PACIFIC REGIONAL AGRICULTURAL PROGRAMME

PROJECT 2 P. D. I. C. C.

HYBRID CULTIVARS TRIALS AND COCONUT GERMPLASM IN VANUATU

TECHNICAL REPORT
JULY 1996 - JUNE 1997

by Jean Pierre LABOUISSE

PRAP

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SUVA, FIJI
1997

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INTRODUCTION

This annual technical report is produced as an annex of the Project 2 six monthly report (January 97-June 97).

The progress of the activities regarding the hybrids trials and the new collection of dwarf ecotypes set up in the Vanuatu Agricutural Research and Training Centre (Santo, Vanuatu) is described in detail :

* Experimental design and field layout

* List of palms replaced since the planting of the trial

* Field map showing the status of the palms (dead, illegitimate) updated on June 1997

* Works implemented from 1st July 1996 to 30 June 1997: maintenance, fertilizers applied, leaf analysis results, pests and diseases recorded, treatments applied, hazards.

* Results of the observations

Since the beginning of the Project, 33 Dwarf x Tall cultivars have been created and 7 trials have been already planted. The last one, testing various hybrids with Samoan Tall as male, was planted on October 1996.

A new trial comparing Tall x Tall hybrids with Rennell Tall as male is planned. The creation of the hybrids by hand pollination is planned by the end of 1997.

At present, the renewal of the Dwarf ecotypes collection (14 ecotypes) is achieved. Fourteen ecotypes has been planted. The renewal of the exotic tall ecotypes started in February 1997.

Acknowledge to the VARTC Coconut Division for his invaluable help in the maintenance and the gathering of data of the trials and collections, and specially to Jean-Pierre Tabiusu, Godefroy Buletare, Valentino Telukluk and Eric Pascal.

ACCESSIONS CODES

GGZ = GPT	=	Gazelle Peninsula Tall
GKI = KIT	=	Kiribati Tall
GMV = MVT	=	Markham Valley Tall
GPY2 = RGT	=	Rangiroa Tall
GRL = RIT	=	Rennell Tall
GRT = RTM	=	Rotuman Tall
GTG = TONT	=	Tonga Tall
GVT = VTT	=	Vanuatu Tall
GWS = SMOT	=	Samoan Tall
NBN = MBD	=	Madang Brown Dwarf
NJA = SYD	=	Samoa Yellow Dwarf
NJM = MYD	=	Malayan Yellow Dwarf
NNL = NLAD	=	Nui Leka Dwarf
NRC = CRD	=	Cameroon Red Dwarf
NRM = MRD	=	Malayan Red Dwarf
NRV = VRD	=	Vanuatu Red Dwarf
NVB = BGD	=	Brazilian Green Dwarf
NVP2 = CATD	=	Catigan Green Dwarf
NVP3 = TACD	=	Tacunan Green Dwarf
NVP5 = PILD	=	Pilipog Green Dwarf
NVP7 = AROD	=	Aromatic Green Dwarf
NVT = THD	=	Thailand Green Dwarf

Table 1: Status of the hybrids trials in Vanuatu and data gathered

TRIAL AND ORIGIN OF POLLEN	TRAITEMENTS	DATE OF PLANTING	DATA GATHERED
VT-GC21 RENNELL TALL (RIT) SOLOMON ISLANDS	MBDxRIT MYDxRIT CRDxRIT VRDxVTT (control) BGDxRIT MRDxRIT (control)	April 1992	Speed of germination Growth in the nursery Growth in the field (young age) Precocity (Flowering) Harvest Disease susceptibility
VT-GC22 TONGA TALL (TON) TONGA	MRDxRIT (control) VRDxVTT (control) MRDxTON MYDxTON SYDxTON TONxNLA	February 1993	Speed of germination Growth in the nursery Growth in the field (young age) Precocity (Flowering) Disease susceptibility Harvest
VT-GC23 KIRIBATI TALL (KIT) KIRIBATI	VRDxVTT (control) BGDxRGT (control) MYDxKIT BGDxKIT MBDxKIT MRDxKIT	January 1994	Speed of germination Growth in the nursery Growth in the field (young age) Precocity (Flowering) Disease susceptibility
VT-GC24 ROTUMAN TALL (RTM) FIJI	VRDxVTT (control) MRDxRIT (control) MYDxRTM CRDxRTM MBDxRTM MRDxRTM	February 1994	Speed of germination Growth in the nursery Growth in the field (young age) Precocity (Flowering) Disease susceptibility
VT-GC25 MARKHAM VALLEY TALL (MVT) PNG	VRDxVTT (control) MRDxRIT (control) MBDxMVT MYDxMVT CRDxMVT MRDxMVT	December 1994	Speed of germination Growth in the nursery Growth in the field (young age) Precocity (Flowering) Disease susceptibility
VT-GC26 GAZELLE PENINSULA TALL (GPT) PNG	VRDxVTT (control) MRDxRIT (control) MBDxGPT MYDxGPT CRDxGPT MRDxGPT BGDxGPT	January 1995	Speed of germination Growth in the nursery Growth in the field (young age) Precocity (Flowering) Disease susceptibnility
VT-GC 27 WESTERN SAMOA TALL (WST) WESTERN SAMOA	VRDxVTT (control) MRDxRIT (control) MYDxWST SYDxWST CRDxWST BGDxWST MRDxWST	October 1996	Speed of germination Growth in the nursery Growth in the field (young age)

TRIAL VT- GC21

DWARVES x RENNELL TALL HYBRIDS

PDICC TRIAL N°1 Field 105

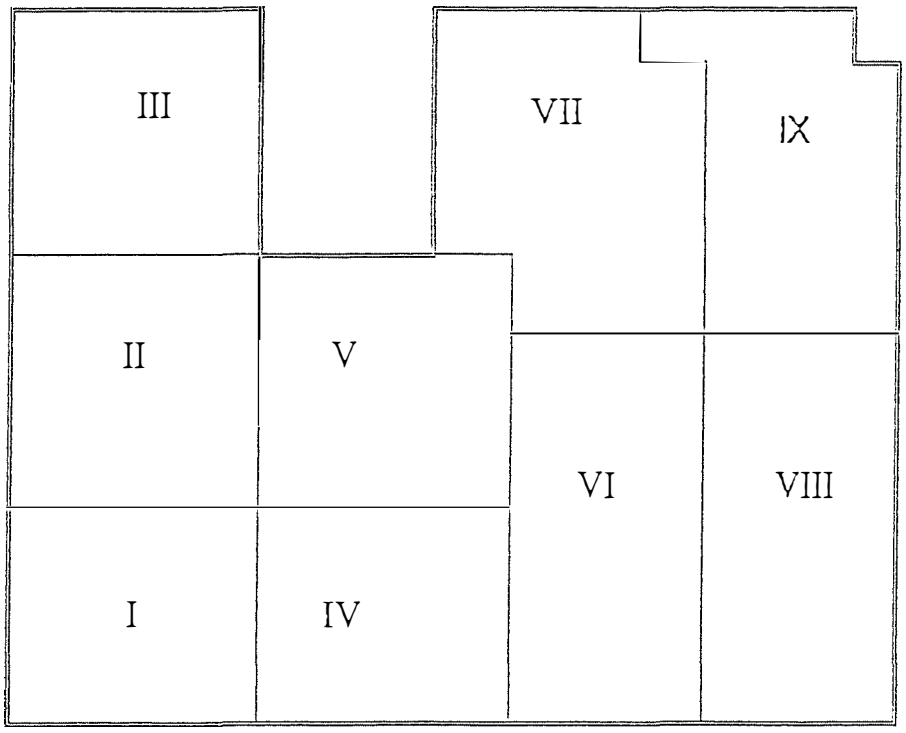
Pollen Variety : Rennell Tall (code : RIT = GRL)
Origin of pollen : Saraoutou germplasm (Field P30)

Treatments :

1	MBD x RIT NBNxGRL	4	VRDxVTT NRVxGVT
2	MYDxRIT NJMxGRL	5	BGDxRIT NVBxGRL
3	CRDxRIT NRCxGRL	6	MRDxRIT NRMxGRL

Experimental design : 9 randomized blocks
16 palms/plot

Field Lay-out :



Number of palms and area : Experiment : 864 palms (5,4 ha)
Total : 1229 palms (7,68 ha)

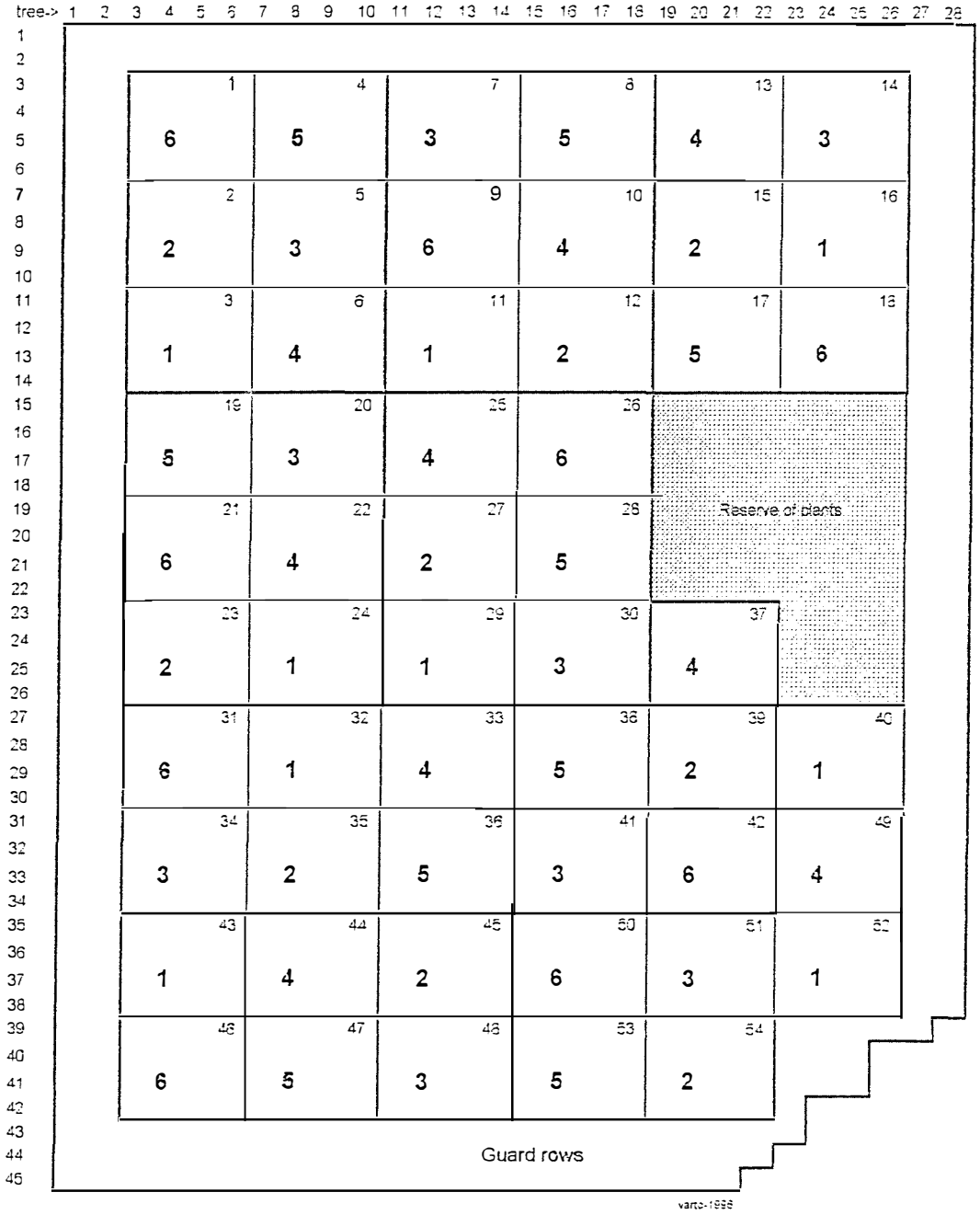
Date (s) of Planting April 1992 Blocks I - II : complete
Blocks III-IV-V-VI-VII-VIII-IX without treatment n°6
February 1993 - Treatment 6 - on blocks III to IX

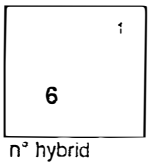
Other(s) February 1994 - Replacement of palms (see details)

PDICC-VTGC21 FIELD 105

Pollen variety: Rennell Tall

Planting : April 1992- February 1993





n° plot

n° hybrid

1= MBDxRIT (NBNxGRL)
2= MYDxRIT (NJMxGRL)
3= CRDxRIT (NRCxGRL)
4= VRDxVTT (NRVxGVT)
5= BGDxRIT (NVBxGRL)
6= MRDxRIT (NRMxGRL)

Pollen variety: Rennell Tall

Planting : April 1992- February 1993

LIST OF PALMS REPLACED

Palms replaced			Origin of replacement		
Matricule	Variety	Cause of Replacement	Variety	Origin	Date of Replacement
3.3	MRDxRIT	illegitimate	VRDxVTT	KDP	march 1994
3.28	border	dead	VRDxVTT	KDP	march 1994
4.24	CRDxRIT	illegitimate	CRDxRIT	P 105 24.26	march 1994
4.26	CRDxRIT	illegitimate	CRDxRIT	P 105 23.26	march 1994
5.11	CRDxRIT	illegitimate	CRDxRIT	P 105 25.26	march 1994
5.14	CRDxRIT	illegitimate	CRDxRIT	P 105 23.25	march 1994
7.3	MYDxRIT	illegitimate	VRDxVTT	KDP	march 1994
7.7	CRDxRIT	illegitimate	CRDxRIT	P 105 24.25	march 1994
13.18	MYDxRIT	dead	VRDxVTT	KDP	march 1994
13.21	BGDxRIT	dead	BGDxRIT	P 105 22.26	march 1994
17.19	BGDxRIT	dead	VRDxVTT	KDP	march 1994
19.22	BGDxRIT	dead	VRDxVTT	KDP	march 1994
20.20	BGDxRIT	illegitimate	VRDxVTT	KDP	march 1994
20.26	BGDxRIT	illegitimate	VRDxVTT	KDP	march 1994
24.6	MYDxRIT	dead	VRDxVTT	KDP	march 1994
24.15	CRDxRIT	dead	CRDxRIT	P 105 26.26	march 1994
24.17	CRDxRIT	illegitimate	CRDxRIT	P 105 25.25	march 1994
26.6	MYDxRIT	illegitimate	VRDxVTT	KDP	march 1994
26.19	VRDxVTT	illegitimate	VRDxVTT	FA n° K1216/8	march 1994
27.26	MBDxRIT	CFD	VRDxVTT	KDP	march 1994
28.20	MYDxRIT	illegitimate	VRDxVTT	KDP	march 1994
32.14	BGDxRIT	dead	BGDxRIT	P 105 21.26	march 1994
33.5	CRDxRIT	illegitimate	CRDxRIT	P 105 23.24	march 1994
36.22	CRDxRIT	illegitimate	CRDxRIT	P 105 24.24	march 1994
37.18	MRDxRIT	CFD	VRDxVTT	KDP	march 1994
21.26	BGDxRIT	replace 32.14	VRDxVTT	KDP	march 1994
22.26	BGDxRIT	replace 13.21	VRDxVTT	KDP	march 1994
23.24	CRDxRIT	replace 33.5	VRDxVTT	KDP	march 1994
23.25	CRDxRIT	replace 5.14	VRDxVTT	KDP	march 1994
23.26	CRDxRIT	replace 4.26	VRDxVTT	KDP	march 1994
24.24	CRDxRIT	replace 36.22	VRDxVTT	KDP	march 1994
24.25	CRDxRIT	replace 7.7	VRDxVTT	KDP	march 1994
24.26	CRDxRIT	replace 4.24	VRDxVTT	KDP	march 1994
25.25	CRDxRIT	replace 24.17	VRDxVTT	KDP	march 1994
25.26	CRDxRIT	replace 5.11	VRDxVTT	KDP	march 1994
26.26	CRDxRIT	replace 24.15	VRDxVTT	KDP	march 1994

Pollen Variety: Rennell Tall (RIT)

Planting: April 1992-February 1993 Up-dated: June 1997

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
2	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
3	7	7	I	⑥	⑥	⑥	5	5	5	5	3	3	3	3	5	5	5	5	4	4	4	4	3	3	3	3	7
4	7	7	⑥	⑥	⑥	⑥	5	⑤	⑤	5	3	③	③	3	5	⑤	⑤	5	4	④	④	4	3	R	③	R	7
5	7	7	⑥	⑥	⑥	⑥	5	⑤	⑤	5	R	③	③	R	5	⑤	⑤	5	4	④	④	4	3	③	③	3	7
6	7	7	⑥	⑥	⑥	⑥	5	5	5	5	3	3	3	3	5	5	5	5	4	4	4	4	3	3	3	3	7
7	7	7	I	2	2	2	R	3	3	3	⑥	⑥	⑥	⑥	4	4	4	4	2	2	2	2	1	1	1	1	7
8	7	7	2	②	②	2	3	③	③	3	⑥	⑥	⑥	⑥	4	④	④	4	2	②	②	2	1	①	①	1	D
9	7	7	2	②	②	2	3	③	③	3	⑥	⑥	⑥	⑥	4	④	④	4	2	②	②	2	1	①	①	1	7
10	7	7	2	2	2	2	3	3	3	3	⑥	⑥	⑥	⑥	4	4	4	4	2	2	2	2	1	1	1	1	7
11	7	7	1	1	1	1	4	4	4	4	1	1	1	1	2	2	2	2	5	5	5	5	6	6	6	6	7
12	7	7	1	①	①	1	4	④	④	4	1	①	①	1	2	②	②	2	5	⑤	⑤	5	6	6	6	6	7
13	7	7	1	①	①	1	4	④	④	4	1	①	①	1	2	②	②	I	5	⑤	R	5	6	6	6	6	7
14	7	7	1	1	1	1	4	4	4	4	1	1	1	1	2	2	2	2	5	5	5	5	6	6	6	6	7
15	7	7	5	5	5	5	3	3	3	3	4	4	4	4	6	6	6	6	5	5	5	5	5	5	5	5	7
16	7	7	5	⑤	⑤	5	3	③	③	3	4	④	④	4	6	6	6	6	5	5	5	5	5	5	5	5	7
17	7	7	5	⑤	⑤	5	3	③	③	D	4	④	④	4	6	6	6	6	I	5	5	5	5	5	5	5	7
18	7	7	5	5	5	5	3	3	3	3	4	D	4	4	6	6	6	6	5	5	5	5	5	5	5	5	7
19	7	7	6	6	6	6	4	4	4	D	D	2	D	2	5	5	5	5	5	5	5	I	5	5	5	5	7
20	7	7	6	6	6	6	4	④	④	D	2	D	②	2	5	⑤	⑤	5	5	I	5	5	5	5	5	I	7
21	7	7	6	6	6	6	4	④	④	4	2	②	②	2	5	⑤	⑤	5	5	5	5	5	5	5	5	I	7
22	7	7	6	6	6	6	4	4	4	4	2	2	2	2	5	5	5	5	5	5	5	5	5	5	5	I	7
23	7	7	2	2	2	2	1	1	1	1	1	1	1	1	3	3	3	3	4	4	4	4	3	R	R	I	7
24	7	7	2	②	②	I	1	①	①	1	1	①	①	1	R	③	R	3	4	④	④	4	3	R	R	I	7
25	7	7	2	②	②	2	1	①	①	1	1	①	①	1	3	③	③	3	4	④	④	4	3	3	R	I	7
26	7	7	2	A	2	I	1	1	1	1	1	1	1	1	3	3	3	3	R	4	4	4	3	3	3	I	7
27	7	7	6	6	6	6	1	1	1	1	4	4	4	4	5	5	5	5	2	2	2	2	1	1	1	I	7
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29	7	7	6	6	6	6	1	①	①	1	4	④	④	4	5	⑤	⑤	5	2	②	②	2	1	①	①	1	7
30	7	7	6	6	6	6	1	1	1	1	4	4	4	4	5	5	5	5	2	2	2	2	1	1	1	1	7
31	7	7	3	3	3	3	2	2	2	2	5	5	5	5	3	3	3	3	6	6	6	6	4	4	4	4	7
32	7	7	3	③	③	3	2	②	②	2	5	⑤	⑤	R	3	③	③	3	6	6	6	6	4	④	④	4	7
33	7	7	3	③	R	3	2	②	②	2	5	⑤	⑤	5	3	③	③	3	6	6	6	6	4	④	④	4	7
34	7	7	3	3	3	3	2	2	2	2	5	5	5	5	3	3	3	3	6	6	6	6	4	4	4	4	7
35	7	7	1	1	1	1	4	4	4	4	2	2	2	2	6	6	6	6	3	3	3	3	1	1	1	1	7
36	7	7	1	①	①	1	4	④	④	4	2	②	②	2	6	6	6	6	3	③	③	R	1	①	①	1	7
37	7	7	1	①	①	1	4	④	④	4	2	②	②	2	6	6	6	I	3	③	③	3	1	①	①	1	7
38	7	7	1	1	1	1	4	4	4	4	2	2	2	2	6	6	6	6	3	3	3	3	1	1	1	1	7
39	7	7	6	D	6	6	5	5	5	5	3	3	3	3	5	5	5	5	2	2	2	2	7	7	7	7	7
40	7	7	6	6	6	6	5	⑤	⑤	5	3	③	③	3	5	⑤	⑤	5	2	②	②	2	7	7	7		
41	7	7	6	6	6	6	5	⑤	⑤	5	3	③	③	3	5	⑤	⑤	5	2	②	②	2	7	7	7		
42	7	7	6	6	6	6	5	5	5	5	3	3	3	3	5	5	5	5	2	2	2	2	7				
43	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7				
44	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7					
45	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7						

1= MBDxRIT MBNxGRL 2= MYDxRIT NJMxGRL 3= CRDxRIT NRCxGRL 4= VRDxVTT NRVxGVT 5= BGDxRIT NVBxGRL 6= MRDxRIT NRMxGRL

7= GUARD ROWS BORDURE R= REPLACEMENT REMPLACANT I= ILLEGITIMATE ILLEGITIME D=DEAD MORT

① ② ③ ④ ⑤ ⑥ = palms for measurements
arbres retenus pour les mesures de croissance

Activities from 1-7-96 to 30-6-97

1) MAINTENANCE

Weeding:

- circle weeding (radius of the circle 2 m) every two months : manual (for the vines) and chemical (glyphosate)
- outside the circle the cover crop is weak and inequally established

Fertilizers:

- Date: 13/11/96
- Rate: 800 g KCl/palm

Pests

- no serious insects damages

- During the campaign, 2 palms have died:

Matricule: 105-17-10 CRD x RIT Origin: blasting as for the six palms which died in 1995
105-39-04 MRD x RIT Origin: Coconut Foliar Decay (uprooted on 15/5/97)

The palm 105-26-04 is considered as abnormal.

2) DATA GATHERING

a) The record of production (number of bunches and nuts) started in May 96.

The table below recapitulates the number of bunches and nuts produced between May 96 and June 97. According to the analysis of variance, the effects of the treatments (hybrids) are highly significant. The treatment MRDxRIT must not be taken into account as the planting was delayed for one year (February 93 instead of April 92). The nut component analysis was not performed during this campaign.

Hybrid	Number of bunches		Number of nuts	
BGD x RIT	7.79	a	93.60	a
MYDxRIT	7.67	a	92.91	a
MBDxRIT	7.42	a	86.79	a b
CRDxRIT	7.31	a	86.68	a b
VRDxRIT	4.88	b	69.49	b
(MRDxRIT)	4.07	b	41.97	c
Average	6.52		78.57	
Coefficient of Variation	20.31 %		22.89 %	

a, b, c: homogeneous groups according the Duncan test (5%)

TRIAL VT- GC22

DWARVES x TONGA TALL

HYBRIDS

PDICC TRIAL N°2 Field 115

Pollen Variety : Tonga Tall (code : TONT= GTG)

Origin of pollen : Saraoutou germplasm (Field P40)

Treatments :

1	MRDxRIT NRMxGRL	4	MYDxTONT NJMxGTG
2	VRDxVTT NRVxGVT	5	SYDxTONT NJAxGTG
3	MRDxTONT NRMxGTG	6	TONTxNLAD GTGxNNL

Experimental design : 9 randomized blocks
16 palms per plot

Field Lay-out :

I	II	III
IV	V	VI
VII	VIII	IX

Number of palms and area : Experiment : 864 palms (5,4 ha)
Total : 1260 palms (7,88 ha)

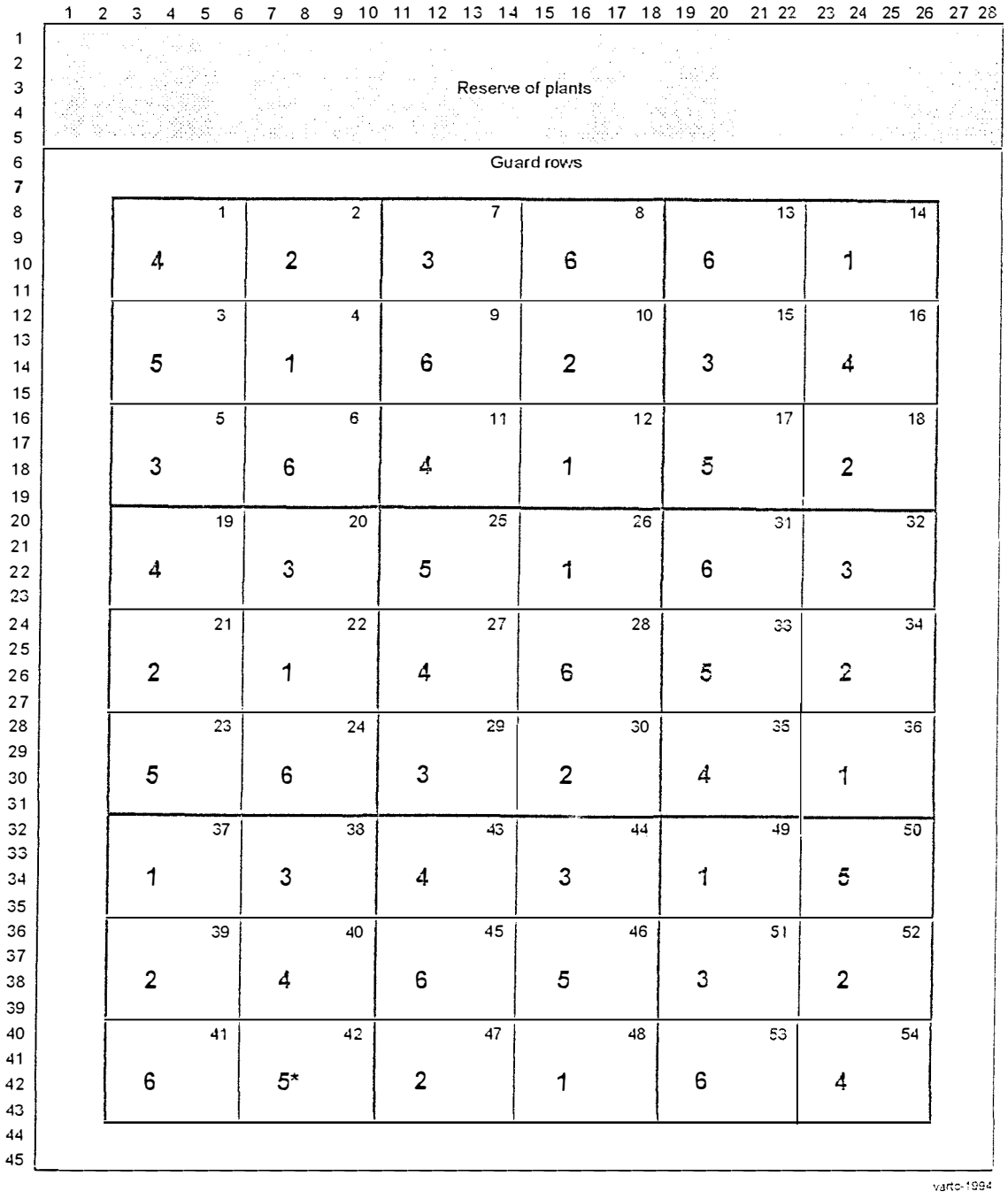
Date (s) of Planting : February 1993
incomplete blocks (No 2 - no treatment No 5
(No 7 - treatment No 5 incomplete

Other(s) : February 1994 - Replacement of palms (see details)
Planting of reserve palms for GC21 and GC22

PDICC-VTGC22 FIELD 115

Pollen variety: Tonga Tall

Planting : February 1993



1	n°plot
4	

LEGEND:

1= MRDx RIT (NRMxGRL)
2= VRDx VTT (NRVxGVT)
3= MRDxTCN (NRMxGTG)
4= MYDxTCN (NJMxGTG)
5= SYDxTCN (NJAxGTG)
6= TCNx NLA (GTGxNNL)
Guard rows=VRD x VTT
* incomplete plot

Pollen variety: Tonga Tall

Planting : February 1993 Updated : June 1997

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	7	7	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	K2	7	7
2	7	7	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	K3	7	7
3	7	7	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	K6	7	7
4	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T4	T4	T4	T4	T4	T4	T4	T4	T4	T4	T4	T4	T4	T4
5	T6	T6	T6	T6	T6	T6	T6	T6	T6	T6	T6	T6	T6	T6	T3	T3	T3	T3	T3	T3	T3	T3	T3	T3	T3	T3	T3	T3
6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	D	7	7	7	7
7	7	7	7	D	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8	7	7	4	4	4	4	2	2	2	2	3	3	3	3	6	6	6	6	6	6	6	6	M	1	1	1	7	7
9	7	7	4	④	④	4	2	②	②	2	3	③	③	3	6	⑥	⑥	6	6	⑥	⑥	6	1	①	①	M	7	7
10	7	7	4	④	④	4	2	②	②	2	3	③	③	3	6	R	⑥	6	6	⑥	⑥	6	1	①	①	1	7	7
11	7	7	4	4	4	4	2	2	2	2	3	3	3	3	6	6	6	6	6	6	6	6	1	1	1	1	7	7
12	7	7	5	5	5	5	1	1	1	1	6	6	6	6	2	2	2	2	3	3	3	3	4	4	4	4	7	7
13	7	7	5	⑤	⑤	5	1	①	①	1	6	⑥	⑥	6	2	②	②	2	3	③	③	3	4	④	④	4	7	7
14	7	7	5	⑤	⑤	5	1	①	①	1	6	⑥	⑥	6	2	②	②	2	3	③	③	3	4	④	④	4	7	7
15	7	7	5	5	5	5	1	1	1	1	6	6	6	6	2	2	2	2	3	3	3	3	4	4	4	4	7	7
16	7	7	3	3	3	3	6	6	6	6	4	4	4	4	1	1	1	1	5	5	5	5	2	2	2	2	7	7
17	7	7	3	③	③	3	6	⑥	⑥	6	4	④	④	4	1	①	①	1	5	⑤	⑤	5	2	R	②	2	7	7
18	7	7	3	③	③	3	6	⑥	⑥	6	4	④	④	4	1	①	①	1	5	⑤	⑤	5	2	②	②	2	7	R
19	7	7	3	3	3	3	6	6	6	6	4	4	4	4	1	1	1	1	5	5	5	5	2	2	2	2	7	7
20	7	7	4	4	4	4	3	3	3	3	5	5	5	5	1	1	1	1	6	6	6	6	3	3	3	3	7	7
21	7	7	R	④	④	4	3	③	③	3	5	⑤	⑤	5	1	①	①	1	6	⑥	⑥	6	3	③	③	3	7	7
22	7	7	4	④	④	4	3	③	③	3	5	⑤	⑤	5	1	①	①	1	6	⑥	⑥	6	3	③	③	3	7	7
23	7	7	4	4	4	4	3	3	3	3	5	5	5	5	1	1	1	1	6	6	6	6	3	3	3	3	7	7
24	7	7	2	2	2	2	1	1	1	1	4	4	4	4	6	6	6	6	5	5	5	5	2	2	2	2	7	7
25	7	7	2	②	②	2	1	①	①	1	4	R	④	4	6	⑥	⑥	6	5	⑤	⑤	5	2	②	②	2	7	7
26	7	7	2	②	②	2	1	①	①	1	4	④	④	4	6	⑥	⑥	6	5	⑤	⑤	5	2	②	②	2	7	7
27	7	7	2	2	2	2	1	R	1	1	4	4	4	4	6	6	6	6	5	5	5	5	2	2	2	2	7	7
28	7	7	5	5	5	5	6	6	6	6	3	3	3	3	2	2	2	2	4	4	4	4	1	1	1	1	7	7
29	7	7	5	⑤	⑤	5	6	⑥	⑥	6	3	③	③	3	2	②	②	2	4	④	④	4	1	①	①	1	7	7
30	7	7	5	⑤	⑤	5	6	⑥	⑥	6	3	③	③	3	2	②	②	2	4	④	④	4	1	①	①	1	7	7
31	7	7	I	5	5	I	6	6	6	6	3	3	3	3	2	2	2	2	4	4	4	4	1	1	1	1	7	7
32	7	7	1	1	1	1	3	3	3	3	4	4	4	4	3	3	3	3	1	1	1	1	5	5	5	5	7	7
33	7	7	1	①	①	R	3	③	③	3	4	④	④	4	3	③	③	3	1	①	①	1	5	⑤	⑤	5	7	7
34	7	7	1	①	①	1	3	③	③	3	4	④	④	4	3	③	③	3	1	①	①	1	5	⑤	⑤	5	7	7
35	7	7	1	1	1	1	3	3	3	3	4	4	4	4	3	3	3	3	1	1	1	1	5	5	5	5	7	7
36	7	7	2	2	2	2	4	4	4	4	6	6	6	6	5	5	5	5	3	3	3	3	2	2	2	2	7	7
37	7	7	2	②	②	2	4	④	④	4	6	⑥	⑥	6	5	⑤	⑤	5	3	③	③	3	2	②	②	2	7	7
38	7	7	2	②	②	2	4	④	④	4	6	⑥	⑥	6	5	⑤	⑤	5	3	③	③	3	2	②	②	2	7	7
39	7	7	2	2	2	2	4	4	4	4	6	6	6	6	5	5	5	5	3	3	3	3	2	2	2	2	7	7
40	7	7	6	6	6	6	5	5	5	5	2	2	2	2	1	1	1	1	6	6	6	6	4	4	4	4	7	7
41	7	7	6	⑥	⑥	6	3	3	3	5	2	②	②	2	1	①	①	1	6	⑥	⑥	6	4	④	④	4	7	7
42	7	7	6	⑥	⑥	6	5	5	5	5	2	②	②	2	1	①	①	1	6	⑥	⑥	6	4	④	④	4	7	7
43	7	7	6	6	6	R	5	5	5	5	2	2	2	2	1	1	1	1	6	6	6	6	4	4	4	4	7	7
44	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
45	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

1= MRDxRLT NRMxGRL 2= VRDxVTT NRVxGVT 3= MRDxTON NRMxGTG 4= MYDxTON NJMxGTG 5= SYDxTON NJAxGTG 6= TONxNLD GTGxNNL

7= GUARD ROWS VRDXVTT BORDURE NRVxGVT R= REPLACEMENT REMPLACANT I= illegitimate D=DEAD

T1 T3 T4 T6 RESERVE OF PLANTS FOR TRIAL GC22

K2 K3 K6 RESERVE OF PLANTS FOR TRIAL GC23

① ② ③ ④ ⑤ ⑥ = palms for measurements
arbres retenus pour les mesures de croissance

Pollen variety: Tonga Tall

Planting : February 1993

LIST OF PALMS REPLACED

Palms replaced			Origin of replacement		
Matricule	Variety	Cause of Replacement	Variety	Origin	Date of Replacement
10.16	TONxNLA	abnormal	TONxNLA	FA n° J1569/2	march 1994
17.24	VRDxVTT	dead	VRDxVTT	FA n° K872/5	march 1994
18.28	Border	dead	VRDxVTT	KDP	march 1994
21.03	MYDxTON	abnormal	MYDxTON	FA n° I2591/3	march 1994
25.12	MYDxTON	abnormal	MYDxTON	FA n° J1000	march 1994
27.08	MRDxRIT	abnormal	MRDxRIT	FA n° I395/2	march 1994
31.03	SYDxTON	dead	VRDxVTT	KDP	march 1994
31.06	SYDxTON	abnormal	VRDxVTT	KDP	march 1994
33.06	MRDxRIT	dead	MRDxRIT	FA n° I2886/2	march 1994
43.06	TONxNLA	dead	TONxNLA	FA n° J1552/1	march 1994

Activities from 1-7-96 to 30-6-97

1) MAINTENANCE

Weeding:

- circle weeding (radius of the circle 2 m) every two months : manual (for the vines) and chemical (glyphosate)
- outside the circle the cover crop is weak and inequally established

Fertilizers:

- Date : 14/11/96
- Rate: 220 g urea/palm + 500 g KCl/palm

Pests

- no serious insects damages
- damages of Corticium sp.

Cyclon:

Two palms partially uprooted by the cyclon Betsy on 24 March 96 were pulled up from the plot (115-06-24 and 115-07-04).

2) DATA GATHERING

a) Determination of precocity by recording the palms with flowers every two months from 30th month after planting to 46th month. See graphic attached. The less precocious hybrids are TONTxNLAD and VRDxVTT.

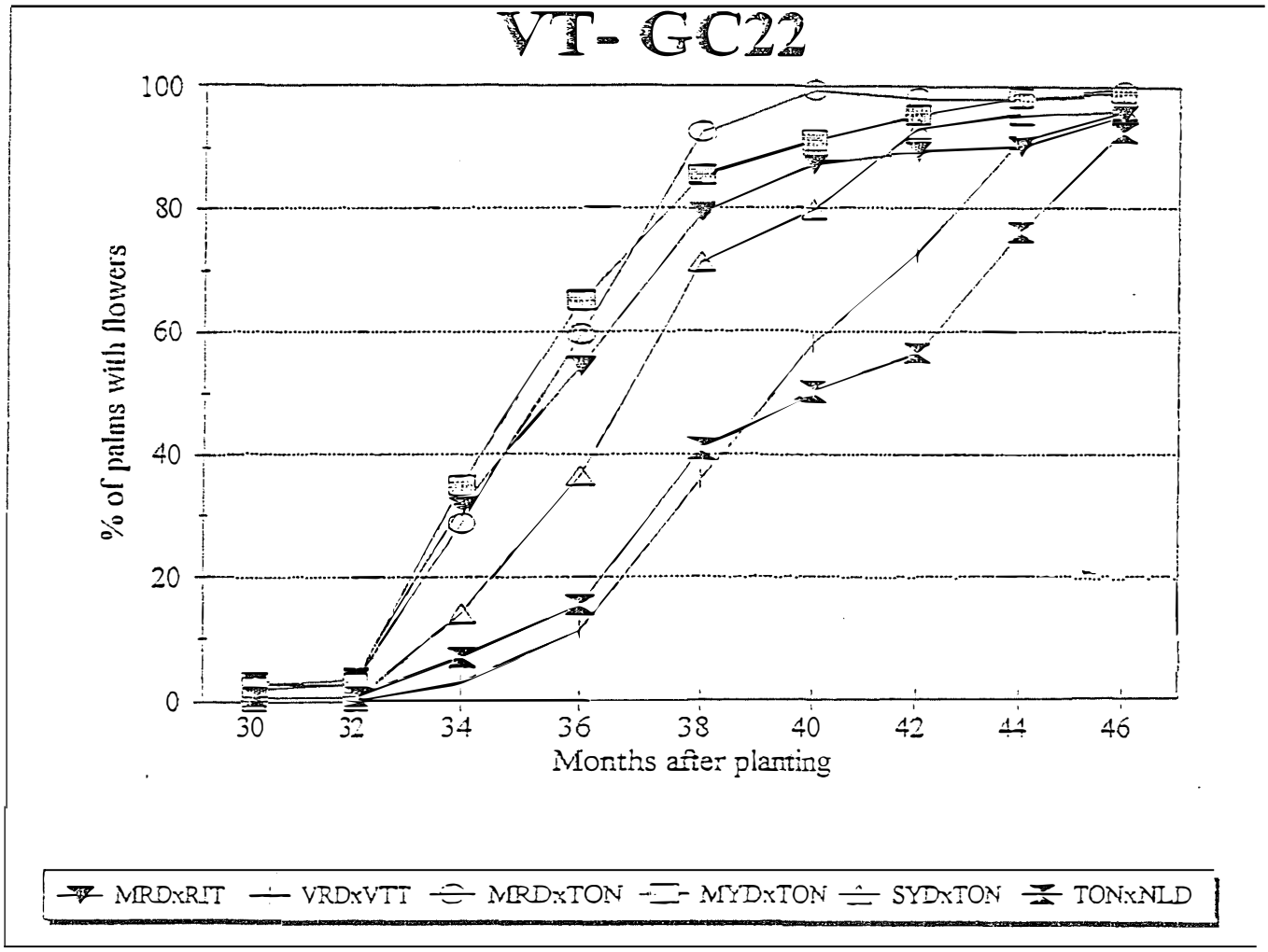
b) The record of production (number of bunches and nuts) started in March 97.

PDICC - Trial VT-GC22

Estimation of précocity

Pourcentage of trees with flowers

Months after planting	MRDxRIT	VRDxVTT	MRDxTON	MYDxTON	SYDxTON	TONxNLD
30	2.9	0.0	2.8	2.1	0.0	0.7
32	3.6	0.0	2.8	2.8	0.0	0.7
34	31.4	2.8	28.7	34.9	14.0	7.0
36	54.3	11.2	59.4	65.0	36.4	15.4
38	79.3	35.7	92.3	85.3	71.3	40.6
40	87.1	58.0	99.3	90.9	79.7	50.3
42	89.2	72.7	97.9	95.0	92.8	56.3
44	90.0	90.9	97.9	97.8	95.2	75.9
46	95.0	95.8	99.3	98.6	96.0	92.4



26

TRIAL VT- GC23

DWARVES x KIRIBATI TALL HYBRIDS

PDICC TRIAL N°3 Field 125

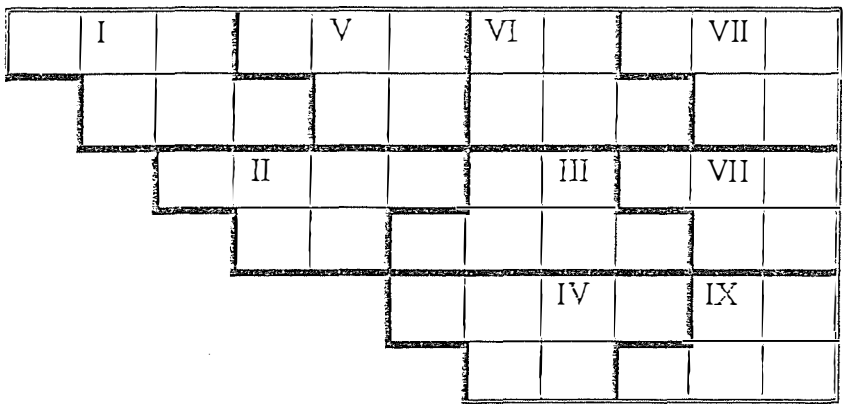
Pollen Variety : Kiribati Tall (code : KIT = GKI)
Origin of pollen : Tarawa (Kiribati)

Treatments :

1	VRDxVTT NRVxGVT	4	MBDxKIT NBNxGKI
2	BGDxRGT NVBxGPY2	5	MYDxKIT NJMxGKI
3	BGDxKIT NVBxGKI	6	MRDxKIT NRMxGKI

Experimental design : 9 randomized blocks
16 palms per plot

Field Lay-out :



Number of palms and area : Experiment : 784 palms (4,90 ha)
Total : 963 palms (6,08 ha)

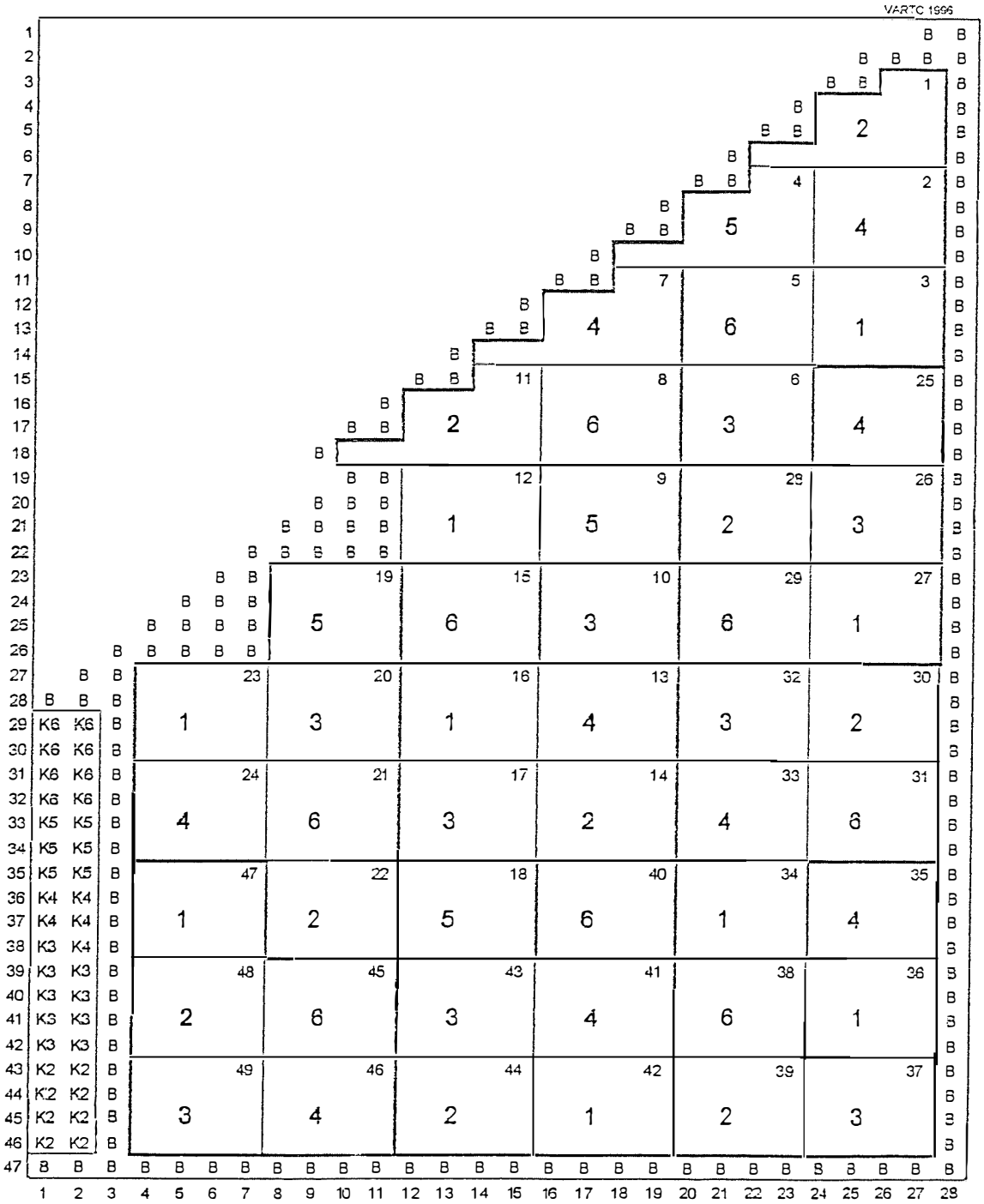
Date (s) of Planting : January 1994
complete blocks : I - II - III - IV
incomplete blocks : V to IX - no treatments No 5

shape of the plots modified : block I - Plots 2 - 5
block II - Plots 4 - 2

Other(s) : January 1995 - replacement of palms (see details)
December 1995 - replacement of 125-7-27 (MBD x KIT)

Pollen variety: Kiribati Tall

Planting : January 1994



n° plot	LEGEND			
8	1= VRDxVTT NRVxGVT	2= BGDxPYT2 NVBxGPY2	K2 K3 K4	RESERVE OF PLANT FOR TRIAL KIRIBATI
	3= BGDxKIT NVBxGKI	4= MBDxKIT NBNxGKI	K5 K6	B= BORDER BORDURE
	5= MYDxKIT NJMxGKI	6= MRDxKIT NRMxGKI		

PDICC-VTGC23 FIELD 125

Pollen variety: Kiribati Tall

Planting : January 1994 Updated : June 1997

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1																											B	B
2																									B	B	B	B
3																								B	B	2	2	B
4																							B	2	2	2	2	B
5																						B	B	2	2	2	2	B
6																					B	2	2	2	2	2	2	B
7																				B	B	5	5	4	4	4	R	B
8																			B	5	5	5	5	4	4	4	4	B
9																		B	B	5	5	5	5	4	4	4	4	B
10																	B	5	5	5	5	5	5	4	4	4	4	B
11																B	B	4	4	6	6	6	6	1	1	1	1	B
12															B	4	4	4	4	6	6	6	6	1	1	1	1	B
13														B	B	4	4	4	4	6	6	6	6	1	1	1	1	B
14													B	4	4	4	4	4	4	6	6	6	6	1	1	1	1	B
15												B	B	2	2	6	6	6	6	3	3	3	3	4	4	4	4	B
16											B	2	2	2	2	6	6	6	6	3	3	3	3	4	4	4	4	B
17										B	B	2	2	2	2	6	6	6	6	3	3	3	3	4	4	4	4	B
18									B	2	2	2	2	2	2	6	6	6	6	3	3	3	3	4	4	4	4	B
19										B	B	1	1	1	1	5	5	5	5	2	2	2	2	3	3	3	3	B
20									B	B	B	1	1	1	1	5	5	5	5	2	2	2	2	3	3	3	3	B
21								B	B	B	B	1	1	1	1	5	5	5	5	2	2	2	2	3	3	3	3	B
22							B	B	B	B	B	1	1	1	1	5	5	5	5	2	2	2	2	3	3	3	3	B
23						B	B	5	5	A	5	6	6	6	6	3	D	3	3	6	6	6	6	R	R	R	1	R
24					B	B	B	5	5	5	5	6	6	6	6	3	3	3	3	6	6	6	6	1	1	1	1	R
25				B	B	B	B	5	5	5	5	6	6	6	6	3	3	3	3	6	6	6	6	1	1	1	1	B
26			B	B	B	B	B	5	5	5	5	6	6	6	6	3	3	3	3	6	6	6	6	1	1	1	1	B
27		R	B	1	1	1	1	3	3	3	3	1	1	1	1	4	4	4	4	3	3	3	3	2	2	2	2	B
28	B	B	B	1	1	1	1	3	3	3	3	1	1	1	1	4	4	4	4	3	3	3	3	2	R	2	2	B
29	K6	K6	B	1	1	1	1	3	3	3	I	1	1	1	1	4	4	4	4	3	3	3	3	2	2	2	2	B
30	K6	K6	B	1	1	1	1	3	3	3	3	1	1	1	1	4	4	4	4	3	3	3	3	2	2	2	2	B
31	K6	K6	B	4	4	4	4	6	6	6	6	3	3	3	R	2	R	2	2	4	R	4	4	6	6	6	6	B
32	K6	K6	B	4	4	4	4	6	6	6	6	3	3	R	3	2	2	2	2	4	4	4	4	6	6	6	6	B
33	K5	K5	B	4	4	4	4	6	6	6	6	3	3	R	3	2	2	2	2	4	4	4	4	6	6	6	6	B
34	K5	K5	B	4	4	4	4	6	6	6	6	3	3	3	3	2	2	2	2	4	4	4	4	6	6	6	6	B
35	K5	K5	B	1	1	1	1	2	2	2	2	5	5	5	5	6	6	6	6	1	1	1	1	4	4	4	4	B
36	I	I	B	1	1	1	1	2	2	2	2	5	5	5	5	6	6	6	6	1	1	1	1	4	4	4	4	B
37	D	K4	B	1	1	1	1	2	2	2	2	5	5	5	5	6	6	6	6	1	1	1	1	4	4	4	4	B
38	K3	K4	B	1	1	1	1	D	2	2	2	5	5	5	5	6	6	6	6	1	1	1	1	4	4	4	4	B
39	K3	I	B	2	2	2	2	6	6	6	6	3	3	3	3	4	4	4	4	6	6	6	6	1	1	1	1	B
40	I	K3	B	2	2	2	2	6	6	6	6	3	3	3	3	4	4	4	4	6	6	6	6	1	1	1	1	B
41	I	K3	B	2	2	2	2	6	6	6	6	3	3	3	3	4	4	4	4	6	6	6	6	1	1	1	1	B
42	I	K3	B	2	2	2	2	6	6	6	6	3	3	3	3	4	4	4	4	6	6	6	6	1	1	1	1	B
43	I	K2	B	3	3	3	3	4	4	4	4	2	2	2	2	1	1	1	1	2	2	2	2	3	I	3	3	B
44	I	K2	B	3	3	3	3	4	4	4	4	2	2	D	2	1	R	1	1	2	2	2	2	3	3	3	3	B
45	I	K2	B	3	3	3	3	4	4	4	4	2	2	2	2	1	1	1	1	2	2	2	2	3	3	3	3	B
46	I	K2	B	3	3	3	3	4	4	4	4	D	2	2	2	1	1	1	1	R	2	2	2	3	3	3	3	B
47	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

1 n° plot

8

LEGEND

1= VRDxVTT
NRVxGVT

2= BGDxPYT2
NVBxGPY2

3= BGDxKIT
NVBxGKI

4= MBDxKIT
NBNxGKI

5= MYDxKIT
NJMxGKI

6= MRDxKIT
NRMxGKI

K2
K3
K4
K5
K6

RESERVE OF PLANTS FOR TRIAL KIRIBATI

B= BORDER
BORDURE

D= dead
I=illegitimate
A=abnormal
R=replacement

Pollen variety: Kiribati Tall

Planting : January 1994

LIST OF PALMS REPLACED

Palms replaced			Origin of replacement		
Matricule	Variety	Cause of Replacement	Variety	Origin	Date of Replacement
07.27	MBDxKIT	dead	MBDxKIT		december 95
23.24	VRDxVTT	sick	VRDxVTT	FA n° K 2231/10	january 95
23.25	VRDxVTT	sick	VRDxVTT	FA n° K 2493/1	january 95
23.26	VRDxVTT	sick	VRDxVTT	FA n° K 2231/7	january 95
23.28	Border	dead	VRDxVTT	FA n° K 3122/6	january 95
24.28	Border	dead	VRDxVTT	P 84	january 95
27.02	Border	dead	VRDxVTT	P84	january 95
28.25	BGDxRGT	dead	BGDxRGT	FA n° J 4023/3	january 95
31.15	BGDxKIT	sick	BGDxKIT	FA n° J 4117/5	january 95
31.17	BGDxRGT	dead	BGDxRGT	FA n°J 4078/9	january 95
31.21	MBDxKIT	dead	MBDxKIT	FA n° J 4746/3	january 95
32.14	BGDxKIT	dead	BGDxKIT	FA n° J 3078/14	january 95
33.14	BGDxKIT	dead	BGDxKIT	FA n° J 4235/13	january 95
44.17	VRDxVTT	dead	VRDxVTT	FA n° J 4766/3	january 95
46.20	BGDxRGT	dead	BGDxRGT	FA n° J 4123/3	january 95
36.01	MBDxKIT	replace 31.21	VRDXVTT	P84	january 95
36.02	MBDXKIT	replace 07.27	VRDxVTT	P84	december 95
39.02	BGDxKIT		VRDxVTT	P84	january 95
40.01	BGDxKIT	replace 33.14	VRDxVTT	P84	january 95
41.01	BGDxKIT	replace 32.14	VRDxVTT	P84	january 95
42.01	BGDxKIT	replace 31.15	VRDxVTT	P84	january 95
43.01	BGDxRGT	replace 28.25	VRDxVTT	P84	january 95
44.01	BGDxRGT	sick	VRDxVTT	P84	january 95
45.01	BGDxRGT	replace 31.17	VRDxVTT	P84	january 95
46.01	BGDxRGT	replace 46.20	VRDxVTT	P84	january 95

Activities from 1-7-96 to 30-6-97

1) MAINTENANCE

Weeding:

- circle weeding (radius of the circle 1,5 m) every two months : manual (for the vines) and chemical (glyphosate)
- outside the circle the cover crop is weak and inequally established

Fertilizers:

- Date: 15/11/96
- Rate: 180 g urea/palm + 400 g KCl/palm

Pests

- No important pest damages

- Serious damages due to *Pestalozzia* and *Corticium sp.*

2) DATA GATHERING

a) Determination of precocity by recording the palms with flowers every two months from 28th month (May 96) to 40th month.. See graphic attached. VRDxVTT is the less precocious hybrid.

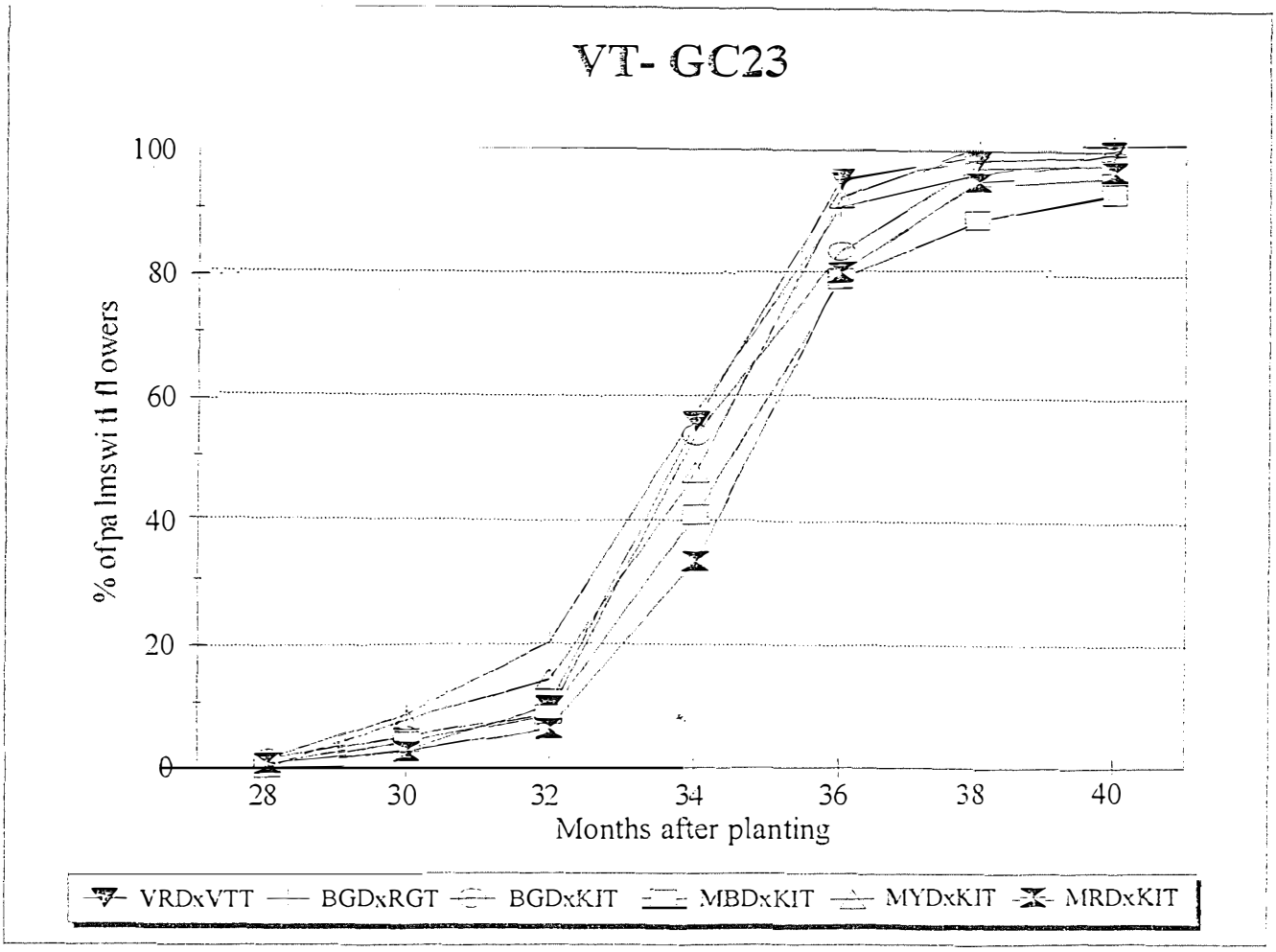
PDICC - Trial VT-GC23

Pollen : Kiribati Tall

Estimation of précocity

Pourcentage of trees with flowers

Months after planting	VRDxVTT	BGDxRGT	BGDxKIT	MBDxKIT	MYDxKIT	MRDxKIT
28	0,7	1,4	1,4	0,7	0,0	0.7
30	2,8	8,6	5,1	4,2	7,9	2,7
32	10,0	20,2	8,6	8,4	14,2	6,2
34	55,7	57,2	53,6	40,8	47,6	33,3
36	95,0	90,5	83,3	78,8	92,0	79,8
38	98,5	95,6	97,1	88,0	100,0	94,4
40	99,2	98,6	97,8	92,2	100,0	95,8



TRIAL VT- GC24

DWARVES x ROTUMAN TALL HYBRIDS

PDICC TRIAL N°4 Field 104

Pollen Variety : Rotuman Tall **(code : RTMT= GRT)**
Origin of pollen : Saraoutou Germplasm (Field P30)

Treatments :

1	VRDxVTT NRVxGVT	4	MYDxRTMT NJMxGRT	7	MRDxRIT NRMxGRL
2	RITxMRD GRLxNRM	5	MBDxRTMT NBNxGRT		
3	MRDxRTMT NRMxGRT	6	CRDxRTMT NRCxGRT		

Experimental design : 9 randomized blocks
16 palms per plot

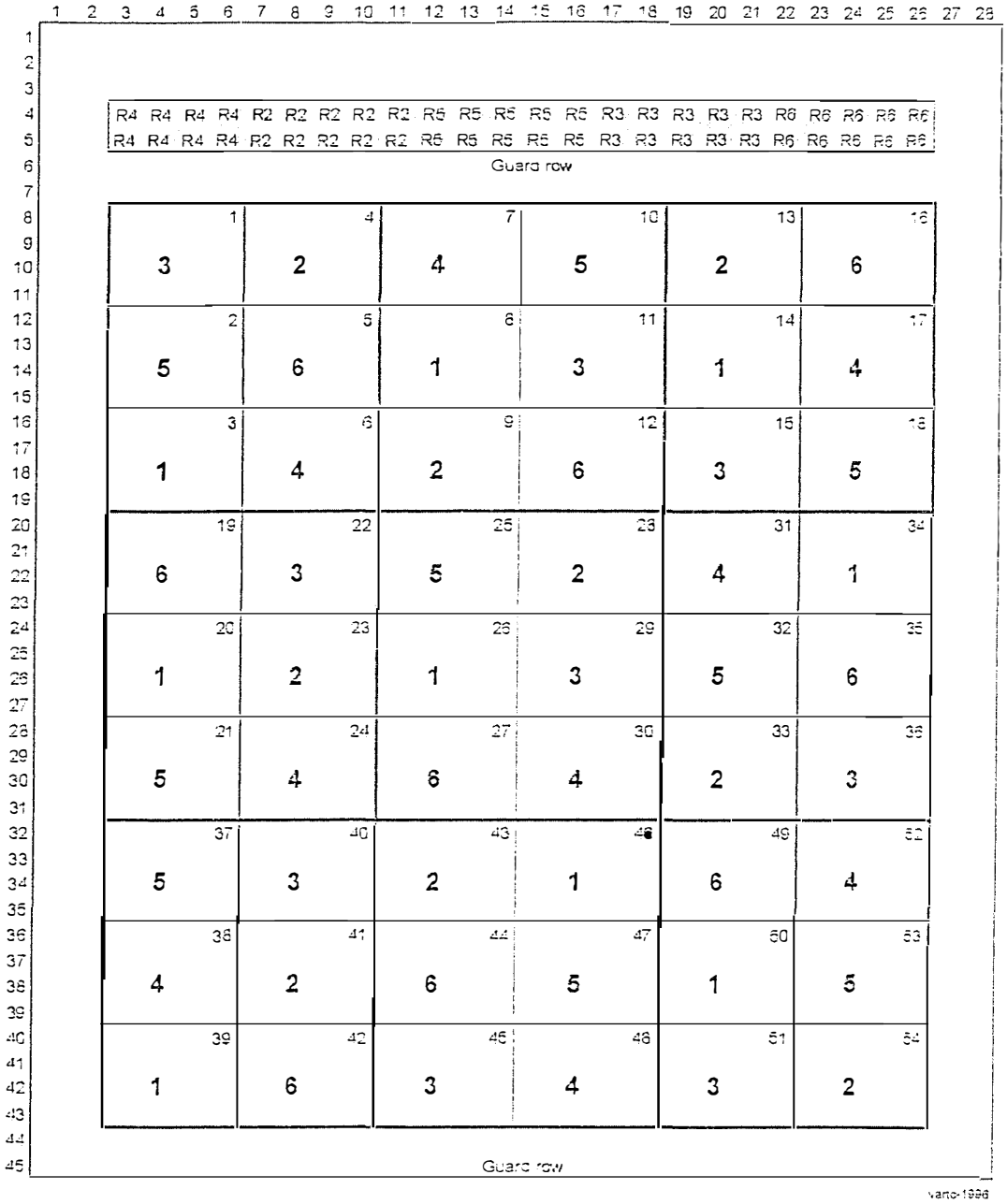
Field Lay-out :

3	6	9
2	5	8
1	4	7

Date (s) of Planting : February 1994

Pollen variety: Rotuman Tall

Planting : February 1994



1 n° plot

1

n° hybrid

LEGEND :

1= VRDxVTT
NRVxGVT
2= RITxMRD
GRLxNRM
3= MRDxRTM
NRMxGRT
4= MYDxRTM
NJMxGRT
5= MBDxRTM
NBNxGRT
6= CRDxRTM
NRCxGRT

Guard rows: VRD x VTT

R2 RESERVE OF PALMS

PDICC-VTGC24 FIELD 104

Pollen variety: Rotuman Tall

Planting : February 1994 Updated: June 1997

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	B	D	D	R4	R4	R4	R2	R2	R2	R2	R2	R5	R5	R5	R5	R5	R3	R3	R3	R3	R3	R6	R6	R6	R6	R6	B	B
5	B	B	R4	R4	R4	R4	R2	R2	R2	R2	R2	R5	R5	R5	R5	R5	R3	R3	R3	R3	R3	R6	R6	R6	R6	R6	B	B
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
8	B	B	3	3	3	3	2	2	2	2	4	4	4	4	5	5	5	5	2	2	2	2	6	6	6	6	B	B
9	B	B	3	3	3	3	2	2	2	2	4	4	4	4	5	5	5	5	2	2	2	2	6	6	6	6	B	B
10	B	B	3	3	3	3	2	2	2	2	4	4	4	4	5	5	5	5	2	2	2	2	6	6	6	6	B	B
11	B	B	3	3	3	3	2	2	2	2	4	4	4	4	5	5	5	5	2	2	2	2	6	6	6	6	B	B
12	B	B	5	5	5	5	6	6	6	6	1	1	1	1	3	3	3	3	1	1	1	1	4	4	4	4	B	B
13	B	B	5	5	5	5	6	6	6	6	1	1	1	1	3	3	3	3	1	1	1	1	4	4	4	4	B	B
14	B	B	5	5	5	5	6	6	6	6	1	1	1	1	3	3	3	3	1	1	1	1	4	4	4	4	B	B
15	B	B	5	5	5	5	6	6	6	6	1	1	1	1	3	3	3	3	1	1	1	1	4	4	4	4	B	B
16	B	B	1	1	1	1	4	4	4	4	2	2	2	2	6	6	6	6	3	3	3	3	5	5	5	5	B	B
17	B	B	1	1	1	1	4	4	4	4	2	2	2	2	6	6	6	6	3	3	3	3	5	5	5	5	B	B
18	B	B	1	1	1	1	4	4	4	4	2	2	2	2	6	6	6	6	3	3	3	3	5	5	5	5	B	B
19	B	B	1	1	1	1	4	4	4	4	2	2	2	2	6	6	6	6	3	3	3	3	5	5	5	5	B	B
20	B	B	6	6	6	6	3	3	3	3	5	5	5	5	2	2	2	2	4	4	4	4	1	1	1	1	B	B
21	B	B	6	6	6	6	3	3	3	3	5	5	5	5	2	2	2	2	4	4	4	4	1	1	1	1	B	B
22	B	B	6	6	6	6	3	3	3	3	5	5	5	5	2	2	2	2	4	4	4	4	1	1	1	1	B	B
23	B	B	6	6	6	6	3	3	3	3	5	5	5	5	2	2	2	2	4	4	4	4	1	1	1	1	B	B
24	B	B	1	1	1	1	7	7	7	7	1	1	1	1	3	3	3	3	5	5	5	5	6	6	6	6	B	B
25	B	B	1	1	1	1	7	7	7	7	1	1	1	1	3	3	3	3	5	5	5	5	6	6	6	6	B	B
26	B	B	1	1	1	1	7	7	7	7	1	1	1	1	3	3	3	3	5	5	5	5	6	6	6	6	B	B
27	B	B	1	1	1	1	7	7	7	7	1	1	1	1	3	3	3	3	5	5	5	5	6	6	6	6	B	B
28	B	B	5	5	5	5	4	4	4	4	6	6	6	6	4	4	4	4	7	7	7	7	3	3	3	3	B	B
29	B	B	5	5	5	5	4	4	4	4	6	6	6	6	4	4	4	4	7	7	7	7	3	3	3	3	B	B
30	B	B	5	5	5	5	4	4	4	4	6	6	6	6	4	4	4	4	7	7	7	7	3	3	3	3	B	B
31	B	B	5	5	5	5	4	4	4	4	6	6	6	6	4	4	4	4	7	7	7	7	3	3	3	3	B	B
32	B	B	5	5	5	5	3	3	3	3	D	7	7	7	1	1	1	1	6	6	6	6	4	4	4	4	B	B
33	B	B	5	5	5	5	3	3	3	3	7	7	7	7	1	1	1	1	6	6	6	6	4	4	4	4	B	B
34	B	B	5	5	5	5	3	3	3	3	7	7	7	7	1	1	1	1	6	6	6	6	4	4	4	4	B	B
35	B	B	5	5	5	5	3	3	3	3	7	7	7	7	1	1	1	1	6	6	6	6	4	4	4	4	B	B
36	B	B	4	4	4	4	7	7	7	7	6	6	6	6	5	5	5	5	1	1	1	1	5	5	5	5	B	B
37	B	B	4	4	4	4	D	7	7	7	6	6	6	6	5	5	5	5	1	1	1	1	5	5	5	5	B	B
38	B	B	4	4	4	4	7	D	7	7	6	6	6	6	5	5	5	5	1	1	1	1	5	5	5	5	B	B
39	B	B	4	4	4	4	7	7	7	7	6	6	6	6	5	5	5	5	1	1	1	1	5	5	5	5	B	B
40	B	B	1	1	1	1	6	6	6	6	3	3	3	3	4	4	4	4	3	3	3	3	7	7	7	7	B	B
41	B	B	1	1	1	1	6	6	6	6	3	3	3	3	4	4	4	4	3	3	3	3	7	7	7	7	B	B
42	B	B	1	1	1	1	6	6	6	6	3	3	3	3	4	4	4	4	3	3	3	3	7	7	7	7	B	B
43	B	B	1	1	1	1	6	6	6	6	3	3	3	3	4	4	4	4	3	3	3	3	7	7	7	7	B	B
44	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
45	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

1= VRDxVTT NRVxGVT

2= RITxMRD GRLxNRM

3= MRDxRTM NRMxGRT

4= MYDxRTM NJMxGRT

5= MBDxRTM NBNxGRT

6= CRDxRTM NRCxGRT

7= MRDxRIT NRMxGRL

B= BORDER VRDXVTT BORDURE NRVxGVT

D= dead

R2 R3 R4 R5 R6 RESERVE OF PALMS FOR TRIAL ROTUMA

Activities from 1-7-95 to 30-6-96

1) MAINTENANCE

Weeding:
- circle weeding (radius of the circle 2 m) every two months : manual (for the vines) and chemical (glyphosate)
- outside the circle the cover crop is weak and inequally established

Fertilizers:

- Date: 15/11/96
- Rate: 180 g urea/palm ÷ 400 g KCl/palm

Pests

- No insects damages

- Two palms infected by Coconut Foliar Decay (viral disease inoculated by *Myndus taffini*)

Matricule:	104-37-07	MRDxRIT	)
	104-38-08	MRDxRIT	) uprooted on 15/5/97

2) DATA GATHERING

a) Determination of precocity by recording the palms with flowers every two months from 30th month (June 96) to 42th month. See graphic attached. VRD x VTT is the less precocious hybrid

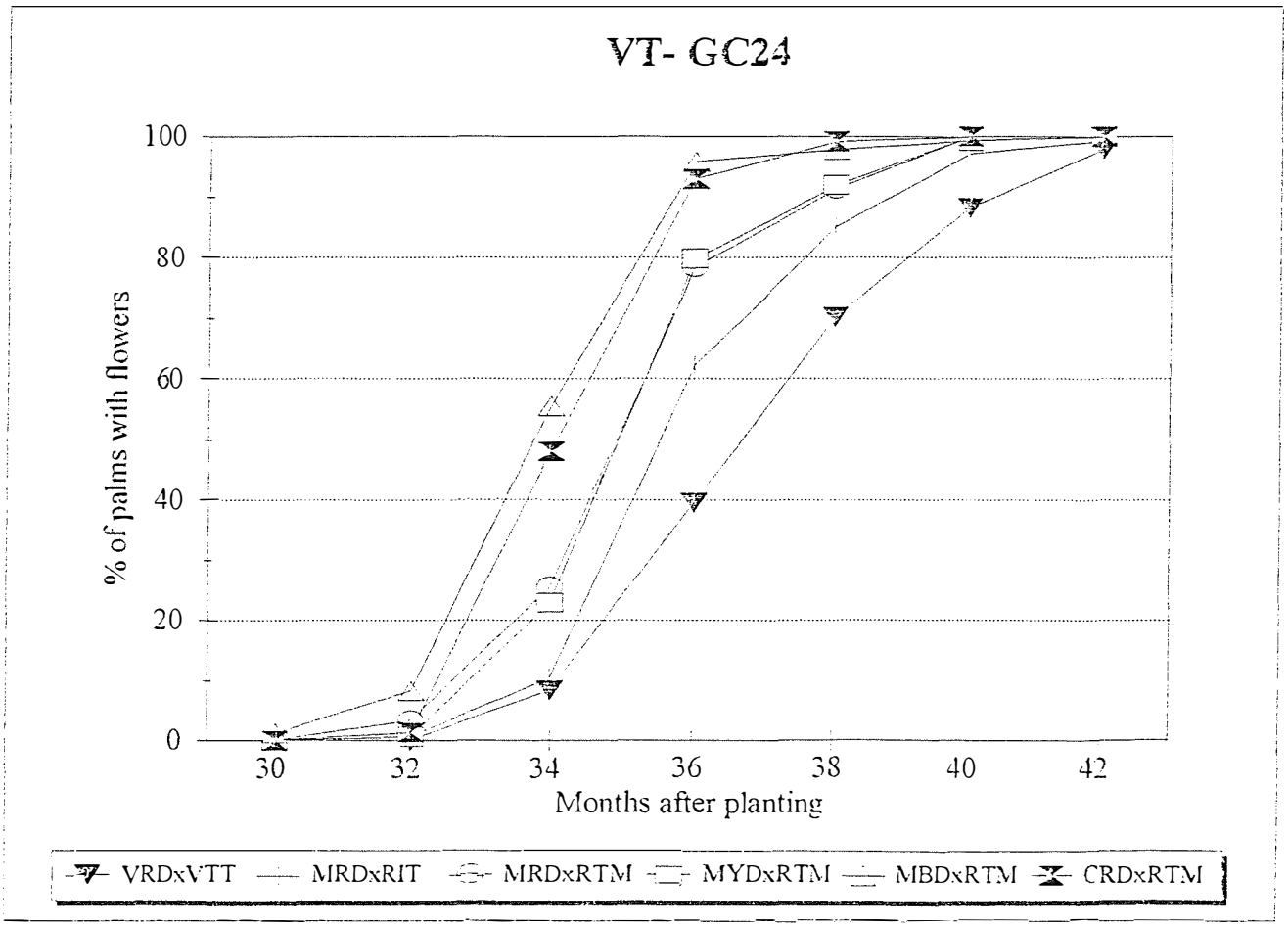
PDICC - Trial VT-GC24

Pollen : Rotuman Tall

Estimation of précocity

Pourcentage of trees with flowers

Months after planting	VRDxVTT	MRDxRIT	MRDxRTM	MYDxRTM	MBDxRTM	CRDxRTM
30	0,0	0,0	0,0	0,0	1,3	0,0
32	0,0	0,6	3,4	0,6	8,3	1,4
34	8,4	10,4	25,6	22,9	55,5	47,9
36	39,5	62,2	78,4	79,8	95,8	93,0
38	70,2	85,0	91,4	92,0	97,8	99,2
40	88,2	97,1	100,0	100,0	99,3	100,0
42	97,9	99,3	100,0	100,0	100,0	100,0



TRIAL VT- GC25

DWARVES x MARKHAM VALLEY TALL HYBRIDS

PDICC TRIAL N°5 Field 103

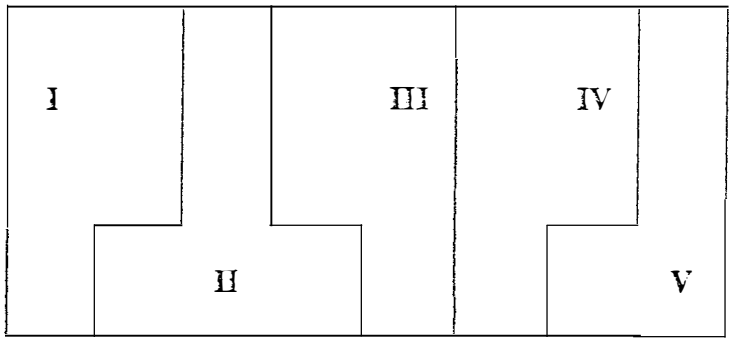
Pollen Variety : Markham Valley Tall (code : GMV = MVT)
Origin of pollen : PNG (CCRI- Madang)

Treatments :

1	MRDxRIT NRMxGRL	4	MYDxMVT NJMxGMV
2	VRDxVTT NRVxGVT	5	MBDxMVT NBNxGMV
3	MRDxMVT NRMxGMV	6	CRDxMVT NRCxGMV

Experimental design : 9 randomized blocks
16 palms/plot

Field Lay-out :



Number of palms and area: Experiment : 240 palms (1,5 ha)
Total : 390 palms (2,43 ha)

Date (s) of Planting : December 1994

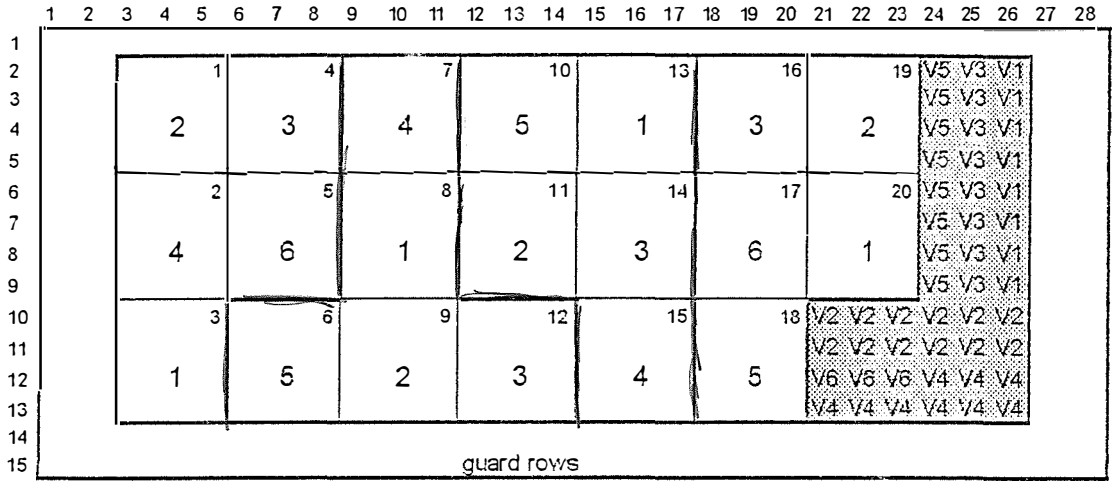
Incomplete Blocks: Block I without treatment N° 5
Block II without treatment N° 6
Block III without treatment N° 6
Block IV without treatment N° 4

Block V : reserve of plants

PDICC-VTGC25 FIELD 103

Pollen variety: Markham Valley Tall

Planting : 28-29 December 1994



1 n° plot
4
n° hybrid

1= MRDxRLT
NRMxGRL

2= VRDxVTT
NRVxGVT

3= MRDxMVT
NRMxGMV

4= MYDxVTT
NJMxGMV

5= MBDxMVT
NBNxGMV

6= CRDxMVT
NRCxGMV

V1
V2
V3
V4
V5
V6

RESERVE OF PALMS

PDICC-VTGC25

FIELD 103

Pollen variety: Markham Valley Tall

Planting : 28-29 December 1994

Updated: June 1997

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	7	7	7	7	7	7	R	R	R	R	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
2	7	7	2	2	2	3	3	3	4	4	4	5	5	5	1	1	1	3	3	3	2	2	2	V5	V3	V1	7	7
3	7	7	2	2	2	3	3	3	4	4	4	5	5	5	1	1	1	3	3	3	2	2	2	V5	V3	V1	7	7
4	7	7	2	2	2	3	3	3	4	4	4	5	5	5	1	1	1	3	3	3	2	2	2	V5	V3	V1	7	7
5	7	R	2	2	2	3	3	3	4	4	4	5	5	5	1	1	1	3	3	3	2	2	2	V5	V3	V1	7	7
6	7	7	4	4	4	6	6	6	1	1	1	2	2	2	3	3	3	6	6	6	1	1	1	V5	V3	V1	7	7
7	7	7	4	4	4	6	6	6	1	1	1	2	2	2	3	3	3	6	6	6	1	1	1	V5	V3	V1	7	7
8	7	7	4	4	4	6	R	6	1	1	1	2	2	2	3	3	3	6	6	6	1	1	1	V5	V3	V1	7	7
9	7	7	4	4	4	6	6	6	1	1	1	2	2	2	3	3	3	6	6	6	1	1	1	V5	V3	V1	7	7
10	7	7	1	1	1	5	5	5	2	2	2	3	3	3	4	4	4	5	5	5	V2	V2	V2	V2	V2	V2	7	7
11	7	7	1	1	1	5	5	5	2	2	2	3	3	3	4	4	4	5	5	5	V2	V2	V2	V2	V2	V2	7	7
12	7	7	1	1	1	5	5	5	2	2	2	3	3	3	4	4	4	5	5	5	V6	R	V6	V4	V4	V4	7	7
13	7	7	1	1	1	5	5	5	2	2	2	3	3	3	4	4	4	5	5	5	V4	V4	V4	V4	V4	V4	7	7
14	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
15	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

1= MRDxRIT NRMxGRL 2= VRDxVTT NRVxGVT 3= MRDxMVT NRMxGMV 4= MYDxVTT NJMxGMV 5= MBDxMVT NBNxGMV 6= CRDxMVT NRCxGMV

7= BORDER

V1 V2 V3 V4 V5 V6 RESERVE OF PLANTS

R= Replacement

Activities from 1-7-96 to 30-6-97

1) MAINTENANCE

Weeding:

- circle weeding (radius of the circle 2 m) every two months : manual (for the vines) and chemical (glyphosate)
- no cover crop

Fertilizers:

- Date : 24/11/96
- Rate: 100 g urea/palm + 200 g KCl/palm

2) DATA GATHERING

a) Recording of growth measurement (see table attached).

b) Recording of flowering since March 97.

PDICC - VTGC25

Field 103

Pollen Variety : Markham Vallay Tall

Planting: December 1994

MEASUREMENTS DURING YOUNG AGE - IN FIELD

	LEAF 0-6M	LEAF 6-12M	LEAF 12-18M	GIRTH 6M	GIRTH 12M	GIRTH 18M	HEIGHT 6M	HEIGHT 12M
CRDxMVT								
Average	2.75	4.92	6.00	28.92	50.42	84.58	180.22	253.92
STD	0.43	0.86	0.58	2.81	13.89	26.49	11.92	53.42
VRDxVTT								
Average	2.20	5.46	6.38	31.17	52.25	94.76	184.83	286.96
STD	0.40	0.91	0.63	5.26	7.94	14.45	23.49	38.67
MBDxMVT								
Average	2.89	5.61	6.17	30.11	51.94	95.06	173.39	279.28
STD	0.57	0.49	0.60	2.45	7.75	14.37	14.74	44.75
MYDxMVT								
Average	2.78	5.44	6.61	27.67	53.56	95.67	165.00	274.83
STD	0.42	0.60	0.49	4.97	6.38	16.18	25.00	48.28
MRDxRIT								
Average	2.67	5.46	6.25	32.39	63.42	106.38	202.83	316.00
STD	0.47	0.64	0.43	5.63	9.22	7.73	17.35	20.02
MRDXMVT								
Average	2.42	5.17	6.00	28.50	55.21	94.29	159.73	291.04
STD	0.49	0.62	0.41	6.76	6.24	21.48	22.85	23.47

LEAF X-YM: Number of leaves emitted between Xth and Yth month
GIRTH XM: Girth (in cm) at X months
HEIGHT XM: Height (in cm) at X months

TRIAL VT- GC26

DWARVES x GAZELLE PENINSULA TALL HYBRIDS

PDICC TRIAL N° 6 Field 114

Pollen Variety : Gazelle Peninsula Tall (code : GPT = GGZ)
Origin of pollen : Saraoutou Collection

Treatments :

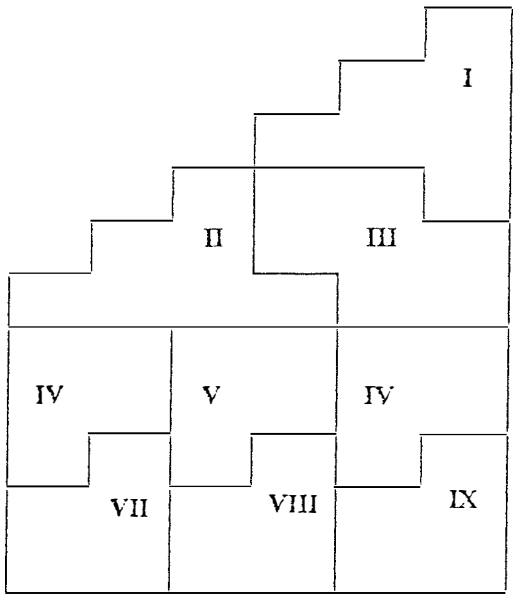
1	VRDxVTT NRVxGVT	4	MYDxGPT NJMxGGZ
2	MRDxRIT NRMxGRL	5	CRDxGPT NRCxGPT
3	MBDxGPT NBNxGGZ	6	MRDxGPT NRMxGGZ

NRC x GGZ

7 BGD x GPT
NVB x GGZ

Experimental design : 9 randomized blocks
16 palms/plot

Field Lay-out :

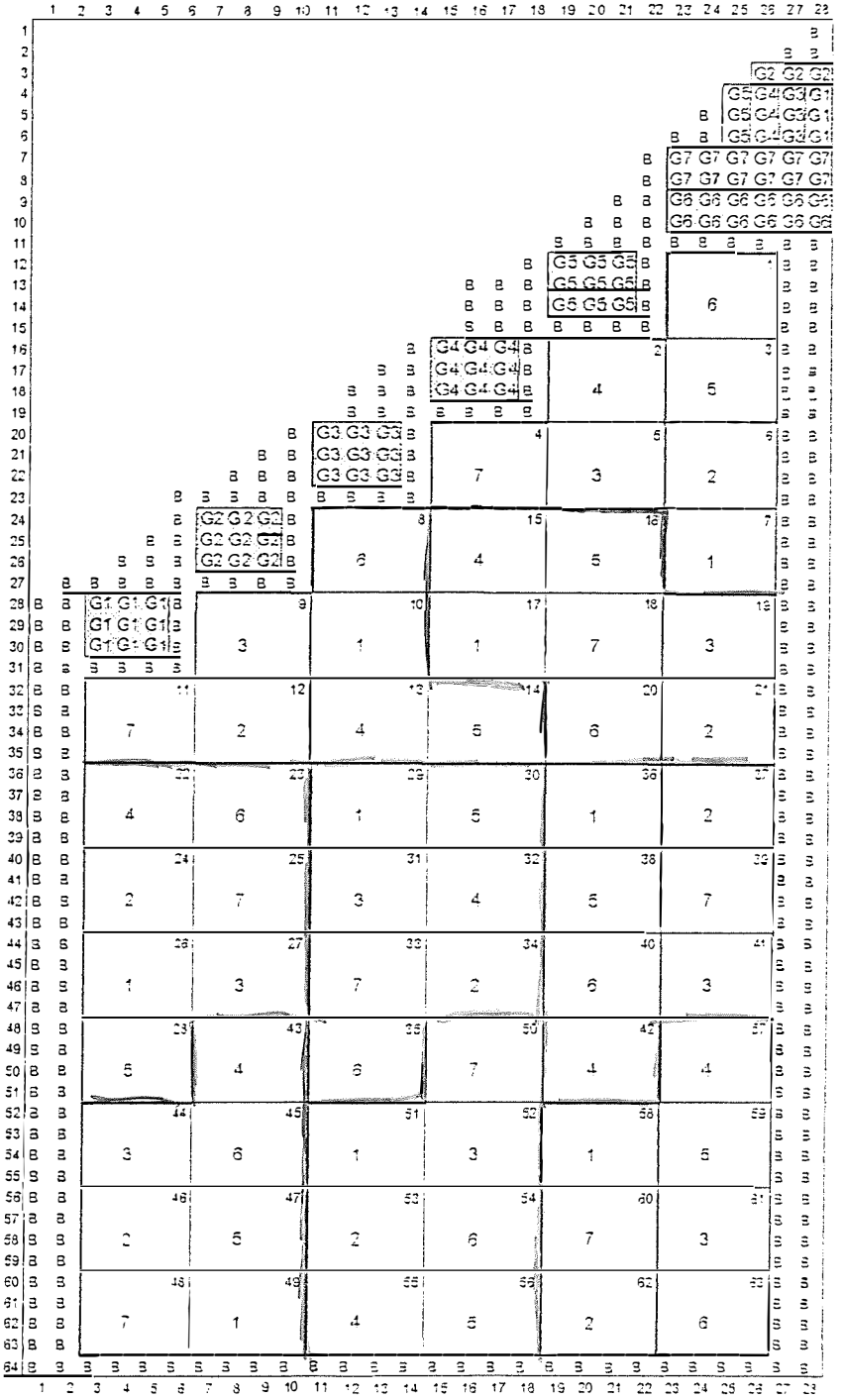


Number of palms and area: Experiment : 1008 palms (6,3 ha)
Total : 1414 palms (8,84 ha)

Date (s) of Planting : January 1995

Pollen variety: Gazelle Peninsula Tall

Planting : January 1995



8

n° hybrid

1 n° plot

1= VRDxVTT NRVxGVT

2= MRDxRIT NRMxGRL

7= BGDxGPT NVBxGGZ

8= BORDER VRDXVTT

3= MBD xGPT NBNxGGZ

4= MYDxGPT NUMxGGZ

5= CRDxGPT NRCxGGZ

6= MRDxGPT NRMxGGZ

G1 G2 G3 G4 G5 G6 G7 RESERVE OF PALMS

PDICC-VTGC26 FIELD 114

Pollen Variety: Gazelle Peninsula Tall

Planting: January 1995

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1																												B
2																											B	B
3																										G2	G2	G2
4																									G5	G4	G3	G1
5																								B	G5	G4	G3	G1
6																							B	B	G5	G4	G3	G1
7																						B	G7	G7	G7	G7	G7	G7
8																						B	G7	G7	G7	G7	G7	G7
9																					B	B	G6	G6	G6	G6	G6	G6
10																				B	B	B	G6	G6	G6	G6	G6	G6
11																			B	B	B	B	B	B	B	B	B	B
12																		B	G5	G5	G5	B	6	6	6	6	B	B
13																B	B	B	G5	G5	G5	B	6	6	6	6	B	B
14																B	B	B	G5	G5	G5	B	6	6	6	6	B	B
15																B	B	B	B	B	B	B	6	6	6	6	B	B
16														B	G4	G4	G4	6	4	4	4	4	5	5	5	5	B	B
17													B	B	G4	G4	G4	B	4	4	4	4	5	5	5	5	B	B
18												B	B	B	G4	G4	G4	B	4	4	4	4	5	5	5	5	B	B
19												B	B	B	B	B	B	B	4	4	4	4	5	5	5	5	B	B
20										B	G3	G3	G3	B	7	7	7	7	3	3	3	3	2	2	2	2	B	B
21									B	B	G3	G3	G3	B	7	7	7	7	3	3	3	3	2	2	2	2	B	B
22								B	B	B	G3	G3	G3	B	7	7	7	7	3	3	3	3	2	2	2	2	B	B
23						B	B	B	B	B	B	B	B	B	7	7	7	7	3	3	3	3	2	2	2	2	B	B
24						B	G2	G2	G2	B	6	6	6	6	4	4	4	4	5	5	5	5	1	1	1	1	B	B
25					B	B	G2	G2	G2	B	6	6	6	6	4	4	4	4	5	5	5	5	1	1	1	1	B	B
26				B	B	B	G2	G2	G2	B	6	6	6	6	4	4	4	4	5	5	5	5	1	1	1	1	B	B
27		B	B	B	B	B	B	B	B	B	6	6	6	6	4	4	4	4	5	5	5	5	1	1	1	1	B	B
28	B	B	G1	G1	G1	B	3	3	3	3	1	1	1	1	1	1	1	1	7	7	7	7	3	3	3	3	B	B
29	B	B	G1	G1	G1	B	3	3	3	3	1	1	1	1	1	1	1	1	7	7	7	7	3	3	3	3	B	B
30	B	B	G1	G1	G1	B	3	3	3	3	1	1	1	1	1	1	1	1	7	7	7	7	3	3	3	3	B	B
31	B	B	B	B	B	B	3	3	3	3	1	1	1	1	1	1	1	1	7	7	7	7	3	3	3	3	B	B
32	B	B	7	7	7	7	2	2	2	2	4	4	4	4	5	5	5	5	6	6	6	6	2	2	2	2	B	B
33	B	B	7	7	7	7	2	2	2	2	4	4	4	4	5	5	5	5	6	6	6	6	2	2	2	2	B	B
34	B	B	7	7	7	7	2	2	2	2	4	4	4	4	5	5	5	5	6	6	6	6	2	2	2	2	B	B
35	B	B	7	7	7	7	2	2	2	2	4	4	4	4	5	5	5	5	6	6	6	6	2	2	2	2	B	B
36	B	B	4	4	4	4	6	6	6	6	1	1	1	1	5	5	5	5	1	1	1	1	2	2	2	2	B	B
37	B	B	4	4	4	4	6	6	6	6	1	1	1	1	5	5	5	5	1	1	1	1	2	2	2	2	B	B
38	B	B	4	4	4	4	6	6	6	6	1	1	1	1	5	5	5	5	1	1	1	1	2	2	2	2	B	B
39	B	B	4	4	4	4	6	6	6	6	1	1	1	1	5	5	5	5	1	1	1	1	2	2	2	2	B	B
40	B	B	2	2	2	2	7	7	7	7	3	3	3	3	4	4	4	4	5	5	5	5	7	7	7	7	B	B
41	B	2	2	2	2	2	7	7	7	7	3	3	3	3	4	4	4	4	5	5	5	5	7	7	7	7	B	B
42	B	B	2	2	2	2	7	7	7	7	3	3	3	3	4	4	4	4	5	5	5	5	7	7	7	7	B	B
43	B	B	2	2	2	2	7	7	7	7	3	3	3	3	4	4	4	4	5	5	5	5	7	7	7	7	B	B
44	B	B	1	1	1	1	3	3	3	3	7	7	7	7	2	2	2	2	6	6	6	6	3	3	3	3	B	B
45	B	B	1	1	1	1	3	3	3	3	7	7	7	7	2	2	2	6	6	6	6	6	3	3	3	3	B	B
46	B	B	1	1	1	1	3	3	3	3	7	7	7	7	2	2	2	2	6	6	6	6	3	3	3	3	B	B
47	B	B	1	1	1	1	3	3	3	3	7	7	7	7	2	2	2	6	6	6	6	6	3	3	3	3	B	B
48	B	B	5	5	5	5	4	4	4	4	6	6	6	6	7	7	7	7	4	4	4	4	4	4	4	4	B	B
49	B	B	5	5	5	5	4	4	4	4	6	6	6	6	7	7	7	7	4	4	4	4	4	4	4	4	B	B
50	B	B	5	5	5	5	4	4	4	4	6	6	6	6	7	7	7	7	4	4	4	4	4	4	4	4	B	B
51	B	B	5	5	5	5	4	4	4	4	6	6	6	6	7	7	7	7	4	4	4	4	4	4	4	4	B	B
52	B	B	3	3	3	3	6	6	6	6	1	1	1	1	3	3	3	3	1	1	1	1	5	5	5	5	B	B
53	B	B	3	3	3	3	6	6	6	6	1	1	1	1	3	3	3	3	1	1	1	1	5	5	5	5	B	B
54	B	B	3	3	3	3	6	6	6	6	1	1	1	1	3	3	3	3	1	1	1	1	5	5	5	5	B	B
55	B	B	3	3	3	3	6	6	6	6	1	1	1	1	3	3	3	3	1	1	1	1	5	5	5	5	B	B
56	B	B	2	2	2	2	5	5	5	5	2	2	2	2	6	6	6	6	7	7	7	7	3	3	3	3	B	B
57	B	B	2	2	2	2	5	5	5	5	2	2	2	2	6	6	6	6	7	7	7	7	3	3	3	3	B	B
58	B	B	2	2	2	2	5	5	5	5	2	2	2	2	6	6	6	6	7	7	7	7	3	3	3	3	B	B
59	B	B	2	2	2	2	5	5	5	5	2	2	2	2	6	6	6	6	7	7	7	3	3	3	3	3	B	B
60	B	B	7	7	7	7	1	1	1	1	4	4	4	4	5	5	5	5	2	2	2	2	6	6	6	6	B	B
61	B	B	7	7	7	7	1	1	1	1	4	4	4	4	5	5	5	5	2	2	2	2	6	6	6	6	B	B
62	B	B	7	7	7	7	1	1	1	1	4	4	4	4	5	5	5	5	2	2	2	2	6	6	6	6	B	B
63	B	B	7	7	7	7	1	1	1	1	4	4	4	4	5	5	5	5	2	2	2	2	6	6	6	6	B	B
64	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

1= VRDxVTT NRVxGVT

2= MRDxRIT NRMxGRL

3= MBDxGPT NBNxGGZ

4= MYDxGPT NJMxGGZ

7= BGDxGPT NVBxGGZ

5= CRDxGPT NRCxGGZ

6= MRDxGPT NRMxGGZ

Activities from 1-7-96 to 30-6-97

1) MAINTENANCE

Weeding:

- circle weeding (radius of the circle 2 m) every two months : manual (for the vines) and chemical (glyphosate)
- no cover crop

Fertilizers:

- Date : 24/11/96
- Rate: 100 g urea/palm + 200 g KCl/palm

2) DATA GATHERING

a) Recording of growth measurement (see table attached).

b) Recording of flowering since May 97

PDICC - VTGC26 Field 114

Pollen Variety : Gazelle Peninsula Tall

Planting: January 1995

MEASUREMENTS DURING YOUNG AGE - IN FIELD

	LEAF 0-6M	LEAF 6-12M	GIRTH 6M	GIRTH 12M	HEIGHT 6M	HEIGHT 12M
VRDxVTT						
Average	3.4	5.6	31.8	45.3	173.3	282.8
STD	0.6	0.6	7.2	6.3	17.1	24.3
MRDxRIT						
Average	3.4	5.5	37.3	51.8	178.7	316.0
STD	0.5	0.6	5.3	7.7	38.5	35.1
MBDxGPT						
Average	3.6	5.5	29.3	42.6	158.1	277.1
STD	0.5	0.5	4.8	6.4	19.9	29.0
MYDxGPT						
Average	3.6	5.8	31.1	46.9	172.2	291.5
STD	0.6	0.4	3.9	7.2	22.0	30.8
CRDxGPT						
Average	3.6	5.3	30.4	44.2	166.3	270.4
STD	0.5	0.6	4.6	7.5	22.2	29.5
MRDxGPT						
Average	3.5	5.3	32.9	48.2	178.3	307.4
STD	0.6	0.5	4.4	13.8	21.7	34.4
BGDxGPT						
Average	3.6	5.6	32.1	46.8	173.5	292.8
STD	0.5	0.6	5.1	6.0	27.4	28.4

LEAF X-YM: Number of leaves emitted between Xth and Yth month
GIRTH XM: Girth (in cm) at X months
HEIGHT XM: Height (in cm) at X months

TRIAL VT- GC27

DWARVES x SAMOAN TALL HYBRIDS

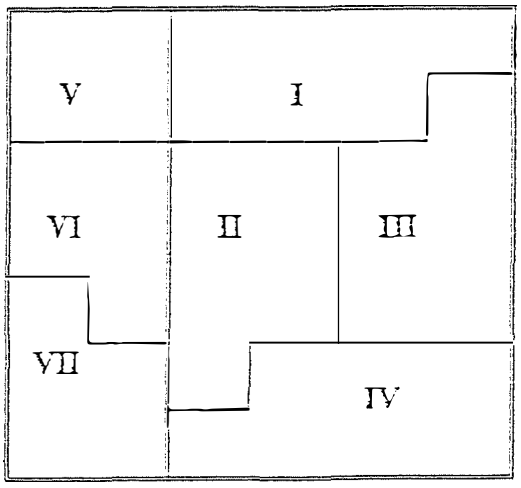
Pollen Variety : Samoan Tall (code : SMOT = GWS)
Origin of pollen : Western Samoa

Treatments :

1	VRDxVTT NRVxGVT	4	SYDxSMOT NJAxGWS	7	MRDxSMOT NRMxGWS
2	MRDxRIT NRMxGRL	5	CRDxSMOT NRCxGWS		
3	MYDxSMOT NJMxGWS	6	BGDxSMOT NVBxGWS		

Experimental design : 4 complete randomized blocks
3 uncomplete blocks
16 palms/plot

Field Lay-out :



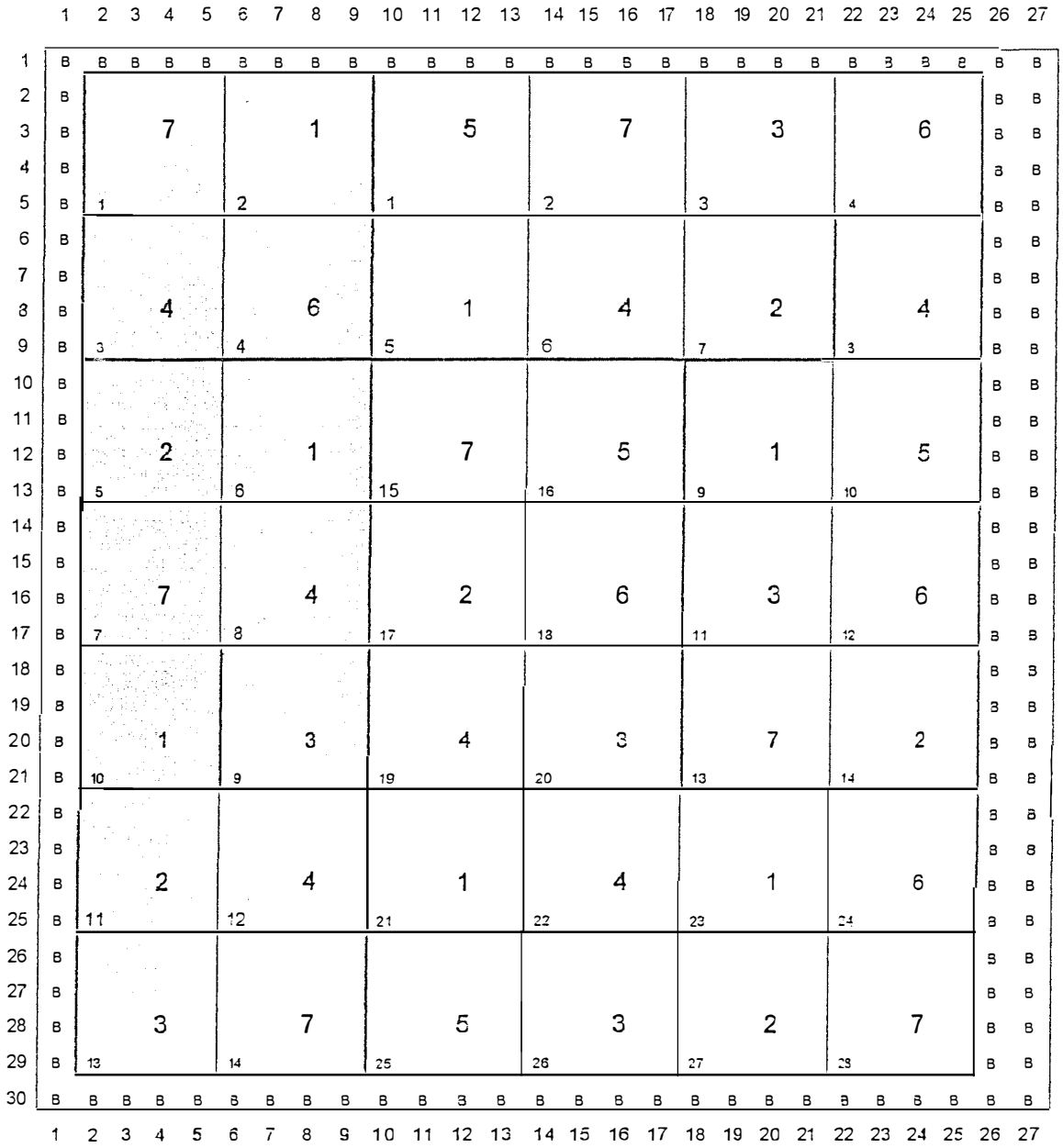
Number of palms and area: Experiment : 672 palms (4.2 ha)
Total : 810 palms (5.06 ha)

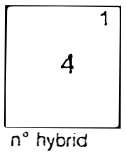
Date (s) of Planting : October 1996 (Block I to IV)
November 1996 (Block V to VII)

PDICC - VTGC27 FIELD 103

Pollen variety: Samoan Tall

Planting : October 1996 (Block I to IV)
November 1996 (Blocks V to VII)





LEGEND:

1=VRDxVTT (NRVxGVT)
2= MRDxRIT (NRMxGRL)
3=MYDxSMOT (NJMxGWS)
4=SYDxSMOT (NJAxGWS)
5=CRDxSMOT (NRCxGWS)
6= BGDxSMOT (NVBxGWS)
7=MRDxSMOT (NRMxGWS)
8= Border VRDxVTT (NRVxGVT)

Activities by 30-6-97

1) CREATION OF THE HYBRIDS

The hybids were created from May 94 to April 95 by hand pollination using dwarfs established in germplasm collection (Plot P31) as female and pollen imported from Westren Samoa. several Batches of pollen shown a poor rate of fertility (due to delays in transportation and quarantine formalities). Consequently the planting was delayed and it was not possible to set up a trial with 9 complete blocks as planned.

2) OBSERVATIONS IN NURSERY

The speed of germination and the growth measurements in the nursery has been recorded (See graphic and table attached).

3) PLANTING

The palms were installed in plt 103 in October 96 for blocks I to IV and November 96 for bocks V to VII. The trial is lined with guard rows (VRDx VTT hybrid).

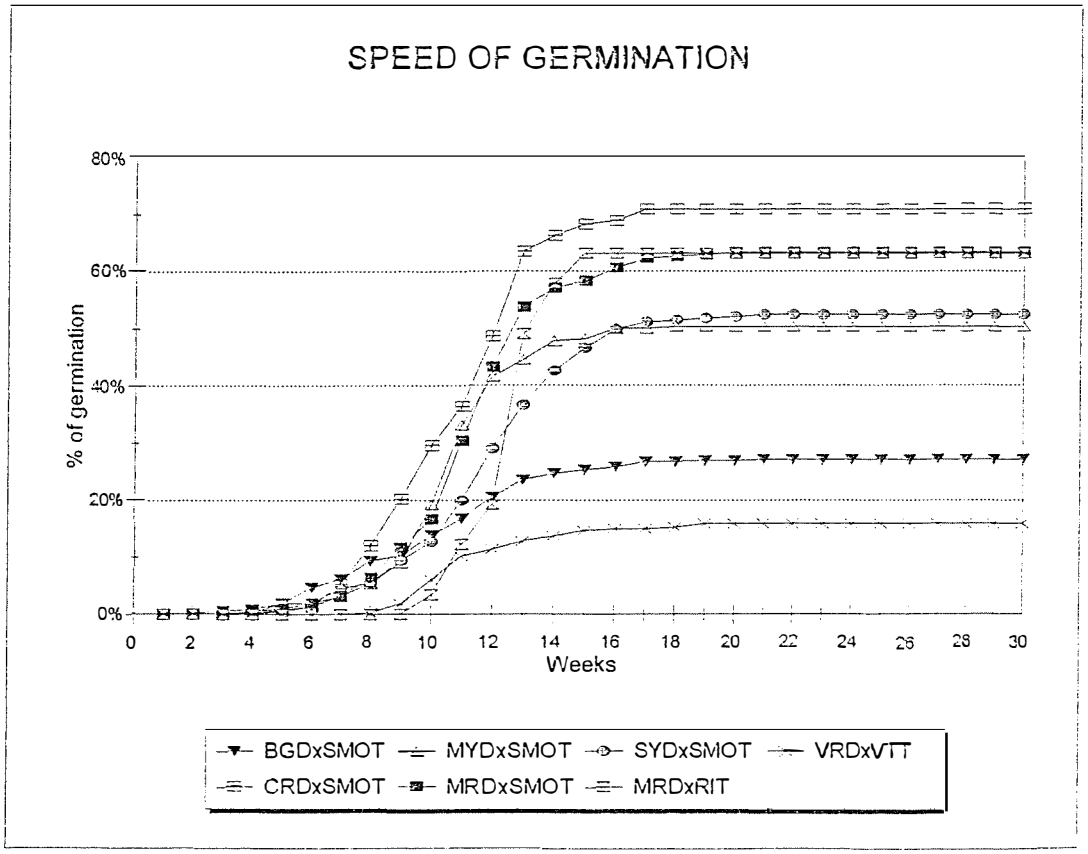
Pueraria javanica was established as cover crop in March 97. It suffered from attacks of slugs.

PDICC - Trial VT GC27

Pollen Variety : Samoan Tall

Comparison between Varieties - % of germination reached in weeks

% of germination	10%	30%	50%	70%
BGDxSMOT	9	*	*	*
MYDxSMOT	10	11	16	*
SYDxSMOT	10	13	17	*
VRDxVTT	11	*	*	*
CRDxSMOT	8	11	13	17
MRDxSMOT	9	11	13	*
MRDxRIT	11	13	14	*



PDICC - VT GC27

Pollen Variety : Samoan Tall

Measurements in nursery

	LEAF 3M	LEAF 6M	LEAF 8M	GIRTH 3M	GIRTH 6M	GIRTH 8M	HEIG 3M	HEIG 6M	HEIG 8M
VRDxVTT									
Average	2,6	5,9	7,4	9,1	18,0	24,9	53,5	98,8	121,2
STD	0,6	0,9	1,2	1,3	5,1	6,0	12,0	20,2	25,1
SYDxSMOT									
Average	3,1	6,4	8,5	10,7	25,8	32,0	72,0	140,1	169,8
STD	0,8	1,5	1,7	1,4	7,1	8,0	15,0	29,2	36,2
MYDxSMOT									
Average	3,6	6,7	8,8	12,3	27,9	33,8	82,1	144,9	172,2
STD	0,8	1,3	1,4	1,4	5,1	6,1	10,5	25,3	32,7
CRDxSMOT									
Average	3,5	7,6	9,7	11,4	31,3	37,5	70,5	152,8	185,5
STD	0,6	0,9	0,9	1,7	4,7	5,9	11,9	25,1	32,8
BGDxSMOT									
Average	3,0	6,6	8,6	11,1	26,4	33,2	77,7	139,9	169,7
STD	0,7	1,0	1,1	1,2	5,9	6,7	10,9	26,7	31,4
MRDxSMOT									
Average	2,9	6,3	8,2	11,2	25,5	32,8	85,5	149,7	182,5
STD	0,7	1,3	1,4	1,5	5,5	6,7	13,7	26,8	31,2

LEAF 3M, 6M, 8M : Number of leaves at 3, 6 and 8 months
GIRTH 3M, 6M, 8M : GIRTH (in cm) at 3, 6 and 8 months
HEIG 3M, 6M 8M : HEIGHT (in cm) at 3, 6 and 8 months

COLLECTION OF DWARF ECOTYPES

COLLECTION OF DWARF ECOTYPES - EC7

palm-: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

1 B B B B B B B B B B B B B B B B B B B B B B B B B B B B B

2–4	NBN (MBD)	NRC (CRD)
5–7	NVB (BGD)	NVP5 (PIL)
8–10	NVP3 (TAC)	NNL (NLA)
11–13	NJA (SYD)	NRV (VRD)
14–16	NJM (MYD)	NVP7 (ARO)
17–19	NVP2 (CAT)	NVT (THD)
20–22	NRM (MRD)	NJA (SYD)
23–25	NVP5 (PIL)	NBN (MBD)
26–28	NRC (CRD)	NJM (MYD)
29–31	NRV (VRD)	NVB (BGD)
32–34	NVP7 (ARO)	NVP3 (TAC)
35–37	NVT (THD) Not planted	NRM (MRD)
38–40	NNL (NLA)	NVP2 (CAT)

VARTC-1997

Date of planting: [ ] 28/3/94 [ ] 22/3/95 [ ] 20/11/95

1= NBN-Nain Brun Nouvelle Guinee (MBD-Madang Brown Dwarf)
2= NRC-Nain Rouge Cameroun (CRD-Cameroon Red Dwarf)
3= NVB-Nain Vert Bresil (BGD-Brazilian Green Dwarf)
4= NVP5-Nain Vert Pilipog (PILD-Pilipog Green DWarf))
5= NVP3-Nain Vert Tacunan (TACD-Tacunan Green Dwarf)
6= NNL-Nain Niu Leka (NLAD-Niu Leka Green Dwarf)
7= NJA-Nain Jaune Apia (SYD-Samoa Yellow Dwarf)
8= NRV-Nain Rouge Vanuatu (VRD-Vanuatu Red Dwarf)
9= NJM-Nain Jaune Malaisie (MYD-Malayan Yellow Dwarf)
10= NVP7-Nain Vert Aromatique (ARCD-Aromatic Green Dwarf)
11= NVP2-Nain Vert Catigan (CATD-Catigan Green Dwarf)
12= NVT-Nain Vert Thailande (THD- Thailand Green Dwarf)
13= NRM-Nain Rouge Malaisie (MRD - Malayan Red Dwarf)
B= Borders (VRD free pollination)

COLLECTION OF DWARF ECOTYPES - EC7

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	X	4	4	X	X	X	4	4	4	X	X	X	4	X
6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	X	X	X	X	4	4	4	4	X	4	X
7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	X	4	4	4	4	4	4
8	X	X	5	5	5	5	5	5	5	5	5	5	X	5	X	6	6	6	6	6	6	6	6	6	6	6	6	6	6
9	X	5	5	5	5	5	5	5	5	5	5	5	X	5	X	6	6	6	6	6	6	6	6	6	6	6	6	6	6
10	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
11	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
12	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
13	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
14	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10
15	9	9	9	9	R	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10
16	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10
17	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12
18	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12	11	11	11	12	12	12	12	12
19	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12
20	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	7	7	7	7	7	7	7	7	7	7	7	7	7	7
21	13	R	13	13	13	13	13	13	13	13	13	13	13	13	13	7	7	7	7	7	7	7	7	7	7	7	7	7	7
22	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	7	7	7	7	7	7	A	7	7	7	7	7	7	7
23	4	4	4	4	4	4	4	4	4	4	4	4	4	X	X	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	4	M	4	4	4	4	X	4	X	X	4	X	X	X	X	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25	4	4	4	4	4	4	4	X	X	4	4	4	X	4	X	1	1	1	1	1	1	1	1	1	1	1	1	1	1
26	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	9	9	9	9	9	9	9	9	9	9	9	9	9	9
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31	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	3	3	3	3	3	3	3	3	3	3	3	3	3	3
32	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	5	5	5	5	5	5	5	5	5	5	5	5	5	5
33	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	5	5	5	5	5	5	5	5	5	5	5	5	5	5
34	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	5	5	5	5	5	5	5	5	5	5	5	5	5	5
35	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13
36	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13
37																13	13	D	13	13	13	13	13	13	13	13	13	13	13
38	6	6	6	R	6	R	6	R	6	6	6	6	6	6	6	11	11	11	11	11	11	11	11	11	11	11	11	11	11
39	6	6	6	6	6	6	R	6	6	6	6	6	6	6	6	11	11	11	11	11	11	11	11	11	11	11	11	11	11
40	R	6	6	6	6	6	6	6	6	6	6	6	6	6	R	11	11	11	11	11	11	11	11	11	11	11	11	11	11

VARTC 37

1= NBN- N ain Brun Nelle Guinée(MBD-Madang Brown Dwarf)
2= NRC-Nain Rouge Cameroun (CRD-Cameroon Red Dwarf)
3= NVB-Nain Vert Brésil (BGD-Brazilian Green Dwarf)
5= NVP3-Nain Vert Tacunan (TACD-Tacunan Green Dwarf)
6= NNL-Nain Niu Leka (NLAD-Niu Leka Green Dwarf)
8= NRV-Nain Rouge Vanuatu (VRD-Vanuatu Red Dwarf)
9= NJM-Nain Jaune Malaisie (MYD-Malayan Yellow Dwarf)
10= NVP7-Nain Vert Aromatique (AROD-Aromatic Green Dwarf)
11= NVP2-Nain Vert Catigan (CATD-Catigan Green Dwarf)
12= NVT-Nain Vert Thaiilande (THD- Thailand Green Dwarf)
13= NRM-Nain Rouge Malaisie (MRD - Malayan Red Dwarf)

X = Illegitimate D = Dead R = Replacement

Activities from 1-7-96 to 30-6-97

1) MAINTENANCE

Weeding:

- circle weeding (radius of the circle 2 m) every two months : manual and chemical (glyphosate)
- outside the circle the cover crop (Pueraria javanica- established by cuttings) is inequally established

Fertilizers:

Palms planted on March 94
- Date: 25/10/96
- Rate: 180g g urea/palm + 300 g magnesium sulfate (16% MgO)/palm + 400g KCl/palm

Palms planted on March 95
- Date: 26/10/95
- Rate: 100 g urea/palm + 200g magnesium sulfate (16% MgO)/palm + 200g KCl/palm + 20g Borax/palm

Pests

- mainly, attacks of Aspidiotus destructor (no treatment)

Illegitimate and dead palms

- After the flowering, lot of illegitimate palms were identified within the varieties Pilipog Green Dwarf (29 palms/90) and Tacunan Green Dwarf (7 palms/45). See field map.
The genuine Pilipog were identified by the pink color of the female flowers and the Tacunan by the short length of the spikelets compared to the length of the spathe.

- Two palms died during the campaign: 51-24-2 and 51-37-18

2) DATA GATHERING

a) Determination of precocity by recording the palms with flowers every two months from 12th month to 36th month after planting (see graphics attached). At this date, nearly all the palms of each variety have got flowers except for Nui Leka Dwarf.

b) The record of production (number of bunches and nuts) started in February 97 i.e. 3 years after planting.

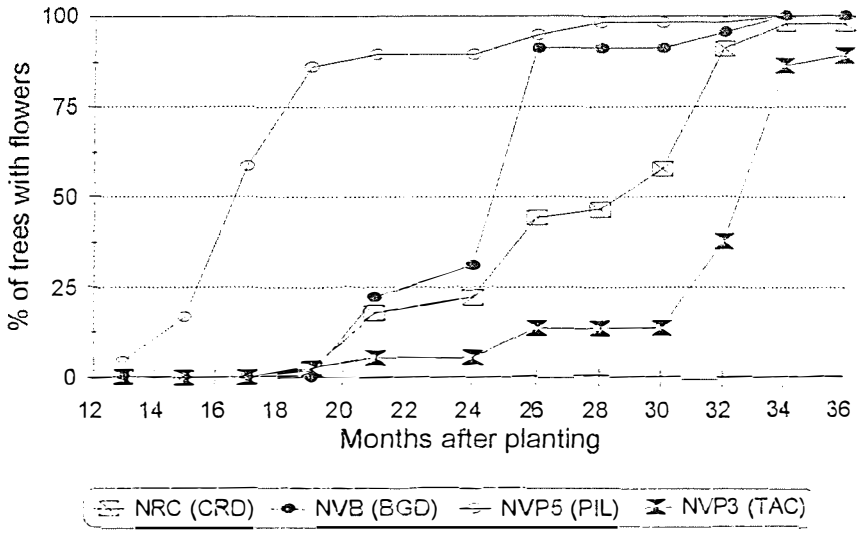
Estimation of precocity

Percentage of trees with flowers

Size of the sample: 45 trees /variety except for NVP5 (90 trees)

Months after planting	NRC (CRD)	NVB (BGD)	NVP5 (PIL)	NVP3 (TAC)
13	0,0	0,0	4,4	0,0
15	0,0	0,0	16,7	0,0
17	0,0	0,0	58,6	0,0
19	2,2	0,0	86,2	2,7
21	17,8	22,2	89,6	5,4
24	22,2	31,1	89,6	5,4
26	44,4	91,1	94,8	13,5
28	46,7	91,1	98,2	13,5
30	57,8	91,1	98,2	13,5
32	91,1	95,6	98,2	37,8
34	97,8	100,0	100,0	86,4
36	97,8	100,0	100,0	89,1

Collection of Dwarf varieties



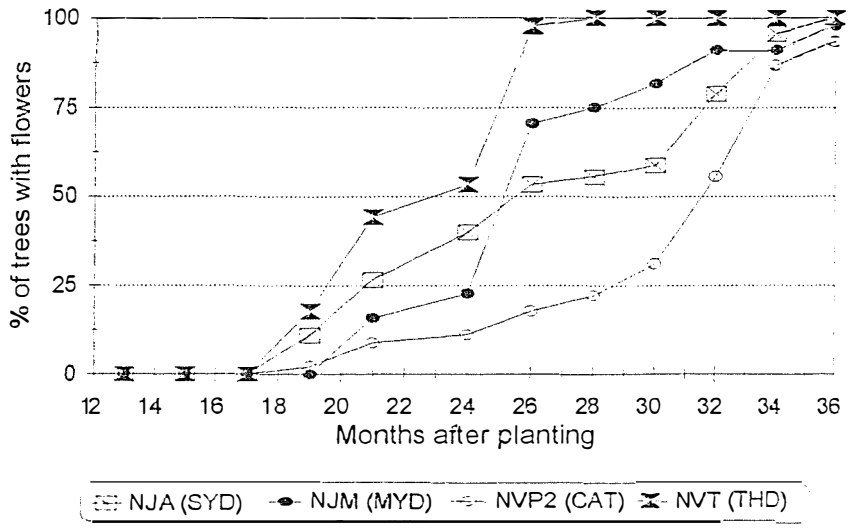
Estimation of precocity

Percentage of trees with flowers

Size of the sample: 45 trees /variety except for NJA(90 trees)

Months after planting	NJA (SYD)	NJM (MYD)	NVP2 (CAT)	NVT (THD)
13	0,0	0,0	0,0	0,0
15	0,0	0,0	0,0	0,0
17	0,0	0,0	0,0	0,0
19	11,1	0,0	2,2	17,8
21	26,7	15,9	8,9	44,4
24	40,0	22,7	11,1	53,3
26	53,3	70,5	17,8	97,7
28	55,6	75,0	22,2	100,0
30	58,9	81,8	31,1	100,0
32	78,9	90,9	55,6	100.0
34	95,6	90,9	86,7	100.0
36	100,0	97,7	93,3	100.0

Collection of Dwarf varieties

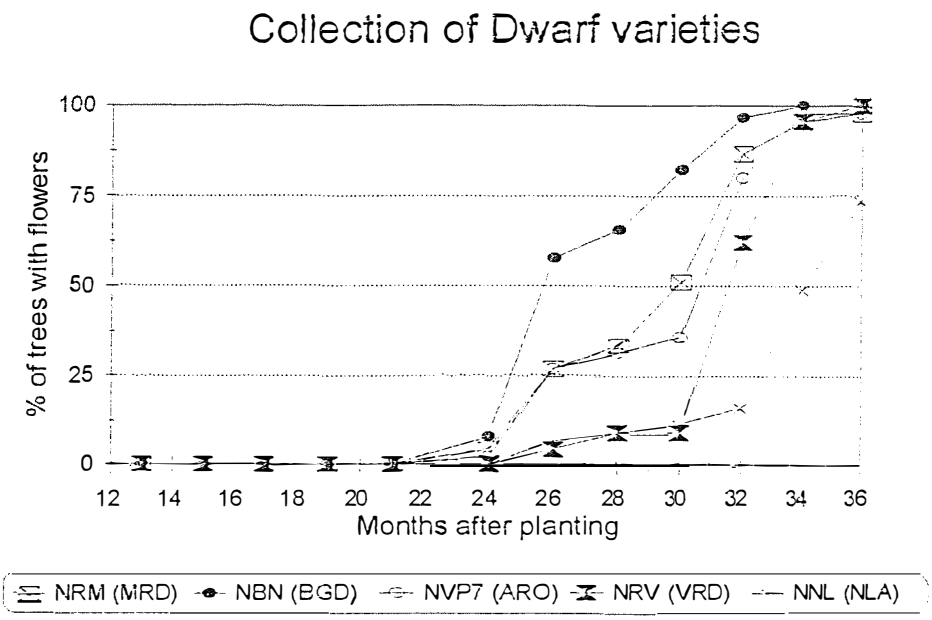


Estimation of precocity

Percentage of trees with flowers

Size of the sample: 45 trees /variety except for NBN (90 trees)

Months after planting	NRM (MRD)	NBN (BGD)	NVP7 (ARO)	NRV (VRD)	NNL (NLA)
13	0,0	0,0	0,0	0,0	0,0
15	0,0	0,0	0,0	0,0	0,0
17	0,0	0,0	0,0	0,0	0,0
19	0,0	0,0	0,0	0,0	0,0
21	0,0	0,0	0,0	0,0	0,0
24	4,4	7,8	2,2	0,0	0,0
26	26,7	57,8	26,7	4,4	6,7
28	33,3	65,6	31,1	8,9	8,9
30	51,1	82,2	35,6	8,9	11,1
32	86,7	96,7	80,0	62,2	15,6
34	95,6	100,0	97,8	95,6	48,9
36	97,7	100,0	97,8	100,0	73,3



GENERAL LIST OF VARTC GERMPLASM

COLLECTION OF COCONUT CULTIVARS

I - TALL CULTIVARS

Access. Number	Cultivar Name	Accepted Abbrev.	French Name	Collection Site	Country of collection	Donor Name	Acquisition date	Maintenance			
								N° field	Date of planting	Progeny (1)	Accession size
GBB	Baybay tall	BAYT	Grand Baybay		Philippines	PCA-Zamboanga	1982	P40	1983	G0	97
GGZ	Gazelle Peninsula Tal	GPT	Grand Gazelle		PNG	Bubia-Res.Centre	1984	P30	1985	G0	100
GKK	Karkar Tall	KKT	Grand Karkar		PNG	Bubia Res. Centre	1984	P30	1985	G0	89
GML	Malayan Tall	MLT	Grand Malaisie		Malaysia	Yandina-Solomon	1966	P40	1984	G1	97
GNC	New Caledonia Tall	NCT	Grand Nelle Calédonie	Ouvéa Island	New Caledonia	DDER	1986	P20	1987	G0	133
GOA6	West African Tall	WAT	Grand Ouest Africain	Ouidah	Bénin	IRHO- SMD	1965	P40	1985	G1	78
GPY2	Rangiroa Tall	RGT	Grand Polynésie		French Polynesia	IRHO-Rangirao	1966	P00	1967	G0	8
GPY2	Rangiroa Tall	RGT	Grand Polynésie		French Polynesia	IRHO-Rangiroa	1966	P51	1997	G1	23
GRL1	Rennell Island Tall	RIT	Grand Rennell	Rennell Island	Solomon Islands	Dep.Agric.-Solomon	1963	P00	1970	G1	53
GRL1	Rennell Island Tall	RIT	Grand Rennell	Rennell Island	Solomon Islands	Dep.Agric.-Solomon	1963	P30	1985	G2	101
GRT	Rotuman Tall	RTMT	Grand Rotuma	Rotuma Island	Fiji	Dep.Agri.Suva-Fiji	1968	P30	1985	G1	102
GSN1	Solomon Island Tall	SIT	Grand Salomon	Reef Island	Solomon Islands	IRHO-JF. JULIA	1985	P00	1987	G0	14
GSN2	Solomon Island Tall	SIT	Grand Salomon	Nendo Island	Solomon Islands	IRHO-JF. JULIA	1985	P00	1987	G0	16
GTG	Tonga Tall	TONT	Grand Tonga		Tonga	Coc.Replant.Scheme	1968	P40	1985	G1	95
GTN1	Tagnanan Tall	TAGT	Grand Tagnanan		Philippines	PCA-Zamboanga	1982	P40	1983	G0	97
GTN2	Tagnanan Tall	TAGT	Grand Tagnanan	Tagnanan	Philippines	Tagnanan Estate Inc.	1982	P40	1983	G0	98
GVT1	Vanuatu Tall	VTT	Grand Vanuatu	Surunda - Santo	Vanuatu		1966	P00	1967	G0	177
GVT2	Vanuatu Tall	VTT	Grand Vanuatu	Leroux - Santo	Vanuatu		1966	P00	1967	G0	683
GVT5	Vanuatu Tall	VTT	Grand Vanuatu	Bulldoz - Santo	Vanuatu		1983	P40	1984	G0	100
GVT6	Vanuatu Tall	VTT	Grand Vanuatu	Port-Olry - Santo	Vanuatu		1983	P40	1984	G0	94
GVT7	Vanuatu Tall	VTT	Grand Vanuatu	Tanna Island	Vanuatu		1984	P40	1985	G0	97
GVT8	Vanuatu Tall	VTT	Grand Vanuatu	Torres Islands	Vanuatu		1985	P20	1986	G0	88
GVT9	Vanuatu Tall	VTT	Grand Vanuatu	Tanna Island	Vanuatu		1986	P20	1987	G0	139
GVT10	Vanuatu Tall	VTT	Grand Vanuatu	Banks Islands	Vanuatu		1985	P20	1986	G0	58

(1) G0= Pop. introduced in Saraoutou; G1= First generation; G2=Second generation

VARTC October 97

COLLECTION OF COCONUT CULTIVARS

II - DWARF CULTIVARS

Access Number	Cultivar Name	Accepted Abbrev.	French Name	Collection Site	Country of collection	Donor Name	Acquisition date	Maintenance			
								N° field	Date of planting	Progeny (1)	Accession size
NBN	Madang Brown Dwarf	MBD	Nain Brun Nelle Guinée		PNG	IRHO-SMD	1982	P31	1983	G0	60
								P51	1994	G1	87
NJA	Samoan Yellow Dwarf	SYD	Nain Jaune Samoa		Western Samoa	Dep.Agric. Apia	1967	P31	1984	G1	106
								P51	1994	G2	87
NJM	Malaysian Yellow Dwarf	MYD	Nain Jaune Malaisie		Malaysia	IRHO-SMD	1973	P31	1985	G1	55
								P51	1994/95	G2	87
NNL	Niu Leka Dwarf	NLAD	Nain Niu Leka		Fiji		1963	P31	1984	G1	16
								P51	1994/95	G2	87
NVP3	Tacunan Green Dwarf	TACD	Nain Vert Tacunan		Philippines	Davoa Research Centre	1982	P31	1983	G0	46
								P51	1994/95	G1	80
NRC	Cameroon Red Dwarf	CRD	Nain Rouge Cameroun	Kribi	Cameroon	IRHO-SMD	1982	P31	1984	G0	65
								P51	1994/95	G1	87
NRM	Malayan Red Dwarf	MRD	Nain Rouge Malais		Fiji		1966	P31	1983	G1	132
								P51	1994/95	G2	86
NRV	Vanuatu Red Dwarf	VRD	Nain Rouge Vanuatu	Malo Island	Vanuatu		1973	P31	1985	G1	81
								P51	1994/95	G2	87
NVB	Brasilian Green Dwarf	BGD	Nain Vert Brésil		Brazil	IRHO-SMD	1974	P31	1984	G1	74
								P51	1994/95	G2	87
NVK	Kiribati Green Dwarf	KID	Nain Vert Kiribati	Butaritari Island	Kiribati	Min. Agric. Kiribati	1990	P50	1991	G0	31
								P51	1997	G1	87
NVP2	Catigan Green Dwarf	CATD	Nain Vert Catigan		Philippines	PCA - Zamboaga	1982	P31	1983	G0	44
								P51	1994/95	G1	87
NVP5	Pilipog Green Dwarf	PILD	Nain Vert Pilipog		Philippines	Davao Research Centre	1982	P31	1983	G0	58
								P51	1994	G1	58
NVP7	Aromatic Green Dwarf	AROD	Nain Vert Aromatique		Thailand	Sawi Agric. Exper. Stat.	1982	P31	1983	G0	28
								P51	1994/95	G1	87
NVT	Thailand Green Dwarf	THD	Nain Vert Thailande		Thailand	Sawi Agric. Exper. Stat.	1982	P31	1983	G0	43
								P51	1994/95	G1	75

(1) G0= Pop. introduced in Saraoutou; G1= First generation; G2=Second generation

VARTC October 1997

Activities from 1-7-96 to 30-6-97

1) MAINTENANCE

Weeding:

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- Date: 25/10/96
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- Date: 26/10/95
- Rate: 100 g urea/palm + 200g magnesium sulfate (16% MgO)/palm + 200g KCl/palm + 20g Borax/palm

Pests

- mainly, attacks of Aspidiotus destructor (no treatment)

Illegitimate and dead palms

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The genuine Pilipog were identified by the pink color of the female flowers and the Tacunan by the short length of the spikelets compared to the length of the spathe.

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2) DATA GATHERING

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