

# ALLANBLACKIA REPORT

August 2016





# INTRODUCTION

In this report I am going to investigate the ways that the under-utilised crop *Allanblackia* could be beneficial environmentally, socially and economically to Nigeria; and to discover the possible advances that could be made using the crop to reverse many issues prevalent in the region.

Between the years 2000 – 2005, Nigeria lost around 55% of its' primary forests, causing the Food and Agriculture Organisation (FAO) to record it as having the highest rate of deforestation in the world. Nigeria has been facing mass deforestation ever since due to both legal and illegal timber trade. This has caused the timber trade to become one of the few sources of income for the local people.

*Allanblackia* is a high potential tree crop that could change the way people view the natural environment around them as they grow and harvest the *Allanblackia* tree as their employment, instead of cutting the trees down. The *Allanblackia* tree is indigenous to the Equatorial Rainforest in Africa and some of the *Allanblackia* species are on the International Union for the Conservation of Nature's (IUCN) Red list of endangered species.

By using it as a source of revenue for the local people, *Allanblackia* harvesting could be the solution to the damage caused by the timber trade.

*Allanblackia* is a dioecious plant that is part of the Clusiaceae family and has taken the interest of many organisations such as Unilever as a potential client in Nigeria. There are three species of *Allanblackia*. The Species are *Allanblackia Floribunda*, found in Nigeria, the *Allanblackia Stuhlmanii* found in Tanzania and *Allanblackia Parviflora* found in Ghana. All produce the same crop: the *Allanblackia* seed, which is crushed into an oil and later sold. A trading system has already been set up in Tanzania with Unilever and other corporations as part of the Novella Project which also works with Ghana, and recently Nigeria, to help realise the potential of this crop.

The *Allanblackia* tree could be the solution to some of the problems faced by the country because it is one of few trees that has the option of intercropping with other (already economically successful) tree types such as plantain and Cocoa trees. This means that the tree can be successfully grown in a forest environment which could actually improve the crop quality, instead of diminishing it and farmers could incorporate *Allanblackia* trees into their existing farms.

Allanblackia oil has sparked interest with researchers for its many uses, causing it to be called an “ideal vegetable oil” due to its high melting point, and also contains stearic and oleic acids, making it a useful ingredient in the making of margarines, spreads and ice creams. The oil has also recently had the approval of the EU, Novel Food Regulations, certifying its safe usage in food products. Because of this, the potential market for Allanblackia oil is said to be more than 100,000 tonnes annually and Allanblackia even has the potential of replacing other widely used crops such as Palm oil and Cocoa.

Unlike these crops (mainly Palm oil), Allanblackia has the potential to be sustainably produced. Using it would therefore dramatically decrease the Ecological footprints of the companies using Allanblackia instead of Palm oil, which is currently used in most cosmetic and food products.

This would also be helpful to local communities as it would decrease pollution made from the processing of palm oil in the area.



*Figure 1. Allanblackia Seeds*

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## A BRIEF HISTORY OF ALLANBLACKIA

Allanblackia oil was traditionally used as a cooking oil and the making of soap. It began to be traded internationally during the First World War (1914-18) where it was used as a substitute for Cocoa in chocolate products on a global scale. However, after the war, its use internationally rapidly diminished and was instantly forgotten.

Only in 2004 was the interest re-sparked and its potential once again realised by investment into its research in Sweden on behalf of Unilever.

The Allanblackia tree was named after the Scottish botanist Allan Black, who helped to design Kew Gardens during the late 1800s.



*Figure 2. Allanblackia Fruit*

## CURRENT YIELD AND CROP PRODUCTION METHOD IN NIGERIA, GHANA AND TANZANIA

	GHANA	NIGERIA	TANZANIA
SEED (TONNES)	110	60	450
OIL (TONNES)	40	20	150

*(2012 Data)*

Although it is evident that Nigeria is already a part of the trade of *Allanblackia* oil, this table also makes it clear that Nigeria is delayed in its progress in comparison to the other countries involved. As part of the Novella Project, Unilever requires at least 240 tonnes of oil, however all three of these countries have been failing to meet this target, producing only 210 tonnes.

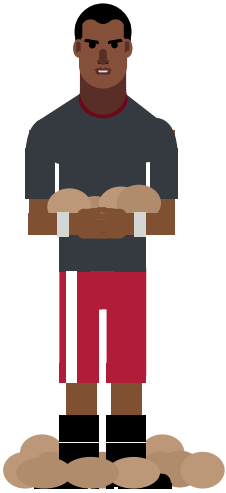
Both Nigeria and Ghana have been reliant almost solely on wild harvesting without using domestication or farming the crop themselves. This method has appeared to be too slow and produces too little in order for *Allanblackia* to reach its full potential; therefore investment into domestication of the crop and nurseries for saplings is needed in these areas for a strong trading system to take hold. Domestication and vegetative propagation (cloning of the best crop) has begun in Tanzania where crops are often bred for advantageous genes that are better suited to mass crop production and also planted in nurseries.

This has caused *Allanblackia* seeds to be grown and oil to be produced on a much larger scale in Tanzania in comparison to the other countries part of the supply chain. On the other hand, reintroducing *Allanblackia* into natural rainforests, is not a good direction because it means the genes that are advantageous to the trees' survival can often be replaced by genes that only benefit the needs of mass production. For this reason, trees that may have been genetically modified or selectively bred may be at higher risk of failure in the wild. However, this domestication programme has only just been launched in recent years by the Novella Project to try to transform *Allanblackia* into a new cash crop.

Therefore these conflicting viewpoints will have to be taken into consideration if this is to be successful.



Below is a flow chart of the current process of Allanblackia oil production in most areas before it is traded or transported:

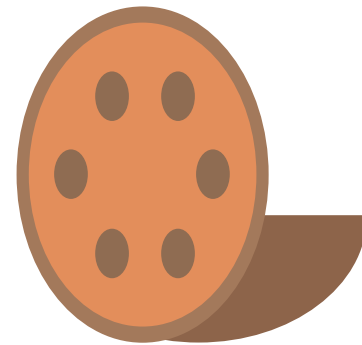


### Harvesting:

Fruits when ripe fall from the trees and are collected by people venturing out to find the fruit on the forest floor (wild harvesting)

### Seed Preparation:

Seeds extracted from fruit and laid out to be dried on a raised platform for 1 - 2 weeks.

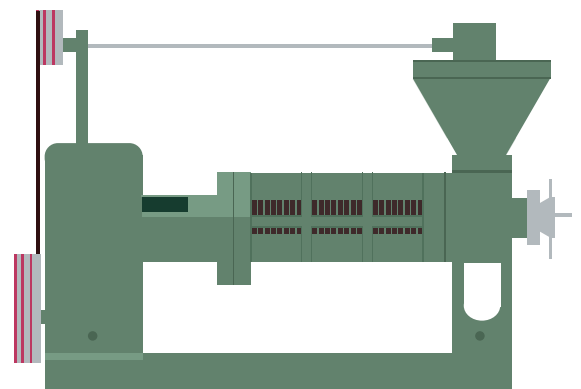


### Collection Centre:

Dried seeds are brought to collection centres where a trained clerk inspects the seed quality and weight, where a fixed price is paid to the farmer.

### Oil Production

The oil is extracted from the seeds in an Oil Mill where the seeds are heated and then crushed to produce the oil - which can then be easily transported



## PAST INVESTMENTS INTO ALLANBLACKIA FARMING

### Unilever and the Novella Project

The Novella Project was set up by a group of companies with the aim to establish a trading system of Allanblackia in the countries it is indigenous to; with the main focus being on Tanzania, Ghana and Nigeria. The project has been going since January 2004 and started in Tanzania – where the most progress has been made and later spread to Ghana and then Nigeria in 2008. The project includes: FORM international; IUCN; Unilever; Union for Ethical Bio Trade (UEBT); World Agroforestry Centre (ICRAF).

The official aim of the Novella Project is “To contribute to the long term alleviation of poverty in poor rural communities by providing a new, additional and rewarding sustainable source of income through developing and organising local communities and their businesses for a profitable and sustainable Allanblackia chain.”

This is a pilot project to promote biodiversity and to reduce poverty in the Equatorial Rainforest in Africa by the use of “Non Timber Forest Production”. This could drastically change the local and political viewpoints that many have of the rainforest in the area and find that investing in the replanting of certain types of trees could

be beneficial to everyone instead of the trees only being a source of timber and causing damage to the areas that people live in. One of the projects’ main partners, Unilever, has a specific interest in this form of vegetable oil due to its particular properties. The seeds contain around 70% solid white fat that has a melting point of 34°C, which is the perfect temperature for a spreadable food substance as it is solid at room temperature but melts once ingested. The oil also contains Stearic and oleic acids which are commonly found in other vegetable oils such as olive oil and has health benefits such as lowering cholesterol. The amount of Stearic acid is also abnormally high in this form of vegetable oil, which is more commonly found in meats and fish. Allanblackia oil also has lower levels of saturated fats than in current products yet when used in margarines, has the same consistency and texture that the consumer might expect. This means crops containing Allanblackia oil could have a selling point as a healthier alternative.



Unilever began using Allanblackia oil in their products when the margarine Becel Gold was launched in September 2014. This margarine is currently being sold in Sweden, therefore supplying to a market of 9.6 million people and from my research, no complaints have been made concerning the product.

The project also aims to prevent Allanblackia from being commercialised in the way that other crops such as plantain are. This suggests that Allanblackia requires a different model from commercial plantations as the project is going to be carried out using many smallholder farmers to increase community and social benefit.



*Figure 3. Solidified vegetable oil*

## CASE STUDY:

What was done specifically in Tanzania?

Thanks to the Novella Project, around 200,000 seedlings had been planted across Tanzania, Ghana and Nigeria by 2013. This has involved around 10,000 farmers, which are either growing the crop or collectors that gather the fruits in the wild forests. Despite this improvement since Allanblackia's humble beginnings, there is still pressure from the Novella project for the local communities to move away from wild harvesting towards domestication. This would be done in order to try to fit Allanblackia into the "cash crop" category. By doing this, conflict may be caused with some of the project's claims to also be aiding the crisis of deforestation in these regions as domestication could cause problems with this in the future.

**Source:** *Seeds of Hope (Novella Project)*

<http://www.google.co.uk/url?sa=t&source=web&cd=3&ved=0ahUKEwiakMSiwqDOAhXHDMAKHURBA-UQFggnMAI&url=http%3A%2F%2Fwww.worldagroforestry.org%2Fdownloads%2FPublications%2FPDFS%2FB16262.pdf&usq=AFQjCNGulwK1w4mFIGLU7Mflc.NLx.NKnu6g>

# REASONS WHY AN INCREASE IN CROP PRODUCTION WOULD BE BENEFICIAL TO NIGERIA

This project on Allanblackia has had around US\$10million invested into it from the partners since 2004. This is because the tree has the potential to not only benefit companies but the rainforest, local businesses and people – potentially helping with the development of these countries at many different angles.

## Environmental

One of the main issues environmentally in Nigeria is the rapid rate of deforestation. So, through global interest and investment, it is possible that by using Allanblackia as an incentive to promote reforestation and conserve biodiversity, this issue can be greatly helped.

This project provides an opportunity to use negative tree space from the timber trade to plant Allanblackia trees and restore degraded land, adding to the forest and the incomes of the people.

By planting Allanblackia trees and incorporating them into rainforests, the biodiversity of the region can be protected. Because of the tree's capability to be intercropped, it has been agreed by the Novella Project that a mosaic technique can be used where multiple crops can be planted and there can be different uses of the land such as agriculture and forest cover.

Already in Tanzania and naturally in the rainforest, Allanblackia trees are often combined with Cacao trees. Their relationship to each other often being described as a marriage, with research showing that both trees promote the growth of each other. An increase of this combination could increase environmental and economic gain. Allanblackia trees can also be intercropped with Plantain and Palm trees.

Allanblackia oil is exclusive in comparison to its competitors, in that once it is made it does not require further modification to be suitable for consumption and has a mild colour and flavour and so does not have the costly and polluting process of removing colour involved in its production. This is great for the local environment as there isn't a risk of contaminating local water sources with harmful waste from the chemicals used in this process.

In many countries, Allanblackia is planted as a way of reducing carbon emissions as one Allanblackia will absorb around 500 tonnes of CO<sub>2</sub> in its lifetime. This means the trees can be planted near roads to provide a better quality of life to many and to tackle climate change.



## Social

Socially, the investment into Allanblackia seeds is important for the local people because Allanblackia is unique in that it fruits between January – April instead of June – December for most trees like Cocoa and Plantain. This means if it was to be intercropped with other trees, Allanblackia could provide a steady source of income to local people for around 10 months in a year. This would prevent people being entirely dependent on the money made from one crop to pay for only the basic necessities. From many personal accounts describing their experience, many have said that the additional income throughout the year has enabled them to spend money on other things outside food and shelter but to also be able to, for example, send their children to school.

This form of employment is also non-discriminatory and is an opportunity for both men and women to earn, which would hopefully relax gender roles in the area. Farmers working to harvest the crops, as part of the Novella Project are taught and given access to the papers needed to clarify their rights to the land in the case of the crop or land growing in value. This is so that the farming of Allanblackia can continue and not be disrupted by someone without the farmers' or the Novella Projects' interests at heart.

People in the area already know this crop well as a source of timber and also traditionally to use the oil for soap-making, which is why it is important to change the people's viewpoint on Allanblackia as a harvesting crop that could be economically beneficial to them.

## Economic

For the local people in Nigeria, as mentioned previously, this is a great opportunity to gain financial support at times of the year they normally wouldn't. Although this investment would be helpful to Nigeria's international relations, it will also help to set up local industries and companies where Allanblackia could be sold across Nigeria itself, and also exports adding to the country's economy.

This project has all the foundations to be a success. If it was to be successful, Nigeria would have created a reliable and strong connection of trade between many other countries (outside of the timber and crude oil trades), along with adding to the local economy.

## PROBLEMS WITH THE CROP AND PREDICTIONS

Initially, it was calculated by the Novella project that around 1 million trees were accessible to be harvested in the wild. This was proven to be wrong since at least half of the trees were male and therefore did not bear fruits. This calculation was further contested as it did not take into consideration the population density of the trees per sq/km meaning that the distance for harvesters to travel to collect the *Allanblackia* fruits was not accounted for in the final estimation of accessible trees. For this reason, domestication and later agroforestry is being encouraged to speed up the process.

Another problem that the Novella Project faced was the germination of the seeds. In the first few years that the project began, only 40% of the seeds were germinating and even then, most of the trees were weaker than expected. It was eventually discovered that the problem was the method of planting the seeds to begin with. The success rate was increased by copying the method of the native Giant Rats which often bury the whole fruit, instead of planting the lone seeds. At the moment, there are three methods to get the seeds to germinate better and quicker:

- Burying the whole fruit containing multiple seeds deep into the soil and once germinated, placing them in Nurseries.
- Removing the seed coats with a sharp knife
- The seeds being hung high up in black polythene bags

The seeds will then germinate from four weeks onwards.

With the novella project and the steps forward they want to take, there is a risk of large scale monoculture from e.g. cloning or only certain varieties being used. This could reduce the genetic diversity of the crop and there would be increased difficulty in nutrient recycling. A lack of genetic diversity could cause the crop to become more vulnerable to disease, with the risk of a mass epidemic. Increasing the use of pesticides and other unsustainable chemicals to combat this would be damaging to the local area. This would also make the crop more reliant on chemical fertilisers. The Novella project claims they have begun to find solutions to this through the use of gene banks that would help to retain diversity within the species.

## Problems with the tree itself

Without domestication, farmers have to wait up to 10 years in order to recognise whether the tree is male or female, white flowers being female, orange flowers being male. Furthermore, the farmer would have to wait an additional 2 years before the tree was to be ready to be harvested for fruits. And finally, the trees only reach their peak yield between 20-30 years and stay that way until 40 years old.

The fruiting behaviour of *Allanblackia* is also erratic and unpredictable. This was proven in 2008 when around 100,000 seeds had been planted which produced 435 tonnes of seeds from harvesters in Tanzania. Nevertheless, the following year, less than 100 tonnes of seeds were collected from the same trees, causing the undomesticated trees to be labelled unreliable. With domestication, the trees would be ready for harvest within 7 years and produce would be more or less constant.



*Figure 4. Farmer with Allanblackia fruit*



# FUTURE FOR THE PRODUCTION OF ALLANBLACKIA IN THE NIGERIA

It is hoped that by 2020, smallholder farmers will have planted Allanblackia in combination with other crops. To continue this progress, by 2030, sustainable Agroforestry of Allanblackia trees will have to begin in all three countries and planted at a large scale on degraded land to reach the goal of this project.

This needs to be done as the demand currently outweighs the supply from natural rainforests. If this was to continue, there is a danger that wild harvesting may result in the over exploitation of this resource and destroy biodiversity.

For enough profit to be made for the project to continue, there also needs to be a structured supply chain.

Here are the steps that need to be taken in order for progress to be made with the supply chain of Allanblackia in Nigeria:

1. Creating nurseries for seedlings to grow
2. Establishing more harvesting groups (to get more people involved)
3. Appointing clerks
4. Locations to store the seeds after being purchased by Clerks
5. Crushing Plants/ Oil mills
6. Reliable transport to clients/buyers
7. Educating companies on Allanblackia's benefits over palm oil

The Allanblackia seed has great potential to be a crop that is used worldwide in many products and this trade could be highly beneficial to the Economy.

## CONCLUSION

To conclude this report, I believe that it would be a good idea to invest into/continue with the work being done in Nigeria with this project as the advances that might be made could greatly help many matters that concern many people in the area.

However this project will not be a quick one and requires a wide time frame due to the trees taking a long time between germination and harvest and further research into the nature of the seeds and trees. But an approach to intercrop with other varieties could help bridge the gap between planting and harvest.

Time will also show how changes such as domestication and vegetative propagation would affect the environment. I would recommend a time frame of around 10 years before the project could potentially be deemed successful and strongly take hold in these areas. Only then will the true effect of the project and the trees be known.

Overall the crop has a lot of potential to be able to combat many issues prevalent and the area and I would predict that if continued in taking steps forward with the crop, then this project could really be a success.

## AREAS FOR FURTHER RESEARCH:

- Benefits the tree could bring to lowering carbon emissions and ways it could benefit local communities
- Speaking to people who have had direct experience with the tree.
- Including a lithograph of the future and potential of *Allanblackia*.
- Other important issues that may be raised by people who know the crop.
- How changes such as domestication and vegetative propagation would affect the environment and the aims of the project – more in depth research needs to be done here.



*Figure 5. Allanblackia Nursery*



# FUTURE FOR THE PRODUCTION OF ALLANBLACKIA IN THE NIGERIA

**Allanblackia Partnership:** <http://www.allanblackiapartners.org/what-allanblackia>

**Allanblackia Oil Wikipedia:** [https://en.m.wikipedia.org/wiki/Allanblackia\\_oil](https://en.m.wikipedia.org/wiki/Allanblackia_oil)

**ICUN Interview with Pauline Buffle (Novella Project):** <http://www.iucn.org/content/allanblackia-species-choice-interview-pauline-buffle-0>

**World Agroforestry (Novella Project):** <http://www.worldagroforestry.org/news/obscure-forest-species-towards-globally-traded-commodity-lessons-allanblackia>  
<http://www.worldagroforestry.org/news/new-margarine-seeds-allanblackia-tree>

**Seeds of Hope (Novella Project):** <http://www.google.co.uk/url?sa=t&source=web&cd=3&ved=0ahUKEwiakMSiwqDOAhXHDMAKHURBA-UQFggnMAI&url=http%3A%2F%2Fwww.worldagroforestry.org%2Fdownloads%2FPublications%2FPDFS%2FB16262.pdf&usg=AFQjCNGulwK1w4mFIGLU7MflcNLxNKnu6g>

**Allanblackia Seed Oil Process:** <http://www.allanblackiapartners.org/stories/allanblackia-seed-oil>

**Unilever (involvement in the Novella Project):** <https://www.unilever.com/sustainable-living/the-sustainable-living-plan/enhancing-livelihoods/inclusive-business/creating-an-inclusive-supply-chain/tanzania.html>

**Form International (Unilever and Novella Project):** <http://www.forminternational.nl/portfolio-item/allanblackia/>

**Rural 21 International Platform:** [http://www.rural21.com/fileadmin/\\_migrated/content\\_uploads/R21\\_Allanblackia\\_0310\\_01.pdf](http://www.rural21.com/fileadmin/_migrated/content_uploads/R21_Allanblackia_0310_01.pdf)