

Triangle Banana Exploration Report, North Sulawesi and North Maluku, Indonesia.

6-24 October 2012

Catur Hermanto¹, Edison HS², Fitriana Nasution², Riska², Erik Malia³, Nofriarjasri⁴,
Jeff Daniells⁵, Agus Sutanto² and Yusdar Hilman⁶

¹AIAT, Medan, ²ITFRI, Solok Sumatra, ³AIAT North Sulawesi, ⁴AIAT North Maluku,
⁵Agri-Science Queensland, ⁶ICHORD Jakarta,



Department of
Agriculture, Fisheries
and Forestry



CONTENTS

Contents

Acknowledgements	3
Introduction	4
Objectives of Mission	4
What We Collected.....	5
Comparisons to Yoshida paper	8
<i>Musa lolodensis</i> - Variants in Population.....	8
Fruit Market Visits.....	9
Banana Pests and Diseases	9
Sample Handling.....	11
Future Missions.....	11
References.....	12
Itinerary	12

Acknowledgements

We are very thankful to Emeritus Professor Edmond De Langhe for his guidance and inputs from survey planning until the taxonomic deduction, and to all team members for working together during the mission. The team worked particularly well together and we all enjoyed this 'adventure' mission immensely. The collecting mission was largely the result of priorities determined at the first meeting of MusaNet, with planning by the Conservation Thematic Group, notably driven by the MusaNet coordinator Dr Nicolas Roux of Bioversity International. Funding was made available by the Roots, Tubers and Bananas CGIAR Research Programme via Bioversity International.

Queensland DAFF is thanked for Jeff Daniells' participation including special thanks to Associate Professor Andre Drenth, University of Queensland for his support. Thanks are also given to the Indonesian Agricultural Agency for Research and Development and all related institutions for the support and assistance during the surveys.

Agus Sutanto, Indonesian Tropical Fruit Research Institute (ITFRI) and Jeff Daniells, Queensland Department of Agriculture, Fisheries and Forestry (DAFF)

Introduction

At the inaugural *MusaNet* meeting held in Montpellier in 2011 the ‘Genetic diversity, taxonomy and characterisation’ thematic group recommended as highest priority the exploration and collection of *Musa* germplasm within the triangle East Kalimantan - Maluku- Lesser Sunda Islands of Indonesia. This region was expected to be particularly rich as it is just to the east of the ‘Wallace Line’ and is recognized as a transition zone for flora in southeast Asia. We report here on the first collecting mission in this triangle which took place in North Sulawesi and North Maluku from 7-22 October 2012.

The collecting team consisted of Edison and Fitriana Nasution (Indonesian tropical fruit crop taxonomists), Riska (Indonesian Plant Pathologist) and Jeff Daniells (International banana taxonomy authority). Regional AIAT officers that accompanied us were Erik Malia (AIAT North Sulawesi) and Nofriarjasri (AIAT North Maluku). There had been some last minute changes to the team owing to the unavailability of Catur Hermanto and Agus Sutanto but despite this the mission proceeded smoothly and the team worked very well together.

Objectives of Mission

The main objective of our mission was to locate and collect ‘new’ banana germplasm (wild and cultivated) that could be utilized by banana breeding programs around the world to develop hybrids with stable resistance to major banana diseases.

The expected ‘harvest’ from the triangle was as follows (Edmond de Langhe pers. comm. 2011).

1. Unexplored wild AA ssp/varieties that should provide new alleles in banana breeding.
2. Unique edible AA derivatives/hybrids of 1.
3. *Australimusa* species and domesticated forms.
4. Original (basic) AAB African Plantain hybrids.
5. Unknown AAB/ABB.

The basic approach taken was liaison by ITFRI with regional AIAT to provide regional expertise and assistance with collecting. New banana germplasm was mostly located by visits to local fruit markets, driving/ ‘spotting’ along roadsides and discussions with ‘town leaders’/local authorities. Once an interesting plant was located and we had the okay from ‘owners’ to go ahead and collect we morphologically characterized it using the list of minimum descriptors and including the set of photographs recommended by Bioversity’s Taxonomy Advisory Group. Up to 8 suckers were dug and labeled for later cleaning, trimming, drying, boxing and eventual dispatch to ITFRI Solok, West Sumatra. Where possible, 3 of these suckers were left with AIAT to be planted in regional collections in Manado (North Sulawesi) and Sofifi (North Maluku).

We also collected cigar leaf samples of each accession and sent these as fresh samples to the International Banana Genotyping Centre in the Czech Republic. Their ploidy has subsequently been determined (fresh cigar leaf samples only) as well as DNA profiles to add value in the short-term to the morphological descriptors obtained whilst collecting. This aspect of the mission was all possible because of actions taken following discussions

at the ‘MusaNet Diversity working group meeting and a consultation meeting on the use of Musa wild relatives for pre-breeding’ held in Bogor in July 2012.

Propagating materials (suckers and seeds) were collected and forwarded to ITFRI in Solok, West Sumatra, to be grown-on, virus indexed and tissue cultured for supply to the International Transit Centre in 2013. As well as collecting germplasm we also collected banana disease samples including *Foc* (vascular strands) to further broaden our knowledge of the location of various VCG groups in Indonesia.

What We Collected

We dug suckers of 23 accessions and also collected seeds from 8 of these accessions – see list below. Minimum descriptor photos (http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1440_Methodologies%20for%20the%20Assessment%20of%202022%20crops.pdf?cache=1312394634) of each and general passport data for these are available separately from Bioversity International. We have also prepared 2 working documents – ‘The banana varieties of North Sulawesi – A work in progress’ and ‘The banana varieties of North Maluku – A work in progress’ which include colour photographs of all varieties seen (not just those collected) as well as brief classification information. These are meant to be working guides to assist banana variety identification in those regions – giving something back to the regions visited.

Table 1. List of banana germplasm collected

Genome	Name ⁷	Code	Classification	Other
Eumusa				
AA	Mas Manado	Sup ¹ . 1	2x ⁴	
	Roa/Cakalang [Small Roa]	MDO ³ 005 (M4) ²	2x	
	Boki/Muli Kuning	MLU 002 (H2)	2x	yellow variant
	Batu	MLU 007 (H7)	2x	
	Raja Batu	MLU 015 (H11)	2x; AB?	
	Roa Besar [Big Roa]	MDO 007 (M7)	2x	
	Gaba-gaba Putih	MLU 013 (H10)	2x	~ MLU 005 (H5)
	Putih ⁵	MLU 005 (H5)	2x	~ MLU 013 (H10)
	Spiral/Libod	MDO 001 (M6)	2x	
	Tako Api ⁵	MLU 001 (H1)	2x	~ MLU 016 (H12)
	Goba	MLU 016 (H12)	2x	~ MLU 001 (H1)
AAA	Pinang	MDO 002 (M1)	3x	
	Sangate	MLU 008 (H8)		
	Masak semalam/Papan	Sup. 3	3x	
AAB	Goroho Merah	MDO 004 (M3)	3x	
	Mora	MLU 006 (H6)		
	No name available	Sup. 2		Roti
ABB	No name available	MLU 017		Bluggoe subgroup
Wild Eumusa				
<i>acuminata</i>	Yaki 1	MDO 003 (M2) ⁶	2x	
<i>acuminata</i>	Yaki 1A	MDO 003A (Seed 1) ⁶	2x	
<i>acuminata</i>	Yaki 2	MDO 006 (M5/Seed 2)		
<i>acuminata</i>	Yaki 3	MDO 008 (Seed 3)		
<i>acuminata</i>	Kawasi	MLU 004 (H4/Seed 5)		
<i>acuminata</i>	Kawasi	MLU 014 (Seed 7)		
Wild Australimusa				
<i>lolodensis</i>	No name available	MLU 003 (H3/Seed 4)		Ngopo?

Genome	Name ⁷	Code	Classification	Other
<i>lolodensis</i>	No name available	MLU 009 (Seed)		
<i>lolodensis</i>	No name available	MLU 010 (H9/Seed 6)	2x	
<i>lolodensis</i>	No name available	MLU 011 (suckers)	2x	
<i>lolodensis</i>	No name available	MLU 012	2x	

¹ Supplementary – not fully characterized as already held/previously in Solok

² Daniells, 27 November 2012 draft collection codes

³ MDO = Manado, the code used for North Sulawesi accessions; MLU = Maluku, the code used for North Maluku

⁴ Ploidy in brackets confirmed by flow cytometry analysis at the International Banana Genotyping Centre in the Czech Republic

⁵ Name of ‘Swangi Putih’ and ‘Gabar’ used in Daniells’ November 2012 report draft incorrect

⁶ Seed (Seed#) and/or suckers (M# or H#) collected

⁷ ‘Pisang’ is commonly used when referring to bananas throughout North Sulawesi and North Maluku. However, ‘Bole’ is the traditional name used by the Galela, Tobelo and Kao peoples of Halmahera and ‘Koi’ is the traditional name used in Ternate.

Notably we have collected suckers and fruit of the 2 different *M. acuminata* encountered – from North Sulawesi we have what was named *M.a.var. tomentosa* by Nasution (1991) and from North Maluku (island of Halmahera) *M.a. var. acuminata* Nasution (1991). The other wild species collected was *M. lolodensis* from Halmahera described previously by Nasution (1993). Interestingly a smaller form of *lolodensis* was being cultivated in parts of Halmahera for traditional medicinal purposes. Initially there was some identification confusion with Abaca (*M. textilis*) until male buds were located which resembled *lolodensis* – there was no strong bract imbrication as is the case for *textilis*. Our collecting of seed and suckers of wild species on this mission was greatly limited by availability of mature bunches and access to plants including suckers because of the generally very steep jungle terrain. Much more collection mission time would need to be available and with considerable additional assistance to reach and recover a greater range of specimens better representing the population.

We collected 18 cultivated varieties (includes supplementary ones not fully characterized as already held/previously held in Solok) 11 of which are diploid based on ploidy determination by the International Genotyping Centre. These include 2 New Guinea-type plantains (MLU’s 001, 005, 013 & 016) which were initially expected to be AAB but ploidy determinations from IGC indicated they are actually diploid (AA presumably) and so may be progenitors of the Plantain Subgroup. On reflection at the end of collecting mission it appears that these 2 New Guinea-type plantains were collected twice due to confusion with only a very young bunch seen when first collected. DNA profiles confirm this.

The remaining 7 are expected to be triploid (AAA/AAB/ABB). The following table is a list of all the varieties we encountered in the different locations to put our collecting efforts into context.

Only one plant of *Musa balbisiana* was seen along the roadside near houses in North Sulawesi as we drove along, but we were not in a position to investigate because of time constraints. Bracts retained on the rachis were evident below the bunch.

Table 2. Banana varieties seen in North Sulawesi and North Maluku (NM)

Genome/Subgroup	North Sulawesi	Ternate(NM)	Halmahera(NM)	Tidore(NM)	Yoshida
AA					
Sucrier	Mas		Mas		Masi
Pisang Jari Buaya			Mulu Bebe Putih	Local name?	Namo ma oru
Inarnibal	Berlin	Boki	Boki	Berlin	Banjarmasin
"		/ Muli Kuning	Muli Kuning		
Lakatan	Gapi				
?	Mas Manado		Mas Manado	Mas Manado	
?					
?	Roa (small)	Mulubebe	Mulubebe	Mulubebe	
?				Raja Batu	
?			Batu		
?			Putih/~Gaba- gaba Putih		
?		Tako Api		Goba	
?	Roa Besar (Big Roa)				
?	Libod/Spiral				
AAA					
Gros Michel	Ambon Putih				
"		Ambon Kuning	Ambon Kuning	Ambon Kuning	
Cavendish	Kapal?[Dwarf Cavendish]	Dwarf Cavendish		Dwarf Cavendish	
"	Williams	Williams	Compani	Compani	
Red	Udang		Udang	Udang	
?					
?		Sunape	Sangate		
[Pisang Papan?] [§]			Tataleka		
?	Pinang				
AAB					
Plantain	Tanduk [variable No. hand]	Tanduk[variable No. hand]	Tanduk[1 H]	Tanduk[variable No. hand]	Salewati
"			Tandoc[3 H]		Saleratu
Pisang Raja	Raja	Raja	Raja	Raja	
Mysore			Local name?	Local name?	
Silk	Susu			Susu	Susu
?	Seribu		Local name?		
?	Raja Nangka	Takuk Api	Raja Nangka		
?	Goroho Merah	Goroho Merah	Goroho Merah	Goroho Merah	
[Roti?]	Goroho Putih		Goroho Putih		
[Kilita?]	No name available				
?			Mora		Mora
?			Mora Putih		
?			Roti		
ABB					
Pisang Awak	Awak		Awak		
Bluggoe				Local name?	
Saba	Kepok Kuning	Kepok Kuning	Kosta	Kepok Kuning	Sepatu
"	Kepok Tanjung				
"		Kepok Jawaka	Lewangka	Kepok Jawaka	Gorontalo
"				Long Kepok	
[Kepok Bedak]"		Sepatu Abu	Sepatu Abu	Sepatu Abu	Kosuta
[Puju]"	Malikusi				
Pelipita	No name available				
Wild					
<i>acuminata</i> var.	Yaki				

Genome/Subgroup	North Sulawesi	Ternate(NM)	Halmahera(NM)	Tidore(NM)	Yoshida
<i>tomentosa</i>					
<i>acuminata</i> var. <i>acuminata</i>			Kawasi		
<i>balbisiana</i>	Local Name?				Bau ma pau
<i>lolodensis</i>			Ngopo?		
"			Local name ?		

? = no subgroup recognized; " = ditto; names in green indicate lack of local name

§ Indonesian synonym bracketed

Comparisons to Yoshida paper

Yoshida (1980) reported on a 1976 study amongst the Galela people of northern Halmahera doing quite a remarkable job of identifying and classifying the bananas he saw. In his paper he lists 61 named banana varieties but over the 2½ month period of the study Yoshida appears to have only located 28 varieties which were characterized in the paper. In the 4 days (3 nights) we spent on Halmahera we located about 34 varieties. Ours was a larger area and occurred 36 years later. It is not possible to find all the diversity present in just a few days but we would appear to have probably found the bulk of what is present. Yoshida described the wild *acuminata* banana Kawasi on Halmahera as *M.a.* ssp. *banksii* but what we saw is clearly very different from the *banksii* of the island of New Guinea. The 1996 collecting mission by ITFRI in Seram found four types of wild *Musa acuminata*. One of them has similarity to wild *acuminata* described by Yoshida (based on yellow colour of male bud and bunch position). Referring to Nasution's paper, this wild *acuminata* resembles *Musa acuminata* var. *microcarpa*.

There have been speculations that within the triangle and particularly Halmahera [based on paper of Yoshida) that significant African Plantain diversity may exist or that of its progenitors. We found little variation present for the Plantain subgroup (AAB) with just 2 Horn Plantain (Tanduk) present on Halmahera and much the same elsewhere on the mission for the true Plantain subgroup. The French Plantain-like accessions Tako Api and Putih collected are typical of some of the plantain-like ones of the island of New Guinea but neither are identical to any of the 242 varieties presented in the PNG *Musalogue* (Arnaud and Horry 1997). It remains to be seen on the second mission whether there is any further 'Plantain' variation to be found elsewhere in the triangle.

Based on the flow cytometry analysis done by the International Banana Genotyping Centre in the Czech Republic, French Plantain-like accessions such as Small Roa/Cakalang and Gaba-gaba Putih were diploid (2x), these presumably are AA (based on *acuminata* characters they have). Some of them may be the progenitors of French Plantains. If we assume that natural hybridization occurred in Triangle area, some progenies may still exist in this area. They could be Plantain-like triploids or AB diploids.

Musa lolodensis - Variants in Population

There was certainly quite a bit of variation amongst the *lolodensis* we encountered on Halmahera. The shorter plants are cultivated for medicinal purposes – the male bud is boiled and the resulting brew is drunk by victims of heart attack to provide relief from symptoms. These plants are maintained by the farmers in their food gardens. Other variation in wild situations existed for male bud and bract colours. These were mostly yellow but there were bronzer forms and also included one with purple internal bract

colour. Deep or pale pink to creamy white are also described in the literature. There is a good summary on the species by David Constantine (<http://www.users.globalnet.co.uk>) as well as an interesting transcript of an unpublished report by David Fairchild [Fairchild Tropical Botanic Garden] describing his discovery of *M. lolodensis* on Halmahera whilst on the Cheng Ho expedition [name of vessel] in 1940 and subsequent characterization of seeds grown on by Cheesman (1950) in Trinidad - see <http://www.fairchildgarden.org/Search/?submit.x=37&submit.y=12&keyword=cheng+ho> *Lolodensis* was named after the Loloda river on the north west coast of Halmahera. As one (JD) looks at this population one (JD) wonders about linkages to *Musa textilis* given also the relative proximity to the southern Philippines. Is this the “transition” zone of *M. textilis* and other Australimusa referred to by de Langhe?

Fruit Market Visits

Visits to the fruit markets can give a quick overall impression of the important/popular varieties in a region. Comparisons we made with what was in the markets and those overall seen growing in the region showed that those in the market represented between 26% and 67% of the overall varieties. The most popular varieties varied between regions but in general the most popular varieties were Kepok Kuning (Cepatu Abu, local name), Goroho Merah, Raja, Berlin and Mas Manado. No Fe’i bananas were seen in either North Sulawesi or North Maluku.

Banana Pests and Diseases

Several *Foc* (vascular strands) samples were collected during the mission by Riska which were taken to Solok for ‘plating of cultures’ and then for VCG analysis. Some of the samples were obtained from Pisang Raja so we expected these to be Tropical Race 4 (TR4) based on previous studies in Indonesia (O’Neill et al. 2011). This turned out to be the case for all the samples on the mission from which *Foc* was recovered. The three Raja samples came from North Maluku (Ternate and Halmahera).

Table 3. Banana infected by Fusarium wilt in North Sulawesi and North Maluku

No.	Cultivars	Site
1	Susu	AIAT North Sulawesi
2	Gapi Kuning	Torout Barat, Domoga Barat, Bolaang Mangondow, North Sulawesi
3	Goroho Merah	Tumuyu, Lolayan, Bolaang Manggondow, North Sulawesi
4	Goroho Merah	Tombetu, Minahasa Tenggara, North Sulawesi
5	Raja/Cavendish	Tana Tinggi, Ternate Selatan, Ternate, North Maluku
6	Raja	Global company, Galela, North Halmahera
7	Raja	Pasar Gosalaha, Tidore, North Maluku

Table 4. Diseases noted or present on accessions collected

Accession code	Accession name	Black leaf streak/black Sigatoka	Other
MDO 001	Libod	+	Black cross cordana leaf spot
MDO 002	Pinang	+	Freckle, black cross cordana leaf spot
MDO 003	Yaki #1	-	Black cross cordana leaf spot

Accession code	Accession name	Black leaf streak/black Sigatoka	Other
MDO 004	Goroho Merah	+	Black cross cordana leaf spot
MDO 005	Roa/Cakalang	-	
MDO 006	Yaki #2	+	
MDO 007	Big Roa	-	
MDO 008	Yaki #3	-	
MLU 001	Tako Api	+	Black cross cordana leaf spot
MLU 002	Boki	-	
MLU 003	<i>Musa lolodensis</i>	+	
MLU 004	<i>Musa acuminata</i> /Kawasi	+	
MLU 005	Koi Putih	+	
MLU 006	Mora	-	
MLU 007	Koi Batu	-	
MLU 008	Sangate	-	
MLU 009	<i>Musa lolodensis</i>	-	
MLU 010	<i>Musa lolodensis</i>	-	
MLU 011	<i>Musa lolodensis</i>	-	
MLU 012	<i>Musa lolodensis</i>	-	
MLU 013	Gaba-gaba Putih	+	
MLU 014	<i>Musa acuminata</i> /Kawasi	-	
MLU 015	Raja Batu	+	
MLU 016	Goba	-	
MLU 017	Bluggoe	-	

Remark: '+' = present, '-' = absent

Sample Handling

Suckers and seeds collected from the mission were cleaned and planted on the seed bed (suckers) and plastic tray (seeds), and some seeds were also embryo cultured at ITFRI. Three-month-old planting materials will then be planted on to big pots for further characterization.



Suckers and seeds were planted on the seed-beds and plastic trays (above). Two-month-old planting materials and seedlings of wild *Musa* (below).

Future Missions

The second collecting mission in the triangle is scheduled for February 2013. The great challenge on these missions is to quickly locate the existing diversity and collect and characterize ‘new’ germplasm. With so much ground to cover and much time spent travelling and getting local approvals etc. any improvement in the efficiency of this process would be useful. The regional support provided by AIAT staff Erik and Nofri was invaluable but there were difficulties in finding where all the diversity was. The more homework that regional officers are able to do before the mission, contacting key community experts the better. It may be worth experimenting in future with 1 or 2 community meetings organized to coincide with the collection visit where a targeted request is put out beforehand to bring along e.g. mature bunches of wild bananas plus some matching suckers. Perhaps a small incentive for those that participate and the team gives a presentation on some aspects of banana growing etc for the individuals/community’s benefit. In

the case of wild bananas in particular this would help to pull together specimens from a range of locations.

There also remains an issue regarding just exactly what different international breeding programs require to be collected? What they currently already have and thus don't need? And what is currently in Indonesian collections that these breeding programs have not yet accessed – Indonesian/all team members are looking for 'new' germplasm but what is new? e.g. discussion with Agus Sutanto, who has responsibility for the Solok collection, has never really been contacted by breeding programs about sourcing germplasm.

Whilst in Halmahera local people also suggested that additional diversity could be found on the west coast of Halmahera and in the Bacan Islands [12 hr by ferry to south] but this was not possible to include in the mission reported here.

References

- Arnaud, E. and Horry, J. (1997) *Musalogue*: a catalogue of Musa germplasm. Papua New Guinea collecting missions, 1988-89. INIBAP, Montpellier, France.
- Cheesman, E.E. (1950) The classification of the bananas. *Kew Bulletin*. **5**: 27.
- Nasution, R.E. (1991) A taxonomic study of the species *Musa acuminata* Colla with its intraspecific taxa in Indonesia. *Memoirs of Tokyo University of Agriculture* **32**: 1-122.
- Nasution, R. E. (1993) Rediscovery of two wild seeded bananas in Indonesia. *InfoMusa* 2 (2): 16-18.
- O'Neill, W.T., Pattison, A.B., Daniells, J.W., Hermanto, C. and Molina, A.B. (2011) Vegetative compatibility group analysis of Indonesian *Fusarium oxysporum* f.sp. *cubense* isolates. *Acta Horticulturae* **897**: 345-351.
- Yoshida, S. (1980) Cultivated bananas among the Galela. *Senri Ethnological Studies* **7**:119-137

Itinerary

Date	Activities
Saturday 6 October	[JD only] Travel Innisfail – Cairns – Sydney - Jakarta
Sunday 7 October	Discussions Agus Sutanto; Travel Jakarta- Manado
Monday 8 October	Coordination AIAT North Sulawesi
Tuesday 9 – Thursday 11 October	Travel Manado – Kotamobagu; collecting Gunung Ambang and Bogani Nani.
Friday 12 October	Travel Kotamobagu – Manado; collecting
Saturday 13 October	Airfreight cigar leaves [Czech Rep] and suckers [Solok]
Sunday 14 October	Travel Manado – Ternate
Monday 15 October	Collecting Ternate
Tuesday 16 October	Travel Ternate – Sofifi [Coordination with AIAT North Maluku] - Tobelo
Wednesday 17 – Thursday 18 October	Collecting Galela, Daru and Tobelo
Friday 19 October	Travel Tobelo – Sofifi - Ternate
Saturday 20 October	Return Travel Ternate – Tidore collecting
Sunday 21 October	Sucker preparation; rest day
Monday 22 October	Travel Manado - Jakarta
Tuesday 23 – Wednesday 24 October	[JD Only] Discussions Agus Sutanto; Travel Jakarta – Sydney – Cairns - Innisfail



MDO 002 (M1) Pinang



MDO 003 (M2) Yaki 1



MDO 003A (Seed 1) Yaki 1A



MDO 004 (M3) Goroho Merah



Sup. 1 Mas Manado



MDO 005 (M4) Roa/Cakalang



MDO 006 (M5/Seed 2) Yaki 2



MDO 001 (M6) Spiral/Libod



MDO 007 (M7) Roa Besar



MDO 008 (Seed 3) Yaki 3



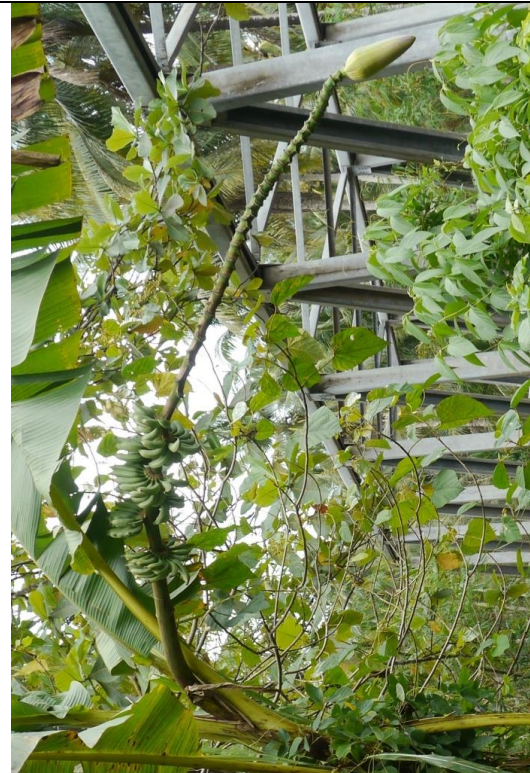
MLU 001 (H1) Tako Api



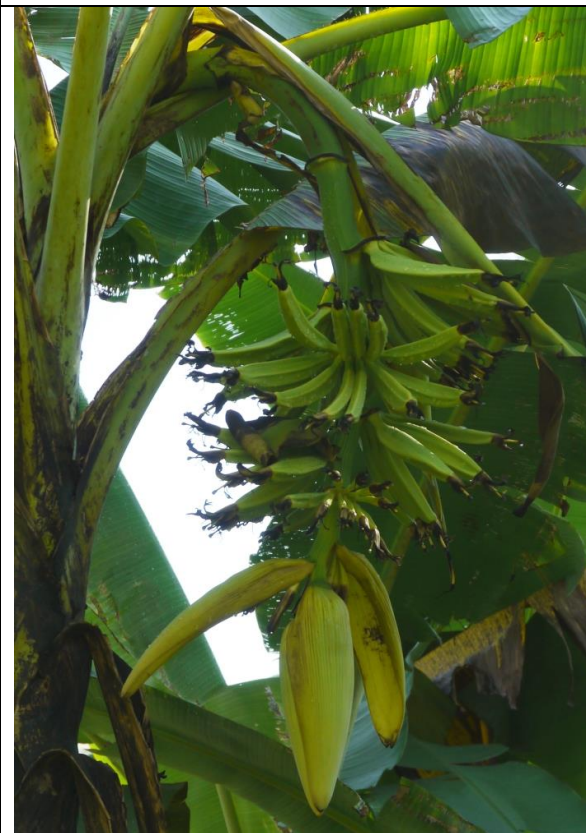
MLU 002 (H2) Boki/Muli Kuning



MLU 003 (H3/Seed 4) *Musa lolodensis*



MLU 004 (H4/Seed 5) Kawasi



MLU 005 (H5) Putih



MLU 006 (H6) Mora



MLU 007 (H7) Batu



MLU 008 (H8) Sangate



MLU 010 (H9/Seed 6)



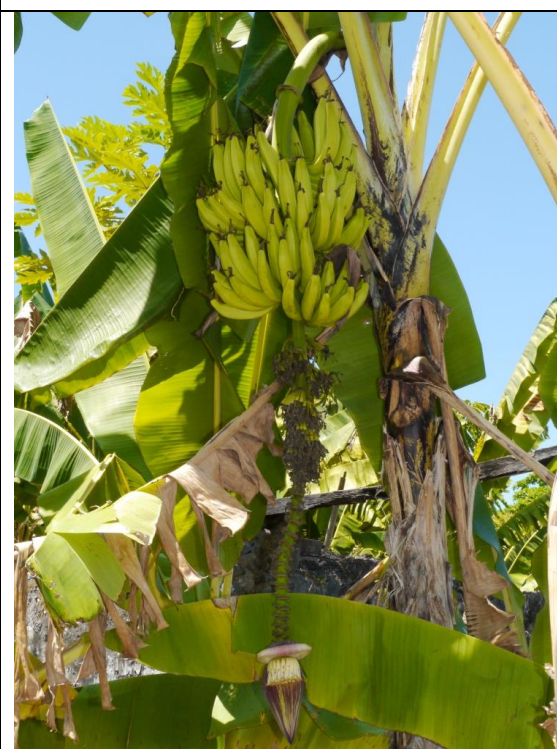
MLU 013 (H10) Gaba-gaba Putih



MLU 014 (Seed 7) Kawasi



MLU 015 (H11) Raja Batu



MLU 016 (H12) Goba



Sup. 2 'Roti'