



**Food and Agriculture
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United Nations**



The International Treaty
**ON PLANT GENETIC RESOURCES
FOR FOOD AND AGRICULTURE**

Item 16.4 of the Provisional Agenda

NINTH SESSION OF THE GOVERNING BODY

New Delhi, India, 19–24 September 2022

**Reports from Institutions that have Concluded Agreements with the
Governing Body under Article 15 of the International Treaty**

Note by the Secretary

This Addendum contains the biennial report by the Government of Papua New Guinea, as host of the International Coconut Genebank for the South Pacific. The report is provided, as it was received by the Secretariat.

Biennial Report on the ITPGRFA Article 15 Status of the International Coconut Genebank for the South Pacific (ICG-SP)

Summary

Since 2009, the International Coconut Genebank for the South Pacific (ICG-SP) in Papua New Guinea (PNG) has been managing the threat of infection by the phytoplasma, Bogia Coconut Syndrome (BCS see <http://www.cogentnetwork.org/bogia-syndrome-disease>). The phytoplasma is transmitted by insect vectors and also affects other species, including Areca palm and Banana (*Musa* spp).

Kokonas Industri Koporesen (KIK) is still in the process of replacing and relocating the total complement of 55 accessions in the collection (see table below) from its previous site at the Stewart Research Station in Madang Province, PNG, to a new safe site in Punipuni, Milne Bay Province. Relocation remains underway via a pre-entry quarantine coconut nursery, at Kelababala on Misima Island.

The team continues to source its germplasm from original collection sites to reduce risk of phytoplasma spread and continues to validate a phytoplasma field diagnostic test developed by Jimmy Botella's team at the University of Queensland. The test has been used to clear 12 accessions at the quarantine centre as free of the phytoplasma causing BCS. Ongoing vector studies are also helping to understand epidemiology and etiology of the disease so it will be better managed in the future. The combination of vector control, original sourcing and reliable molecular diagnostics, as well as duplications will reduce the risk of losing accessions to this threat.

Status of the collection

Current list of Accessions:

Table 1 List of designated Germplasm and planted in ICG-SP at SRS, Madang, PNG

SI No.	Date planted	Code	Name of Accession	Site of collection
1	1994	BBT	Baibara Tall	Village in Central Province
2	1995	ELT2	Hawain Tall	Village in East Sepik Province
3	1995	ELT3	Yangoru Tall	✓
4	1995	ELT4	Vokio Tall	✓
5	1995	ETT	Etalata Tall	Village in Musau Island
6	1994	GLT1	Pellavarua Tall	Plantation in East New Britain Province
7	1994	GLT2	Raulawat Tall	✓
8	1994	GLT3	Natava Tall	✓
9	1994	GLT4	New Massava Tall	✓
10	1995	GMT5	Natava Many Fruited Tall	✓
11	1995	HLT	Hisihu Tall	Plantation in Central Province
12	1995	KKT1	Guanaga Tall	Plantation in Karkar island
13	1995	KKT2	Kinim Tall	✓
14	1994	KKT3	Ulatava Tall	Plantation in East New Britain Province
15	1994	KWT1	Severimabu Tall	Western Province
16	1994	KWT2	Boze Tall	✓
17	1995	MBT3	Siagara Tall	Milne Bay Province
18	1995	MBT4	Bubuletta Tall	✓

SI No.	Date planted	Code	Name of Accession	Site of collection
19	1994	MLT1	Lawes Tall	Manus Province
20	1994	MLT2	Lako Tall	✓
21	1994	MLT3	Baluan Tall	✓
22	1995	MVT1	Markham Farm Tall	Morobe Province
23	1995	MVT2	Liara Tall	✓
24	1995	TRT	Talasea Tall	West New Britain Province
25	1994	NLT1	Karu Tall	Plantation in New Ireland Province
26	1994	NLT2	Kenapit Tall	Village in New Ireland Province
27	1996	NLT3	Sohu Tall	✓
28	1994	OLT1	Saiho Tall	Village in Oro Province
29	1994	OLT2	Ajoa Tall	✓
30	1994	OLT3	Kikibator Tall	✓
31	1994	PLT	Poligolo Tall	Village in Central Province
32	1994	RIT	Rennell Island Tall	Numondo Plantation, WNBP
33	1995	SLT2	Wutung Tall	West Sepik Province
34	1994	VLT1	Miha Kavava Tall	Village in Gulf Province
35	1994	VLT2	Keakea Tall	✓
36	1994	VLT3	lokea Tall	✓
37	1994	WLT1	Gaungo Tall	West New Britain Province
38	1994	WLT2	Naviro Tall	✓
39	1994	PBD	PNG Brown Dwarf	Madang
40	1995	MRD	Malayan Red Dwarf	Duplicate from Kervera, ENBP
41	1995	MYD	Malayan Yellow Dwarf	✓
42	1995	NGD	Nias Green Dwarf	✓
43	1995	NRD	Nias Red Dwarf	✓
44	1994	NYD	Nias Yellow Dwarf	✓
45	1994	RRD	Rabaul Red Dwarf	✓
46	1994	PRD1	PNG Red Dwarf 1	Village in ENBP
47	1994	PRD2	PNG Red Dwarf 2	✓
48	1995	PYD	PNG Yellow Dwarf	Villages in Milne Bay & Oro Provinces
49	1995	IRD	Ikoeka Red Dwarf	Village in Gulf Province

Status of acquisitions, regenerations, duplications and distributions

The final collection will be re-established in Punipuni as the new principle ICG-SP site and more details on the progress can be found in Annex 1. There is an intention to safety-duplicate all accessions in Fiji and Samoa. A project funded through the 4th call of the ITPGRFA Benefit Sharing Fund (PR363-Fiji) "Safeguarding Threatened Coconut Diversity Within the Upgraded International Coconut Genebank for the South Pacific" is building on previous Donor support from the Darwin Initiative and the Australian Centre for International Agricultural Research (ACIAR) in establishing guidelines and protocols for the sharing, conservation and use of coconut genetic resources (CGR) as well as building capacity of researchers and farmers in the three countries in conserving and using the CGR. PGRFA information will be shared through GLIS and COGENT. Those initiatives are linked to the COGENT Global Strategy for the conservation and use of CGR.

2020-2022 Progress Update On the ICG Work by the Kokonat Industri Korporesen

1. Introduction

This is the progress update for the period 2020- 2022 of activities by the Kokonat Industri Korporesen (KIK) for the management of the International Coconut Genebank.

The activities of the ICG focused in the reporting period on three major areas:

- (i) Relocation of International Coconut Genebank from Madang to Punipuni, Milne Bay Province via Kelababala Pre-Entry Quarantine Nursery.
- (ii) BCS containment through eradication and provision of tolerant coconut seedlings for planting
- (iii) Utilisation of the Genebank as source of Germplasm seeds for replanting in Disaster Prone Areas

1.2 Project Activities & Achievements

(i) Genebank relocation from Madang to Milne Bay

No.	Activity	Achievements
1	<i>In-situ</i> collection of coconut talls from original sites in PNG, excluding Madang Province	<ul style="list-style-type: none"> ❖ Accessions originally from the PNG Southern Regions (total 12) and from the New Guinea Islands have been recollected and established in the pre-entry quarantine nursery; ❖ Land acquisition of the final ICG site at Punipuni is pending but agreement has been reached with traditional landowners and Government to fast-track this procurement process.
2	Pre-Entry Quarantine Nursery (PEQN) at Kelababala, Misima Island, Milne Bay	<ul style="list-style-type: none"> ❖ Planted 341 seedlings (2.38 Ha) from 12 Southern Region Accessions at Kelababala as per KIK MOU with Samarai-Murua District – Completed initial phase and next phase still pending. ❖ Establishment of accessions from New Guinea Island in planning;
4	Punipuni Genebank, Milne Bay Province	<ul style="list-style-type: none"> ❖ Still awaiting final processes of land procurement as of 3rd Quarter ending, 2021 ❖ Hydrology and Contour Mapping, Pest Risk Assessment, Soil Analysis conducted for the site.

(ii) BCS containment through eradication and provision of tolerant coconut seedlings for planting

No.	Activity	Achievements
1	BCS Resistance/Tolerance Screening Trials	<ul style="list-style-type: none"> ❖ Field planted 30 accessions with total of 252 trees (1.8 Ha) at a BCS Hotspot in Madang Province in 2021 ❖ A plan for establishing 2 additional replicate trials pending due to land availability
2	Prospection for coconut genotypes displaying resistance/tolerance in 3	<ul style="list-style-type: none"> ❖ Identification & selection of resistance/tolerant cultivars – Started prospecting in Bogia and Sumkar Mainland in December, 2021

No.	Activity	Achievements
	BCS Gazetted Districts in Madang Province (Bogia, Sumkar and Madang Districts)	❖ Activities to continue
3	ICG-SP in Madang sanitation/upkeep of ICG at current site in Madang Province	<ul style="list-style-type: none"> ❖ Slashing, Spraying, bridge, drainage upkeep & maintenance of buffer zones – On going ❖ Dehusking of nuts to control overgrown sprouted coconut seedlings – Ongoing ❖ Data recording – Ongoing ❖ Sanitation in smallholder coconut blocks around the current ICG genebank site ❖ Assist several farmers on replanting exercises affected by Bogia Coconut Syndrome (BCS) in Madang Province – Ongoing. For instance, in Kananam Sanitation Exercise and other affected farmers as well

Brief on BCS Tolerance/Resistance Trial and prospecting for putative tolerant/resistant genotypes

The aim of this activity is to identify and select local cultivars that continue to thrive or survive in the BCS affected areas which may point to a genetic tolerance or resistance to the pathogen. The screening trial and prospecting activities will also include observations of potential tolerant types to the Coconut Rhinoceros Beetle (CRB) Guam Type that is posing another threat to coconut production in PNG and the region.

The planting screening trial established at a BCS (and CRB) hotspot at Wafen in Madang District consists of the current tall coconut accessions from the ICG. Continuous observations will be made to visual symptoms, vector presence and sample collection for possible disease transmission.

The second approach is prospection and collection of nuts in BCS infected areas from palms or populations that appear to be still producing nuts and hence display tolerance or resistance to the phytoplasma. The ‘Prospecting Guidelines and Procedures for prospecting and collecting of accessions or populations to be conserved in the genebank’ is being used for this exercise. Ten different populations were prospected in Bogia and Sumkar Mainland District in December, 2021. This work will pave the way forward for further breeding work on Tall x Tall Crosses or Dwarf x Dwarf Crosses or Tall x Dwarf Crosses in the very near future to select for new varieties that are sufficiently tolerant or resistant to the causal agent of BCS and possibly CRBas well.

(iii) Utilisation of the Genebank as source of Germplasm seeds for replanting in Disaster Prone Areas

The ICG-SP Stewart Research Station in Madang continues to provide sources of planting material to farmers affected by Bogia Coconut Syndrome (BCS) and Coconut Rhinoceros Beetle (CRB) particularly in the affected Districts of Madang Province. Genebank coconuts accessions or populations were identified and selected based on their yield potential, hence, and conserved in the genebank as germplasm to also provide major sources of planting material. In absence of other seed gardens in the region and despite the threat from BCS the ICG-SP site in Madang continues to disseminate seed nuts to the pest and disease affected farmers of Madang Province.

Table 1. Kananam Sanitation Replanting for BCS and CRB affected farmers using germplasm conserved at the ICG-SP, both Talls and Dwarfs

Cultivar name	Cultivar Code	Collection Site	Total
Baibara Tall	BBT	Baibara	95
East Sepik Tall	ELT3	Yangoru	47
East Sepik Tall	ELT4	Vokio	82
Gazelle Tall	GLT1	Pellevorua	70
Gazelle Tall	GLT2	Raulavat	170
Gazelle Tall	GLT3	Natava	101
Gazelle Many Fruited	GMT5	Natava	61
Hisiu Local Tall	HLT	Hisiu	121
Karkar Tall	KKT3	Ulatava	33
Kiwai Tall	KWT1	Severimabau	34
Kiwai Tall	KWT2	Bose	77
Manus Tall	MLT1	Lawes	69
Manus Tall	MLT2	Lakui	141
Manus Tall	MLT3	Baluan	85
Namatanai Tall	NLT2	Kenapit	102
Namatanai Tall	NLT3	Sohu	87
Oro Local Tall	OLT1	Saiho	78
Oro Local Tall	OLT2	Ajoa	105
Oro Local Tall	OLT3	Kikibator	50
Poligolo Tall	PLT	Poligolo	74
Vailala Local Tall	VLT1	Miha Kavava	88
Vailala Tall	VLT2	Keakea	37
Vailala Tall	VLT3	lokea	50
West New Britain Tall	WLT1	Gaungo	44
West New Britain Tall	WLT2	Vario	109
Malaysian Yellow Dwarf	MYD	exotic	32
Malaysian Red Dwarf	MRD	exotic	4
PNG Brown Dwarf	PBD	n/a	9