shiva, several social movements also addressed the conference *Agro statt Business – Gegen die unheilige Allianz von Basel und Syngenta*/'Agriculture not business – against the unholy alliance of Basel and Syngenta' in spring 2015. One of them was Longo maï, a movement of agricultural co-operatives founded in 1973. Ten Longo maï co-operatives currently operate in various countries in Europe and Central America. Pacifist, egalitarian and anti-capitalist in outlook, the co-operatives focus on self-sufficiency, community life, craft and agricultural production, the joint management of energy, water and respect for the environment. In their struggle for seeds, they are just as severely affected as the Landless Workers' Movement, *Movimento dos Trabalhadores Sem Terra*, MST, in Brazil, or family and small-scale farmers in India.

The following report illustrates that its worth fighting against giants – even in Europe.

Notes:

1 Translator's note: Owing to the fact that the original footage of the integral address is unavailable, this is a reluctant back-translation from the German text published in *Schwarzbuch Syngenta – Dem Basler Multi auf der Spur*, MultiWatch (eds), 2015. Some phrases in the fourth paragraph have been 'borrowed' from Shiva 2016.]

2 The following paragraphs are a transcript of the excerpt from Vandana Shiva's message posted at https://www.youtube.com/watch?v=-cvpjawafXE (24 December 2015).

Working conditions and industrial disputes

Trade unions fight deteriorating labour conditions, call for improved workplace health and safety

This chapter widens the horizon beyond working conditions on European farms and all over the world. Agribusiness and biochemical companies seeking to profit from their patents affect workers at their production facilities as well as on traditional farms and in agricultural cooperatives. On their behalf, trade unions have been striving to achieve decent working conditions, opposing salary and job cuts, and calling for better workplace health and safety.

Ongoing precarisation must be considered in conjunction with global economic developments. Capital-intensive industrialised and highly automated systems of mass production at Ciba-Geigy and Sandoz were perfect examples of Fordism, the capitalist accumulation in the post-war period. By now, however, this model has largely been superseded by a 'shareholder-value regime' or, as Harvey has it, 'a regime of "flexible accumulation"' (Harvey 1989b:5).

Taking advantage of the world economy's neoliberal restructuring and deregulations, Syngenta has systematically optimised its global value chains, and enhanced its competitiveness in terms of site selection by relying on tax breaks, differences in wage levels and systems, staff qualification structures, and all kinds of regulatory requirements. A range of structural changes sweeping across all of the company's divisions – research and development, production, commercial, sales and distribution – have affected local workers and labour movements alike.

A useful indicator of this transformation is the number of people working in Basel's chemical industry. After a continual increase until the late 1980s, chemical worker numbers have been dropping since the crisis in the early 1990s. While capitalist surplus-value generation continues to exist, it does so in a different form. From being a Fordist pioneer, Basel's chemical industry has been transformed into a 'flexible accumulation laboratory' of shareholder-value capitalism.

Chemical workers in Switzerland

Swiss chemical workers became increasingly organised during World War II. They fought for and won a collective agreement for Basel's chemical workers that came into force on 1 January 1945. It transformed the country's chemical industry from a low-wage sector into one where high salaries and better-than-average working conditions were the norm. Until the 1970s, chemical workers domnated the labour unions of Basel, which was not only a 'chemical city',[1] but also a working-class town. In the 1970s, AGMs of the Chemical, Paper and Textile Workers' Union *(Gewerkschaft Textil Chemie Papier, GTCP)* were attended by around a thousand members. Change would come in the next decade, however.

The rot, so to speak, had begun to set in by the mid-1960s. At that time, more people were already working on individual contracts in the chemical industry than under collective agreement contracts. Although unions made enormous efforts to organise individual workers, they did not manage to attract significant numbers, let alone a critical mass. Union membership was low, even in the days of Syngenta predecessor Novartis, except for the production site in Monthey, canton Valais. Trade unions in the chemical industry, once in a comparatively strong position, grew significantly weaker in the wake of the mergers, spin-offs and acquisitions that restructured international value chains in the 1990s. The shake-up brought forth companies – Clariant, Novartis and finally Syngenta – that were better equipped to compete on the new global markets. In terms of the class struggle, (internationalised) capital also made significant territorial gains.

These days, at Syngenta's Basel headquarters, the mostly highly-skilled and highly-qualified employees enjoy privileged workplace conditions. In return, they are expected to deliver at the highest level in terms of commitment, unstinting efficiency and unflinching loyalty. But even they can no longer rely on job security, especially in the 'business process' division that Syngenta began to outsource to India from 2005 (Capgemini 2013). Syngenta's agrochemical blue-collar workers are now only to be found at its pesticide production facilities in Monthey, canton Valais, and Kaisten, canton Aargau.

The transformation from Fordist firm to shareholder-driven enterprise has been remarkable indeed. The only things that matter now

are the company's stock-market capitalisation, share price trends, and returns.

Both at Syngenta's Basel headquarters and, not long after, at its Monthey plant, 'one of Syngenta's strategic production sites' (Syngenta 2011-FF), British managers began to put an end to the legendary Swiss cosiness *(Helvetische Gemütlichkeit)*, and to whatever privileges had been inherited from Syngenta predecessor Novartis. In a conversation held in 2015, former Works Comittee member Willi Eberle recalled militant union action leading to several strikes including Basel Central Laundry, Aare Laundry and in the construction industry. Eberle also noted the energising impact on committee work around the time Syngenta was created in 2000.[2] Works Committee meetings were well attended, and management plans to reduce pay premiums and other benefits rejected almost unanimously.

Reduced union presence on the premises led to an imbalance of power, however, as Syngenta gradually began to rely less on the unions as social mediating partners. Some existing pay premiums were slashed and most of the few compensations negotiated by the Works Committee for the area of NW-Switzerland were of symbolic value rather than anything else. Both Eberle and Unia's Roland Conus[3] denounced Syngenta's disregard for rights enshrined in the collective agreement, such as workers having a say on job evaluations (see Conus 2016).

Few things changed at the Monthey production plant in the immediate aftermath of Syngenta's creation. An Anglo-American management style crept in, however, as older members of the management were replaced. Social partnership achievements were at risk: in-house worker organisations were played off against unions and a strict, centralist top-down line of command was introduced. The unions, with their federalist structures and low membership numbers among plant workers, were unable to withstand (Conus 2016).

Little surprise then, that wage negotiations conducted in 2014 by Unia and Syna[4] foundered when Syngenta refused to grant a general wage increase, and that the income gap between top management and regular wage earners grew wider than at other companies, from 1:85 in 2013 to 1:114 in 2014 (*Schweizer Bauer* 2015). Unia noted that, while Syngenta's annual earnings had barely increased, CEO Michael Mack's paycheck was boosted by 68%! In 2014, Mack took

home 7.5 million Swiss francs (Unia 2015a), 3 million more than in the previous year (see *Schweizer Bauer* 2015).[5]

When Syngenta was created in 2000, collective agreements for northwestern Switzerland, i.e. the greater Basel area, as well as the Monthey plant covered some 830 employees, or about a third of the total workforce. According to a high-level union member, the proportion of organised workers had dropped by around 20%, to far fewer than 600. By 2015, moreover, none of the commercial and marketing staff at Syngenta's Basel headquarters were covered by the collective agreement. Only at the Monthey plant did a more substantial number of workers retain their union memberships and collective agreement protection, i.e. 450 out of 858 (as of 2012), a little under a third of them with Unia. By contrast, at other Swiss Syngenta sites, union membership had fallen to a negligible all-time low.

In February 2014, Mack had announced the introduction of 'Accelerating Operational Leverage' (AOL), a cost-cutting programme that would affect the entire Syngenta Group (see NZZ 2014). In his update of November 2014, Mack clarified that AOL would lead to 1800 jobs being slashed, including 500 jobs in Basel (Syngenta 2014c; Unia 2014; Swissinfo 2014). Most job losses in northwestern Switzerland were going to affect individual-contract employees, who will no doubt have expressed their dismay at AOL and the prospect of being taken over by a competitor. As individuals, however, the lack of union back-up and of collective barganining skills has made them vulnerable.[6]

Negotiations in Monthey, Switzerland

In his follow-up bulletin of November 2014, Mack stated that the AOL programme would reduce costs, especially by 'relocating' abroad of about two thirds of the operative jobs in Basel (Syngenta 2014c). Significantly, he also declared that the pesticide factory in Monthey would 'continue to be Syngenta's largest production site worldwide' (Syngenta 2014c).

Less than six months later, in May 2015, Monthey's 930 Syngenta workers (Unia 2015a) were informed that 116 jobs would be cut in the context of the AOL programme, leaving the entire Chablais region, with Monthey at its heart, in a difficult situation. Only a couple

of months earlier, 257 local jobs had disappeared when work at the Tamoil refinery in nearby Collombey was suspended (see Tages Anzeiger 2015a; Unia 2015a).[7]

On 27 Mai 2015, 500 workers attended a protest rally against the job cuts. At the time of writing, the company had not responded to their protest. Blind-siding the unions, Syngenta was reportedly attempting to process job cuts only through the in-house Works Committee.

By summer 2015, negotiations in Monthey had led to a new collective agreement that included two improvements relating to the social partnership. Syngenta made assurances that it would encourage workers to join trade unions and engage in collective negotiations. Also, a working group was formed to find specific ways of mitigating the negative impact of shift work, not least on pensions (see Input 2015/04:17).

Both in Switzerland and internationally, inadequate interconnections between trade unions reduces their ability to resist deteriorating conditions imposed by the new global giants. With the exception of Monthey, the Swiss unions will have to make Herculean efforts if they are to regain a stronger foothold in Switzerland's chemical industry.

Syngenta UK

Huddersfield, a large market and manufacturing town in West Yorkshire, England, halfway between Manchester and Leeds, has a proud Labour tradition. This is the home town of the historic production plant of one of Syngenta's predecessor companies, ICI, Imperial Chemical Industries'.[8] This is where around 350 Syngenta workers produce paraquat, one of Syngenta's biggest-selling products. And this is where, in September 2014, Syngenta proposed 'changes to the firm's final salary pension scheme.' Subsequent talks with management broke down and hundreds of employees decided to 'down tools and leave their desks to stage a 24-hour stoppage from noon' on Thursday, 7 May 2015 – the day of the General Elections in the UK (Huddersfield Examiner 2015). The workers were supported by Unite, Britain's biggest trade union.

Farther north, at the former ICI plant in Grangemouth, Scotland, Syngenta's Amistar pesticides are produced. The site was installed in

1929 and is Scotland's largest chemicals manufacturing centre. Here, too, plans to change pension provision provoked angry reactions in October 2014. The local paper quoted an employee saying that some '34 percent of the current workforce face losing almost half their pension value at retirement' (The Falkirk Herald 2014).

Production sites outside Europe

Syngenta has substantial manufacturing sites in the U.S., in France, Goa (India) and Paulinia (Brazil) where the company's many pesticides are produced. Its Chinese factory was inaugurated in 2001. For both the domestic and export markets, Syngenta China 'manufactures and distributes herbicides, insecticides, fungicides and other products' (Bloomberg SJNGEZ), in two divisions, 'Seeds and Crop Protection' (Syngenta China). Paulinia in Brazil became the production site for Syngenta predecessor Sandoz in the aftermath of the fire and environmental disaster at its plant in Schweizerhalle near Basel.[9] In the U.S., in the town of Saint Gabriel, Louisiana, on the Mississippi River, is Syngenta's most important U.S. production facility for selective herbicides. Built by Ciba-Geigy at a distance of some 17 miles or 28 kilometers from Baton Rouge, Louisiana, the highly automated plant went into operation in 1970.

Apart from spin-offs of company segments, restructuring has also led to the relocation of production and other business activities to areas where wages are lower, and environmental awareness and legislation is less strict. While we still lack information on working conditions in Syngenta's chemical production facilities in Brazil, India and in China, there is no doubt that workers at the Monthey plant are in a far better situation, just as their Basel colleagues used to be.

When it comes to Asia, very little is known about working conditions at Syngenta's factories in China. But we have found that Syngenta Pakistan has refused regular employment to contract workers and for how long it has deprived them of their labour rights enshrined in Pakistan's labour law (see Part One, chapter 'Syngenta workers in Pakistan – a ten-year struggle', and Markus Spörndli's contribution, 'In Karachi with Imran Ali'). Syngenta Pakistan has also demonstrated how to 'resolve' labour disputes, i.e. by means of threats, intimidation, dismissals and spin-offs.

The struggle for workplace health and safety…

Making sure that workplaces in the chemical and agrochemical industries do not endanger workers and their health has always been a key part of labour union activities. This is as true when it comes to Syngenta as it was at its predecessor companies, Ciba-Geigy, Sandoz, Novartis, ICI and AstraZeneca (see Part Two, 'Syngenta's genesis').

At the Monthey plant, which was owned by Syngenta predecessor Ciba-Geigy at the time, chlordimeform, the active ingredient in the Syngenta insecticide Galecron, was produced from 1966 until 1976 and from 1978 until 1988. During that period, some 300 workers were exposed to the chemical that was later 'taken off the market because of potential risks to users', as reported in 2006 (Swissinfo 2006). According to the same reliable source, a local urologist had noted 30 suspicious deaths from bladder cancer in the Monthey region over a period of 20 years, the suggestion being that they could be connected to exposure to chlordimeform. After these reports had become public, it took Unia negotiators over a year to wrest compensation agreements from Syngenta. In December 2006, undisclosed compensation payments were at last granted to Syngenta workers: reportedly 'considerable one-off' payments went to 'nine former employees who suffer from bladder cancer'; funds also went to 'the families of two other employees who have died' (Swissinfo 2006).

Several years later and on a different continent, Michael Williams, a man dying of lymphoma in the U.S. sued 'agribusiness titan Syngenta Corp. and subsidiary Syngenta Crop Protection Inc., along with industrial supplier Hagemeyer North America Inc. and his immediate employer' for damages in 2015. Williams was employed by Power Cleaning Specialists Inc. at Syngenta's herbicide factory in St. Gabriel, Louisiana. In September 2014, he had been diagnosed with Non-Hodgkin lymphoma (NHL), a form of blood cancer that.

Williams claimed that

> the protective suit [he wore] offered no protection from chemicals and the training and warnings were inadequate, leaving him exposed to cancer-causing substances, […].
>
> Whether negligently or intentionally, Syngenta failed to warn of dangerous conditions at the site, to ensure the safety of equipment used there and to properly supervise workers on the site, Williams alleges.

> And Hagemeyer should have known that the protective suit was unreasonably dangerous, recommended the proper type of protective suit and provided adequate training.

Williams had 'asked the court to allow him to record his testimony because his condition had deteriorated' (Godoy 2015; see also MW 2015a).

… continues at supplier companies

The analysis of working conditions at Syngenta sites must also include conditions at its suppliers and supplier companies. In the crop seed sector, Syngenta buys seeds from farmers and growers, on terms and conditions that benefit the agribusiness giant. Syngenta has outsourced most of the seed production to avoid responsibility for anything but the price at which it buys the seeds. However, given seed producers' specific dependency on their purchaser, i.e. Syngenta, it is the company that should take responsibility for working conditions on farms and plantations (see also Part One, chapter 'Syngenta in India: High burdens of debt and poisonings').

United Farm Workers: Migrant worker rights

Protecting workers against toxic pesticides is an important part of trade union work on behalf of farm workers. Many of them are so-called illegal immigrants who, as they have no rights and live in fear of deportation, are vulnerable and at greater risk of exposure to pesticides, many of which are Syngenta products.

The U.S. saw one of the most notorious and most celebrated struggless of this kind. It involved a Mexican American farm worker, César Chávez (1927–1993). In the early 1960s, Chávez began to organise farm workers struggling for better wages and working conditions, and for better protection against pesticide exposure. In 1962, he founded the National Farm Workers Association that later became United Farm Workers of America, UFW. He gained nationwide support for the farm workers' struggle after a strike and calls for boycott had made headlines.[10] By the late 1970s, his aggressive but non-violent tactics, accompanied by long periods of protest fasting, had forced growers to recognize the UFW as the bargaining agent for 50,000 field

workers in California and Florida. By the mid 1980s, however, UFW membership had dwindled to around 15,000. When another grape boycott failed in 1988, Chávez went on a hunger strike that lasted 35 days, and never quite recovered (see César Chávez at Wikipedia). Over twenty years after his death, the union continues to campaign against the use of pesticides on food crops. One of their joint campaigns, with Pesticides Action Network North America (PANNA), is a petition to end fumigant pesticides (methyl bromide and methyl iodide) on California's strawberry fields that was still ongoing in July 2016 (UFW 2015).

As this chapter has shown, far too little is known about working conditions and wage structures at Syngenta's numerous sites all over the world. The scandalous and inacceptable situation in Pakistan has been investigated and documented in full in the chapter 'Syngenta workers in Pakistan – a ten-year struggle', and Markus Spörndli, 'In Karachi with Imran Ali', both in Part One of this book. Several conflicts and contradictions at Syngenta's plants in Switzerland have also been presented. It has become evident, however, that more research is required on what conditions are like in the other 88 countries where Syngenta operates (see Syngenta 2014c).

The next chapter considers a number of grassroots movements of resistance against Syngenta's pesticides and patents on plants, and against the overwhelming domination of global corporations over virtually every aspect of our lives.

Notes:

1 See Part Two, chapter 'Basel, a "chemical city" and its unholy alliance with Syngenta'.

2 Editor's and translator's note: In 2000, unions organised several warning strikes and strikes in the Basel area. Supported by GBI, the union of construction and industrial workers, laundry workers held a warning strike at Basel's Central Laundry (Zentralwäscherei, ZEBA AG) after the management of the former state enterprise had asked them to accept a wage reduction of 1000 Swiss francs (about 391 GPB or 1372 US$), to bring wages 'down to the '"industry standard"' wage of about $ 1700 monthly (3000 Swiss francs)' (USDS 2001:6a). As this failed to produce the hoped-for results, the workers went on a six-day strike that resulted in the scrapping of the wage reduction: Management agreed to small wage gains and a cost-of-living adjustment mechanism that will increase wages gradually to about $ 2000 (3500 Swiss francs [or £ 570]) (USDS 2001:6a). At Wäscherei Aare AG in Rheinfelden near Basel, the GBI union and workers demanding a living wage organised an HGV blockade (see Knechtli 2001). They were successful as the minimum wage was increased from 2400 to 3000 Swiss francs, i.e. about $ 1710 or £ 488; a thirteenth monthly salary was also granted.

The success of these industrial actions encouraged the Swiss Federation of Trade Unions (*Schweizerischer Gewerkschaftsbund*, SGB) to launch a living-wage campaign that aimed to raise monthly wages to a monthly minimum of 3000 Swiss francs.

In 2000 also, construction workers and their supporters led a campaign involving protest rallies and strikes. They successfully brought the retirement age for construction workers down to 60.

3 Editors' and translator's note: In 1993, several sectoral trade unions – construction workers in GBH, and chemical, paper and textile workers in GTCP – merged to form GBI, Gewerkschaft Bau und Industrie (see previous note). In 2004, GBI and SMUV, the union for the metal and watchmaking industries, as well as VHTL, the trade union for the retail, trade, transport and food industries, merged to form Unia, Switzerland's largest interprofessional union. Unia has a membership of around 200,000; it negotiates wages and labour conditions for over one million private-sector workers, and manages the country's largest unemployment fund (see Unia 2016).

4 Translator's note: Syna was Switzerland's second interprofessional union after GBI (see previous note), and has a membership of around 60,000. It is headquartered in Olten, canton Solothurn (see Syna 2016; information amended by the editors of this book).

5 Translator's note: An interesting wage comparison was made by Find the Company for Mack's 2010 paycheck: 'Mr. Michael Mack made $ 5.45 million in 2010

Monthey, Switzerland, 27 May 2015: 500 Syngenta workers demonstrate against job cuts

or $ 622 an hour, $ 0 a minute, and $ 0.17 a second. This is 14 times the [U.S.] president's salary and 103 times the median US household income' (FtC 2010).

6 Translator's note: The AOL programme, announced in February 2014, aimed to bring 'global savings of $ 1 billion by 2018' by 'enhancing commercial effectiveness, improving the speed of innovation and attaining industry-leading cost efficiency' across 'three main pillars: Commercial; Research and Development; and Global Operations. […] The actions being implemented from [24 November 2014] will result in job reductions and relocations globally including around 500 operational roles in Basel, of which approximately two thirds will be relocated. The total Swiss employee population is currently 3400. [Syngenta has] more than 28,000 employees in over 90 countries […]' (Syngenta 2014c).

7 Translator's note: Owned by Tamoil, the Raffinerie de Collombey, one of only two oil refineries in Switzerland, was mothballed at the end of March 2015 (Tamoil 2015; Tages Anzeiger 2015a).

8 See Part Two, chapter 'Syngenta's genesis'.

9 See also Part Two, chapter 'Basel, a "chemical city" and its unholy alliance with Syngenta', and Sandoz chemical spill at Wikipedia.

10 Translator's note: On 8 September 1965, Filippino American farm workers protesting for higher wages initiated what has gone down in history as the Delano grape strike. Chavez eagerly supported them. Six months later, for similar reasons, Chávez and the NFWA led striking California grape pickers on the historic farmworkers' march from Delano to the California state capitol in Sacramento. The UFW encouraged all Americans to show their support by boycotting table grapes. The strike lasted five years and attracted national attention.

Chávez went on to lead grassroots campaigns, including a march from San Francisco to the Gallo Winery in Modesto. Although just a few hundred had set off on 22 February 1975, more and more joined along the way and over 15,000 marchers arrived at their destination, a week after the march began.

Since his death, Chávez has become a major historical icon for organised labour and leftist politics, support for workers and Hispanic empowerment in the U.S. He has been credited with popularising the phrase, *Sí se puede* – Yes, we can! – which Barack Obama adopted as his campaign slogan for the U.S. presidency in 2008 (see César Chavez at Wikipedia).

Global resistance

International peasant movements: La Via Campesina and Brazil's MST lead the resistance movement

In a system of unfettered capitalism, global corporations have come to control and dominate virtually every aspect of our lives. They have an impact on people across the world, whether as wage earners, or as people living next to fields where pesticide spraying occurs. That is why resistance against multinational companies has taken so many different forms. At production sites operated by Syngenta and its suppliers, industrial disputes have been waged against temporary work and for the right to organise. Farmers, consumers and rural workers have come together in various protest movements against Syngenta's pesticides and patents on plants. In the U.S., for instance, United Farm Workers (UFW) have been engaged in a decade-long struggle to enforce the rights of Mexican-born migrant workers, and have worked hard – also on the behalf of other migrant workers – for better protection against pesticides from agribusiness giants such as Syngenta. These days, however, the resistance is spear-headed by small-scale farmers' movements that have sprung up more recently.

Small-scale farmers united in La Via Campesina

Protest movements organised by peasants and small-scale farmers have played a vital part since the 1980s in the resistance against the cheap sell-off to transnational corporations of the Global South. One such attempt has been the Doha Development Agenda, more often referred to as the Doha Round trade talks (see Doha Round at Guardian 2012). The Doha Round was launched in 2001 under the auspices of the World Trade Organisation (Doha Round at WTO 2016).

In the struggle against the intended sell-out to global deregulation efforts, two organisations in particular stand out that have gained momentum: *La Vía Campesina* (Via Campesina 2015), which could be translated as 'The Peasants' Way', and one of its member organisations, Brazil's Movement of Landless Rural Workers, *Movimento*

dos Trabalhadores Rurais Sem Terra (MST 2016). The new peasant movements have also been supported by anti-imperialist governments in Ecuador, Venezuela, Bolivia and Cuba.

In our view, *La Vía Campesina* and MST are currently the most substantial and most vocal opponents of Doha and global agribusiness companies, including Syngenta. Their message could not be clearer: they reject neoliberal free trade and industrialised agriculture backed by the WTO and global agribusiness.

Officially established in 1993, *La Via Campesina*

> comprises about 164 local and national organizations in 73 countries from Africa, Asia, Europe and the Americas. Altogether, it represents about 200 million farmers [and] brings together millions of peasants, small and medium-size farmers, landless people, women farmers, indigenous people, migrants and agricultural workers from around the world (Via Campesina 2011a; Via Campesina 2013).

Its member organisations 'defend small-scale sustainable agriculture as a way to promote social justice and dignity [and] strongly oppose corporate driven agriculture and transnational companies that are destroying people and nature' (Via Campesina 2011a). It is they who have raised public awareness of food sovereignty. *La Via Campesina* intensified its internationalist and anti-globalisation efforts when national governments such as India, Argentina and Brazil caved in to global agribusiness companies and their neoliberalist demands.

Food sovereignty: the alternative to capitalist agriculture

Food sovereignty relies on the empowerment and self-determination of communities and states.

It is the people themselves who should define how much self-sufficiency and self-reliance they need, and what mix of trade and local production they require for their own food security. Therefore, if people are to be empowered to feed themselves, they need to be in control of resources including important agricultural production factors such as land, water and seeds. In other words, the concept of food sovereignty pushes back against global free trade, large landowners, and against intellectual property rights, especially against patents on crop seeds. With great courage and on numerous occasions, La Via

Campesina has taken on powerful agribusiness giants that dominate the global seed and pesticide markets.

When transnational trade, agricultural subsidies in industrialised countries, food speculators and dumping strategies coincide, small-scale farmers are deprived of a decent livelihood as they are forced to sell their produce and products far too cheaply. Life-threatening dumping strategies could be kept in check by strengthened regional food production, including higher capacities and output. That, however, would require supporting schemes including credits, minimum pricing as well as technical assistance. And such schemes would need to be implemented with consistency.

Regardless of the focus on regional food production, true food sovereignty needs to be underpinned by international solidarity. MST coordinator João Stedile's remarks on the subject can be summed up as follows:

> If capital has become international and uses international methods, peasant movements must also internationalize their forms of struggle and develp new and creative ways to confront a common enemy (McMichael 2006:415; full interview at Stedile 2002).

Resistance against the model of capitalist monocultures is therefore an essential part of the demands made by La Via Campesina and its member organisations in their struggle. Their counter model relies on agroecology,[1] i.e. on implementing ecological concepts in agrarian ecosystem design and management. As agriculture is a complex system that involves both ecological processes and human socio-cultural activities, however, dynamic relationships between ecological, social and cultural processes must be taken into account (see Altieri 1995).

> A growing body of evidence reveals agroecology's multiple advantages over conventional high-external input farming:
>
> - a multi-functional approach to farming, capable of meeting environmental, economic and social needs
> - greater environmental sustainability and resilience, especially in marginal areas subject to environmental degradation and extreme climatic events, and higher agrobiodiversity

- the ability to support farmers' food sovereignty, reducing their dependence on costly and sometimes difficult-to-access chemical inputs
- higher overall productivity (at farm rather than crop level) achieved through a diverse range of agricultural products and environmental services, which reduce risks of crop failure in the long term (Silici 2014:4).

The fact that *La Via Campesina* has a broad and very heterogeneous membership reflects the plurality of class relations and the great diversity of social situations that prevail in rural areas. It has been fascinating to observe how *La Via Campesina* and its various member organisations have managed to integrate and mobilise landless rural masses, migrant workers, as well as property-less, untitled rural workers in their struggles against the likes of Syngenta.

2015 World Social Forum in Tunis: activists discuss resistance strategies against agrochemical giants such as Syngenta

A network of resistance movements

An important member of *La Via Campesina* is an organisation mentioned earlier, the *Movimento dos Trabalhadores Rurais Sem Terra* (MST). Brazil's landless rural workers have come together in a movement for agrarian reform and the redistribution of land. Such reforms are key elements in the struggle of small-scale farmers and landless people who have gathered in resistance movements and at protest rallies all over the world.

In this new era of financial capitalism, land ownership has increasingly become the target of investors who have their eye on the returns and who consider small-scale farmers as a nuisance. However, access to farmland is the very foundation of food sovereignty and of the right to adequate food, and successful agrarian reform would rely on regulating access through progressive state legislation. For this to be achieved, governments in the southern hemisphere would need to rise up against the dictates of the three 'Riders of the Apocalypse' (Ziegler 2012:157), i.e. the World Bank, the International Monetary Fund and the World Trade Organisation, and reject free-trade agreements with Europe and the U.S. As the chapter 'Greenwashing and Good Growth Plan' in Part Two has shown, Syngenta is closely associated with all three of the above-mentioned international organisations.

MST has also risen up against genetically modified crop seeds and the increasing application of pesticides in monocultures (Friends of MST 2015). Occasionally, MST members occupy parcels of land that belong to large landowners to establish farming co-operatives that follow the agroecological model. In other words, the social struggle and ecological agriculture are closely associated.

The landless movement even closes the gap between rural and urban populations – not only by organising rural and agricultural work in co-operatives, but also by providing food and neighbourly protection to the unemployed in Brazil's shantytowns known as *favelas*. In other words, MST has not only strengthened cooperation between small-scale farmers, it has also built alliances with vulnerable segments of the urban population who themselves suffer deprivation due to neoliberal policies.

Solidarity between North and South

Food sovereignty relies on healthy, high-quality food and food ingredients that accord with local and regional customs. The approach has the potential of bridging the gap between peasant movements and critical consumers. Much of the Global South's cheaply produced output is destined for markets in the Global North. Movements that have sprung up in western conurbations – including March Against Monsanto – have the potential to transfer the resistance against global agribusiness and the promotion of new ways of producing food from the southern hemisphere to industrialised countries.

The grassroots movement, March Against Monsanto, sprang up in California, USA, in 2013 (One Green Planet 2016). The movement's main goal is to achieve the introduction of new legislation whereby GM food must be declared. March Against Monsanto also criticises that, in the U.S.

> the FDA, the agency tasked with ensuring food safety for the population, is steered by ex-Monsanto executives, and we feel that's a questionable conflict of interests and explains the lack of government-led research on the long-term effects of GMO products. Recently, the U.S. Congress and president collectively passed the nicknamed 'Monsanto Protection Act' that, among other things, bans courts from halting the sale of Monsanto's genetically modified seeds (MAM 2016:Mission Statement).

March Against Monsanto is a movement that asks consumers to buy only organically produced or agroecological products, and suggests boycotting any genetically modified products. While critical consumers were at the forefront in the early days of March against Monsanto, the movement has expanded and now critically addresses a wide range of issues. It would, however, need to move beyond anti-consumerism and evolve into a movement that embraces political solidarity with the world's farmers, peasants and workers.

Basel's colourful march against international agribusiness

On 23 May 2015, Basel hosted a 'March against Monsanto (& Syngenta)'. It was the first time that the city joined over 400 other cities in 38 countries. Marches against Monsanto also took place in Berne,

the Swiss capital, and outside Monsanto's European headquarters in the small town of Morges, on Lake Geneva.[2] The first ever such march had taken place in 2013 (One Green Planet 2014; MAM 2016).

Buoyed by the success of the MultiWatch conference *Agro statt Business* (Agri[culture] rather than Business)[3] in late April of 2015, the MultiWatch Basel group (MW BS) decided to launch the first such march in Basel – albeit under the banner of 'March against Monsanto & Syngenta'. MW BS successfully gathered the support of an alliance of more than twenty regional NGOs.

Over 1300 people actually took part in the march – mostly young people, and from across the entire political spectrum. Involved in organising the march were representatives from Uniterre, Longo Maï and the Urban Agriculture Network Basel, i.e. farmers' organisations and groups advocating permaculture, urban agriculture and other 'utopian' agricultural systems.[4] The most highly visible among several participating environmental organisations was Greenpeace, which has blamed Syngenta for the rapid decline of honeybees and other pollinators. Also on the march were development organisations such as the Berne Declaration, and anti-capitalist groups such as the Movement for Socialism (*Bewegung für Sozialismus*, bfs)[5] and 'Revolutionary Reconstruction' (*Revolutionärer Aufbau*),[6] and so did trade unions and their members – Unia, IGA[7] and VPOD[8] – and *Wagenplatz*, an activist group that promote the right to live on unused urban areas land and oppose the displacement of underprivileged members of society.[9] The march was supported by various political parties, including JUSO[10] and the Young Green Party. Basel's governing Social Democratic Party promoted the protest march. Mobilisation efforts in South Baden by regional groups of Friends of the Earth Germany (BUND) and of the German Nature and Biodiversity Conservation Union (NABU) brought people from France and Germany to Basel. Dozens of scarecrows bobbed along the cortège. Bees and wasps (Greenpeace activists in fancy dress) were keen to sting Syngenta managers. The impressive protest march in Basel even featured in Bloomberg News, the U.S.-based international news agency (Bloomberg 21/05/2015).

The highly visible and massive march showed the increasing interest in criticism of Syngenta in the Basel regaion. Colourful,

diverse movements can develop great strength if and when individual groups learn from each other and mutually support one another in their struggle.

Notes:

1 Translator's note: Agroecology is 'the discipline that provides the basic ecological principles for how to study, design, and manage agroecosystems that are both productive and natural resource conserving, and are also culturally sensitive, socially just, and economically viable' (Altieri 1995:Preface).

2 Translator's note: See also March against Monsanto 2016.

3 Translator's note: See also Dr. Vandana Shiva's message of solidarity at the beginning of Part Three, and the chapters, 'Syngenta trial plots on Kaua'i – anything but Paradise' and 'Syngenta workers in Pakistan – a ten-year struggle' in Part One of this book.

4 Translator's note: The utopian communities of Longo Maï are a network of agricultural co-operatives with an anti-capitalist ideological focus. Founded in 1973 in LImans, France, the network has spread in Europe and to Central America (for more information, see Longo Maï at Wikipedia).

Uniterre is a left-wing farmers' movement (see Swissinfo 2016).

The not-for-profit Urban Agriculture Network Basel (UAB) encourages people living in and around Basel to grow and produce food plants, herbs, flowers and medicinal plants, and to raise livestock according to the organic growing guidelines issued by Biosuisse (see UAB 2016).

5 See bfs 2015.

6 See RAS 2016.

7 Translator's note: IGA is a network workers in precarious employment (see IGA 2016).

8 Translator's note: VPOD stands for *Verband des Personals öffentlicher Dienste*, Association of Public-Sector employees (see also VPOD 2016).

9 See Wagenplatz 2016.

10 Translator's note: JUSO stands for *Jungsozialistinnen und Jungsozialisten*, Young Socialists (see Juso 2016).

March against SYNGENTA – MultiWatch demands

We must strengthen our opposition and widen the scope of our criticism

The 'March against Monsanto' takes place each year in towns and cities all over the world. Previous chapters of March against Syngenta *have revealed Monsanto's Basel twin. That is why 'Marching against Monsanto' is to be transformed into 'Marching against Monsanto and Syngenta'. There are many Syngenta production plants and research facilities on every continent. We trust that your local protest march will go past one of them. The following chapter explains why there are many reasons for joining a March against Syngenta.*

Chemical workers

Syngenta's chemical workers at the different manufacturing plants call for an end to the company's 'hire and fire' policy, and to ongoing threats that jobs will be cuts or outsourced. What is particularly inacceptable is to outsource jobs as a way of getting around labour legislation. In view of Syngenta's high profitability, ongoing attempts to downgrade working conditions must stop. The company must respect union rights at each and every one of its plants and sites, and do so to the highest standard. Every worker and every employee should be covered by a Collective Agreement. As only strong trade unions can ensure compliance with these agreements, and only they can stand up for better working conditions, the company may not compromise union organisation in any way, shape or form.

As for Syngenta Pakistan, we demand, firstly, that the company comply immediately with court rulings stating that, after 90 days, all contract workers must be offered regular contracts under the Collective Agreement. Secondly, we demand the immediate and unconditional reversal of the unfair and illegal dismissal without notice of Imran Ali, long-standing Secretary General of the Syngenta Employees Union (SEU), including the immediate payment of the salary due to Imran Ali for the past five years. Thirdly, we demand wage increases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and continuous improvements to working conditions at Syngenta Pakistan. Finally, the company must stop outsourcing any further production sectors.

Crop seed farmers and growers
Small crop seed farmers and growers, and any field workers in their employ often labour for starvation wages. We demand that anyone contracted or sub-contracted by Syngenta to grow seeds be paid fair living wages, if not in excess of the living wage. We also demand that Syngenta be consistent in its compliance with labour and workplace health & safety legislation and regulations, and that health-promoting policies be improved. Syngenta's contracts with its direct and/or sub-contracted seed farmers and growers must clearly state the full extent of any agreements. Moreover, contracts must be concise, clear and easy to understand. Together with trade unions and NGOs, monitoring of these conditions must be set up immediately. The Fair Labor Association (FLA) may still be involved; priority should however be given to free trade union organisation.

Local residents
The fundamental human right to health of people living near toxic waste deposits, factories and test fields is compromised. Syngenta must remedy immediately, thoroughly and in full any waste deposits that threaten drinking water reserves and supplies. Cheap remedial measures are inacceptable. The public sector must not taking on the burden of remedial costs by purchasing any toxic waste deposit sites. Both in Kaua'i and anywhere else, Syngenta must put a halt to the spraying near schools, hospitals and residential homes of atrazine, paraquat and any other pesticides that have long been banned in Switzerland. We demand from Syngenta to drop its legal action against the people of Kaua'i's democratic decision regarding Bill 2491/Ordinance 960 that stipulates the establishment of pesticide-free buffer zones around schools, hospitals and residential areas.

Basel, Switzerland, May 2015: The first Basel March Against Monsanto and Syngenta on the historic Middle bridge across the Rhine River

Consumers

Consumer health is compromised by residues in food of carcinogenic glyphosate, toxic atrazine and other pesticides. Syngenta must present a serious schedule for the gradual reduction of toxic pesticide production. As a first step, Syngenta must stop manufacturing paraquat, atrazine and 2,4-d; and phase out glyphosate production.

In many countries, consumers unwittingly and sometimes even forcibly buy and consume food that contains Syngenta's genetically modified (GM) seeds. Associated risks have by no means been studied to the extent and with the due diligence required. We therefore urgently call for the introduction of compulsory, detailed and easily verifyable declaration mechanisms for GM foodstuffs.

Finally, we call for a global moratorium on GM plants, at least until large agribusiness companies have ceased to dominate those international research institutions that currently assess risks associated with genetically modified organisms.

Health protection; product range streamlining

Lacking adequate training and personal protection equipment, farmers[1] and agricultural workers continue to be exposed to Syngenta's highly toxic pesticides such as paraquat all over the Global South.

The company cynically refers to safety instructions for the application of its pesticides despite mounting evidence that only a minority of poor peasants in the Global South are in a position to comply. Syngenta must stop the production, sale and licensing of paraquat, atrazine and its other toxic pesticides with immediate effect and across the globe. We also demand fair and adequate compensation for paraquat victims.

Again, this is an area in which only strong trade unions can guarantee the political and labour rights of untold numbers of rural and agricultural labourers, many of whom are migrant workers.

Crop seeds: no patents on living organisms

All over the world, small-scale farmers have been chased from their land due to free-trade agreements and agrarian land speculation, and driven into ruin by Monsanto's and Syngenta's crop-seed privatisation policy.

Crop seeds must remain a public good. Peasants' rights take priority over patents and plant variety protection and Syngenta must respect peasants' rights to seed saving and exchange.[2]

We also urge Syngenta to stop and desist from filing patents on living organisms. There are to be no more patents on life. Syngenta must be prevented from expanding patent laws to include increasing numbers of conventionally bred plants. Instead, we urge Syngenta to accept the fact that crop seeds are a public good. We demand that Syngenta pledge its patents to an open-source seed initiative.

Hunger, biodiversity, food security

In the Global South, some 800 million people go hungry or generally suffer malnutrition, both in urban slums and in rural areas. Syngenta is a global player in a round-the-globe capitalist agricultural system that, often due to inadequate availability and distribution, has so far failed to eradicate hunger – despite surplus food production.

Some of Syngenta's business practices violate basic universal human rights, including the right to health and –especially – the right to adequate food. Transcontinental corporate moguls and their tentacles systematically violate these rights (see Ziegler 2012:145).

Syngenta and the Syngenta Foundation must stop supporting imperialist projects underwritten by the World Bank, the International Monetary Fund and G8 in Africa.

The standardisation of crop seeds by a few large agribusinesses has already led to a dramatic loss of agrobiodiversity. Every day, crop seed varieties go extinct that could be of existential value as we face climate change. We must not allow a few large companies to take control of the future of crop seeds!

Biofuel production based on specific GM seed varieties compromises the food security in production areas. Syngenta supplies GM seeds for the vast soybean or maize monoculture plantations in Latin America; the company intends to do the same in Africa soon. Most of the produce from these monocultures, however, is destined for the biofuel market, or to feed meat cattle in the Global North. In other words: the vast monocultures compromise the food sovereignty of local populations.

Finally, in Paraguay, Syngenta must stop the sale of GM maize.

This maize poses a serious threat to a wide range of indigenous maize varieties that are the pillar of Paraguayan food sovereignty.

Research

Owing to neoliberal restructuring processes, agricultural developments are no longer primarily in the hands of state-owned research institutions, nor are they the object of state-led agricultural policies. This has brought no significant improvements, on the contrary: the negative impact of this shift has been emerging more and more clearly; it has led to a loss of public confidence that may only be restored if the privatisation of research is reversed, and if decisions on how to distribute risks are taken in a democratic fashion. Only then will the cost of technological innovation, and any associated risks become bearable. Until such a time, we we call for a global moratorium to be imposed on GM plants.

Researchers have been particularly affected by the above-mentioned shift as state-led agricultural research budgets have been cut. As privatisation creeps into academic research, and multi and transnational companies take charge and dictate projects, it is becoming increasingly harder to do independent research. Therefore, public funds must be used to support independent agricultural research that can also develop agroecological alternatives. Syngenta may not attempt to influence, let alone threaten, critical scientists and researchers. Instead, we demand that Syngenta pledge its patents to an open-source seed initiative.

As large agribusiness companies focus on areas that promise the highest profits, agroindustrial concentration processes mean that there has been less research and important research programmes in areas that may be less profitable have stagnated. Agricultural research, however, must be guided by the needs of humans, rather than by the needs of multi and transnational corporations. Because it is far from certain that what benefits global agribusiness will also benefit (local) populations, whether in the Global North, nor in the Global South.

Environmentalists

We now know that Syngenta's neonictoinoid insecticides destroy honeybee populations. Which is why these chemicals must be ban-

ned immediately and for good. Atrazine and other pesticides manufactured by Syngenta destroy creatures living in rivers, lakes and the oceans, and pose a serious threat to biodiversity.

Syngenta is a strong link in the chain of capitalist agriculture that is destroying nature and is a major cause of climate change. Ever increasing quantities of pesticides are damaging human, animal and environmental health, and pollute water bodies on the continents and the water in the oceans. The consequences are incalculable – and may already be irreversible.

The Brazilian rainforest is being destroyed to create maize and soybean monocultures that exacerbate climate change. Capitalist agribusiness involves dangerous, toxic products, needlessly long transport routes, biodiversity loss, and staggering amounts of food waste. Only in terms of its capacity to maximise monetary profit do we see capitalist agribusiness engaging in innovative strategies. Social progress, however, has been hindered and slowed down by the world's largest agribusiness companies. Syngenta profits from a regressive agricultural model. From its headquarters in Basel, the company has engaged in global agricultural policies that prevent the emergence of alternatives and are dragging the world towards total ecological disaster.

Our resistance must grow stronger

In ecological and socially compatible agriculture, there is no room for current forms of agribusiness.

The managers at the helm of large agribusiness companies have a very one-sided, short-sighted view. The same is true for their methods that are completely at odds with ecologically and socially compatible agriculture.

We must strengthen global resistance and coordinate our different campaigns to promote a new internationalism able to stand up against big buisnesses that make big money from crop seeds and pesticides. We need to embrace, promote and enforce existing alternatives.

Notes:

1 In this chapter of *March against Syngenta* and elsewhere, we consider 'farmers' to run family enterprises or capitalist businesses. By contrast, 'peasants' fight feudalism and (neo-)colonialism.

2 See note 1 for the difference between 'farmers' and 'peasants'.

Abbrevations

ACBIO	African Centre for Biodiversity
AdM	Alimentations du monde / World Food Systems
AFSA	Alliance for Food Sovereignty in Africa
AGRA	Alliance for a Green Revolution in Africa
AIAS	Amsterdam Institute for Advanced Labour Studies
AKST	Agricultural Knowledge, Science and Technology
APC	Asian Peasant Coalition
APS	Asociación de Productores de Soja, Oleaginosas y Cereales del Paraguay / Soy Producers' Association of Paraguay
BD	Berne Declaration
BIAC	Business and Industry Advisory Committee to the OECD
BUND	Bund für Umwelt und Naturschutz Deutschland / Friends of the Earth Germany
BVK	Pension Funds for state employees in the Canton of Zurich
CAFO	Concentrated Animal Feeding Operations
CBD	Convention on Biological Diversity
CDC	Centers for Disease Control and Prevent (USA)
CEFIC	Conseil Européen des Fédérations de l'Industrie Chimique / European Chemical Industry Council
CEO	Chief Executive Officer
CEO	Corporate Europe Observatory
CETA	Comprehensive Economic and Trade Agreement (Canada/EU)
CFO	Chief Financial Officer
CGAR	Global Campaign for Agrarian Reform (Vía Campesina)
CGIAR	Consultative Group on International Agricultural Research
CHF	Swiss Francs
CIBRC	Central Insecticide Board and Registration Committee (India)
COO	Chief Operations Officer
CPT	Commissao Pastoral da Terra in Brazil
CRG	Centre for Research on Globalization/Centre de recherche sur la mondialisation
CSA	Climate Smart Agriculture
CW	Chemical Weapons
DDT	Dichlorphenyltrichlorethan, Insecticide
EAME	Europe, Africa, Middle East
EBITDA	A company's earnings before interest, taxes, depreciation, and amortisation
EC	European Commission
ECCHR	European Centre for Constitutional and Human Rights

EEB European Environmental Bureau
EFG European Financial Group. International private bank in Zurich
EFSA European Food Safety Authority
EOD Explosive Ordinance Disposal
EPC European Patent Convention
EPF-L École polytechnique fédérale de Lausanne / Swiss Federal Institute of Technology Lausanne
EPO European Patent Office / Europäisches Patentamt / Office européen des brevets
EFSA European Food Safety Authority
ESG Environmental Social Governance. Ecological Funds.
ETC Group Action Group on Erosion, Technology and Concentration
ETH-Z Eidgenössische Technische Hochschule Zürich / Swiss Federal Institute of Technology Zürich
EvB Erklärung von Bern / Berne Declaration
FAO Food and Agriculture Organization of the United Nations
FARA Forum for Agricultural Research in Africa
FAUBA Facultad de Agronomía de la Universidad de Buenos Aires / School of Agriculture of the University of Buenos Aires
FERA Food and Environment Research Agency (UK)
FLA Fair Labour Association
FRAND fair, reasonable and non-discriminatory
FSC Forest Stewardship Council
G8 Group of Eight, an international forum for eight industrialized nations
GACSA Global Alliance for Climate Smart Agriculture
GBH Gewerkschaft Bau und Holz / (Swiss) Trade Union of Workers in the Construction and Timber Industries
GBI Gewerkschaft Bau und Industrie / (Swiss) Trade Union of Construction and Industrial Workers
GDP Gross Domestic Product
GE Genetic Engineering (see also GM)
GHG Greenhouse Gas
GM Genetic Modification (see also GE)
GMO Genetically Modified Organisms
GR1 Golden Rice 1
GR2 Golden Rice 2
GTCP Gewerkschaft Textil, Chemie, Papier / (Swiss) Trade Union of Workers in the Textile, Chemical and Paper Industries
HCH Hexachlorcyclohexan
HRBDF Human Rights and Business Dilemmas Forum
IAAS International Association of Students in Agricultural and Related Sciences
IAASTD International Assessment of Agricultural Knowledge, Science and Technology for Development, also known as the 'Global Agriculture Report'

IAC Instituto Agronômico de Campinas / Institute of Agriculture of Campinas, Brazil
IARC International Agency for Research on Cancer
ICI Imperial Chemical Industries
ICTs information and communication technologies
IFC International Finance Corporation
IG DRB Interessengemeinschaft Deponiesicherheit Region Basel (Interest Group for Safe Waste Deposits in the Basel region)
IGA Interprofessionelle Gewerkschaft der ArbeiterInnen (Swiss Interprofessional Workers Union)
IISD International Institute for Sustainable Development
ILO International Labour Organisation
ILSI International Life Sciences Institute
IMF International Monetary Fund
IPTGRFA International Treaty on Plant Genetic Resources for Food and Agriculture (FAO), or 'Seed Treaty'
IRMA Insect Resistant Maize for Africa
IRRI International Rice Research Institute
ITPGR International Treaty on Plant Genetic Resources in Food and Agriculture (FAO)
IUF International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations (IUF/UITA/IUL)
JUSO Jungsozialistinnen und Jungsozialisten (Young Socialists; Switzerland)
KPL Kilombero Plantations Ltd
kriPo kritische Politik an den Hochschulen Zürichs (largely left-wing group of students at universities in the Swiss city of Zürich)
MAFF Ministry of Agriculture, Forestry and Fisheries (Japan)
MAG Ministerio de Agricultura y Ganadería (Ministry of Agriculture and Livestock, Paraguay)
MAM March Against Monsanto
MST Movimento dos Trabalhadores Rurais Sem Terra, Brasil
NABU Naturschutzbund Deutschland / Nature and Biodiversity Conservation Union (Germany)
NAFTA North American Free Trade Agreement
NATO North Atlantic Treaty Organisation
NBC Nuclear Biological Chemical
NGO Non-Governmental Organisation
NIOSH National Instute for Occupational Safety and Health (USA)
NFU National Farmers Union (UK)
NZZ Neue Zürcher Zeitung, Daily Newspaper
OECD Organisation for Economic Co-operation and Development
OHCHR United Nations Human Rights Office of the High Commissioner
OP Organophosphate

OTI	Office of Transition Initiatives (USAID)
Oxfam	Oxford Committee for Famine Relief
PAC	Political Action Committee (U.S.)
PAN	Pesticide Action Network (International List of Highly Hazardous Pesticides)
PAN AP	Pesticide Action Network Asia and Pacific
PBR	Plant Breeders' Rights (see also PVR)
PCEM	Pakistan Federation of Chemical, Energy, Mines and General Workers nion
PCT	Patent Cooperation Treaty
PMRA	Pest Management Regulatory Agency (Canada)
PPP	Public Private Partnership
PPT	Permanent People's Tribunal
PVP	Plant Variety Protection
PVR	Plant Variety Rights, see also PBR
R&D	Research and development
RALLT	Red por una América Latina Libre de Transgénicos / Network for a GE-free Latin America
ROPPA	Réseau des organisations paysannes et de producteurs de l'Afrique de l'Ouest (West-African Peasant and Producers' Network)
RR	Roundup Ready (i.e. glyphosate resistant)
SAF	Swiss Armed Forces
SAG	Swiss Alliance GMO-free
Sagcot	Southern Agricultural Growth Corridor of Tanzania
SCAR	Standing Commission on Agricultural Research (of the EU Council)
SDC	Swiss Agency for Development and Cooperation
SENAVE	Servicio Nacional de Calidad y Sanidad Vegetal y de Semillas (National Service for Plant and Seed Quality and Health, Paraguay)
SEU	Syngenta Employees Union Pakistan
SGB	Schweizerischer Gewerkschaftsbund / Swiss Federation of Trade Unions
SMUV	Schweizerischer Metall- und Uhrenarbeiterverband (Swiss trade union for the metal and watchmaking industries)
SN	Svenska Naturskyddsföreningen / Swedish Society for Nature Conservation
SOCLA	Sociedad Científica Latinoamericana de Agroecología / Latin American Scientific Society of Agroecology
Syna	Christian trade union in Switzerland
TLC	Tratado de Libre Comercio / Dominican Republic–Central America Free Trade Agreement (DR–CAFTA)
TNC	Transnational corporation
TNT	Trinitrotoluol
TPP	Trans-Pacific Partnership
TRIPS	Trade-related aspects of Intellectual Property Rights (WTO)

TWN Third World Network
TTIP Transatlantic Trade and Investment Partnership
UBS Union Bank of Switzerland
UFW United Farm Workers, US
UGP Unión de los Gremios de Producción (Union of Producers' Agencies, Paraguay)
UK United Kingdom
UNCTAD United Nations Conference on Trade and Development
UNESCO United Nations Educational, Scientific and Cultural Organization
Unia Switzerland's largest trade union
UPOV Union internationale pour la protection des obtentions végétales / International Union for the Protection of New Varieties of Plants
UPOV91 International Union for the Protection of New Varieties of Plants, Standard Revision 1991
USAID United States Agency for International Development
USDA U.S. Department of Agriculture
UTZ (formerly UTZ Certified; for a 'world where sustainable farming is the norm')
VHTL Gewerkschaft Verkauf, Handel, Transport und Lebensmittel (Swiss trade union for the retail, trade, transport and food industries)
VPOD Verband des Personals öffentlicher Dienste (Swiss union for public-sector employees)
WBSCD World Business Council for Sustainable Development
WEMA Water Efficient Maize for Africa
WIPO World Intellectual Property Organization
WFP United Nations World Food Programme
WHO World Health Organisation
WOZ Wochenzeitung. Left weekly in Switzerland.
WTO World Trade Organisation

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Some other useful sources of information

AgriBusiness Global – Global Crop Protection Information
http://www.agribusinessglobal.com
AgroEco – Agroecology in Action
http://agroeco.org
AFSA – Alliance for Food Sovereignty in Africa
http://afsafrica.org
BAN – Basel Action Network. Champions of environmental health & justice, Seattle, WA, USA
http://www.ban.org
CEO – Corporate Europe Observatory
http://corporateeurope.org
DanWatch – Danish Consumer Council, WWF and other NGOs
http://danwatch.org
EuropaBio – European Association for Bioindustries (EuropaBio), Brussels, Belgium
http://www.europabio.org
FoMST – Friends of the MST Movimento sem Terra
http://www.mstbrazil.org
Food First – Exploding Myths & Inspiring Change – 40 Years
http://foodfirst.org
IJRC – International Justice Resource Center:
http://www.ijrcenter.org/international-humanitarian-law/
LobbyWatch: Profiles. CGIAR
http://lobbywatch.org/profile1.asp?PrId=295 (30 May 2016)
MST – Movimento dos Trabalhadores Rurais sem Terra (Movement of Landless Rural Workers)
http://www.mst.org.br
Occupy – We are the 99%
http://www.occupy.com
Organisation for the Prohibition of Chemical Weapons:
https://www.opcw.org/about-chemical-weapons/what-is-a-chemical-weapon/
Our Food Future – Sharing ecological food stories, reimagining a sustainable food system
http://www.ourfoodfuture.com
Paraquat Information Center – Giving you the facts about paraquat (on behalf of Syngenta Crop Protection AG)
http://paraquat.com/
PR Watch at CMD – Center for Media and Democracy's. Madison, Wisconsin, USA, since 1993
http://prwatch.org
S2BN – Seattle to Brussels Network ('a network of development, environment, human rights, women and farmers organisations, trade unions, social movements as well as research institutes'):
http://www.s2bnetwork.org/about-us/
Seed Freedom – Global movement for seed freedom:
http://seedfreedom.info
Seed Thoughts from Navdanya –
http://seedfreedom.info/seed-thoughts-from-navdanya/
Smith Institute – The Smith Institute, Somerset House, London, UK
http://www.smith-institute.org.uk/about/ (3 July 2016)
SOCLA – Sociedad Científica Latinoamericana de Agroecología / Latin American Scientific Society of Agroecology
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Syngenta International AG – 'A wide array of domestic and global news stories; news topics include politics/government, business, technology, religion, sports/entertainment, science/nature, and health/lifestyle. Articles that appear in this section may be written in English or other languages.'
http://www.prnewswire.com/news/syngenta+international+ag
Syngenta UK –
https://www.syngenta.co.uk
USLEAP – International Labor Rights Forum, Washington, DC, USA
http://laborrights.org/programs/usleap

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