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# Evaluation of Sweet Potato Varieties in Eight Pacific Island Countries and the Philippines: Results and Recommendations as of April 1993



**NARI Technical Bulletin Series**  
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November 2002

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## THE INSTITUTE

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- . enhance the productivity, efficiency and sustainability of the smallholder agriculture, and
- . improve farmer income, food security and the welfare of Papua New Guineans and the Nation.

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# **Evaluation of Sweet Potato Varieties in Eight Pacific Island Countries and the Philippines: Results and Recommendations as of April 1993**

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## Preface

The information and recommendations given in this report are those which were considered appropriate at the time of its preparation. The recommendations have been updated in subsequent reports of which the following are relevant to Papua New Guinea:

Guaf, E., Demerua, J., Van Wijmeersch, P., Kalamen, M. and Tep, C. 2001. Description of Selected Sweet Potato Varieties for Lowland Conditions: Selection as of December 1998. *NARI Technical Bulletin No. 2*, National Agricultural Research Institute, Papua New Guinea.

National Agricultural Research Institute. 2001. Descriptive List of Selected Sweet Potato Varieties for Lowland Conditions. *NARI Extension Series Booklet No. 2*.

Van Wijmeersch, P. 2001. The Status of Sweet Potato Variety Evaluation in PNG and Recommendations for Further Research. In: Bourke, R.M., Allen, M.G. and Salisbury, J.G. ed. 2001. Food Security for Papua New Guinea. Proceedings of the Papua New Guinea Food and Nutrition 2000 Conference, PNG University of Technology, Lae, 26-30 June 2000. *ACIAR Proceedings No. 99*: 674-682.

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Secretariat of the Pacific Community,  
Private Mail Bag, Suva, Fiji,  
RGCcurator@spc.int

## **Lists of Abbreviations**

ACIAR	Australian Centre for International Agricultural Research
ACP	Africa - Caribbean - Pacific
AusAID	Australian Agency for International Development
AVRDC	Asian Vegetable Research and Development Centre
CIP	International Potato Centre
EU	European Union
IHD	Institute for Horticultural Development
IITA	International Institute of Tropical Agriculture
IPS	Institute of Plant Science
IRETA	Institute for Research and Extension in Tropical Agriculture
LAES	Lowlands Agricultural Experiment Station
NARI	National Agricultural Research Institute
PNG	Papua New Guinea
PRAP	Pacific Regional Agricultural Programme
PRI	Plant Research Institute
RAB	Regional Advisory Board
SAPPRAD	Southeast Asian Programme for Potato Research and Development (now ASPRAD - Asian Sweet Potato Research and Development)
SPC	Secretariat of the Pacific Community (formerly South Pacific Commission)
USDA	United States Department of Agriculture

# EVALUATION OF SWEET POTATO VARIETIES IN EIGHT PACIFIC ISLAND COUNTRIES AND THE PHILIPPINES: RESULTS AND RECOMMENDATIONS AS OF APRIL 1993

## 1. Introduction

### 1.1 Background to PRAP Project 4

Root crops are the staple foods in most of the Pacific ACP countries (Africa - Caribbean - Pacific). Amongst these root crops, sweet potato is a major staple crop in large parts of Papua New Guinea (PNG) and Solomon Islands. It is an important food crop in Tonga and Vanuatu, and its importance is increasing in most other Polynesian countries.

The ACP Pacific Group Council of Ministers (Fiji, Kiribati, PNG, Solomon Islands, Tonga, Tuvalu, Vanuatu and Western Samoa) in their meeting in Apia, Western Samoa, in June 1987, endorsed the concept of a European Union (EU) funded Pacific Regional Agricultural Project (PRAP) and delegated the project selection to the Regional Advisory Board (RAB). In a subsequent RAB meeting the choice was made for a project to concentrate on the selection, trial and dissemination of sweet potato varieties in the Pacific region (PRAP Project 4).

It was decided to base this project in PNG as it is the main centre of sweet potato genetic variability in the region (with about 2000 accessions in collection). Thus Project Four of PRAP, financed under the Lome III convention, started in June 1990 and continued for a duration of five years. The objective of the project was to obtain information about the performance of different varieties of sweet potato, in order to recommend to participating Pacific ACP countries which variety (or varieties) to give priority for introduction.

### 1.2 Pathogen Testing and Tissue Culture

Due to quarantine regulations, no sweet potato variety can be introduced into PNG or any other Pacific country without being cleaned of viruses and Mycoplasma-like organisms. This is accomplished through pathogen testing and transport in tissue culture.

Varieties from both the Pacific region and elsewhere in the world can be obtained in tissue culture. The first cultivars which became available in tissue culture were selected clones from the International Institute for Tropical Agriculture (IITA) in Nigeria. This explains why many non-Pacific cultivars have already been field tested in the region. Most of the IITA varieties are not suitable for the Pacific Region, because of their high susceptibility to scab disease (*Elsinoe batatas*) and low yields under wet weather conditions. Nevertheless, they proved useful in getting countries used to the system of introduction and evaluation of varieties.

The project 'Pathogen-tested germplasm for the South Pacific', which ended in December 1991, was funded by the Australian Centre for International Agricultural Research (ACIAR) and implemented by the Plant Research Institute (PRI) (later Institute of Plant Sciences (IPS), and now the Institute for Horticultural Development (IHD)). Under the project, PRI tested sweet potato cultivars for pathogen presence and they are now available in tissue culture; 51 cultivars from PNG, 10 from the Solomon Islands, 21 from Tonga, and 13 from Western Samoa. As the Southeast Asian Programme for Potato Research and Development (SAPPRAD) (now ASPRAD - Asian Sweet Potato and Potato Research and Development) was participating in the project, varieties from the Philippines, Vietnam, Myanmar, India, South Korea, Indonesia, Bangladesh, and Sri Lanka, were also virus indexed at PRI.

In addition, several varieties from the Pacific region were pathogen tested at the Asian Vegetable Research and Development Centre (AVRDC) and made available in tissue culture to the region through the South Pacific Commission (SPC) (now Secretariat of the Pacific Community), and recently through

the Institute for Research and Extension in Tropical Agriculture (IRETA). Varieties from other countries such as Australia, Puerto Rico and Taiwan are also available in tissue culture.

Several of the varieties available in tissue culture have already been field tested in various countries in the Pacific Region. This paper gives the results of the evaluation of local and introduced varieties in Fiji, Kiribati, Philippines, PNG, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu, as of April 1993.

For the Pacific region, varieties can be obtained freely from the PRAP/IRETA tissue culture project in Western Samoa and the SPC tissue culture laboratory in Suva, Fiji at the following addresses:

PRAP Tissue Culture Project  
IRETA  
Alafua Campus  
Private Mail Bag  
Apia  
Western Samoa

Agriculture Co-ordinator  
South Pacific Commission  
Private Mail Bag  
Suva, Fiji

This paper provides information on the varieties available from IRETA and SPC (Table 1), as these varieties can be obtained in the region on request. However, comments are also given about some varieties which are not available from IRETA and SPC but could be obtained through the International Potato Centre (CIP)<sup>1</sup>. Previously, sweet potato research was internationally mandated to AVRDC in Taiwan. In recent years it has been mandated to CIP and varieties which were pathogen tested by AVRDC, including varieties from the Pacific region, were sent to CIP for maintenance and distribution.

Credit for the distribution of varieties in tissue culture in the region in previous years should be given to the Glasshouse Crops Research Institute in England, the University of Wageningen, the Netherlands, SPC and AVRDC. The varieties available from IPS, IRETA, SPC, the United States Department of Agriculture and (previously) AVRDC are given in a separate report (Van Wijmeersch et al. 1992).

□

<sup>1</sup> Address of CIP: International Potato Centre (CIP), P.O. Box 5969, Lima, Peru.

### 1.3 Methods of Evaluation

The recommendations for international dissemination made in this article are based on tuber yield, resistance to scab and plant vigour, tuber shape, cracking of the tubers, damage by rats and rots, and consumer acceptability. For countries where scab does not exist, scab susceptible varieties might perform well, but the risk that scab may be introduced is always there.

Each variety is rated according to these characteristics using the following scales:

#### Scab disease

- 0: no lesions
- 1: resistant; 10 lesions or less per vine
- 2: moderately susceptible; scattered lesions, 10-20 lesions per vine
- 3: susceptible; more than 20 lesions per vine, slight leaf distortion
- 4: very susceptible; numerous lesions on both leaf and vine with severe leaf distortion

#### Plant vigour

- 1: very weak
- 2: weak
- 3: average
- 4: vigorous
- 5: very vigorous

#### Rots

- 0: none
- 1: low
- 2: medium
- 3: high
- 4: very high

#### Tuber shapes

- 1: regular shape
- 2: most tubers of regular shape
- 3: most tubers of irregular shape
- 4: irregular

#### Rat damage

- 0: none
- 1: low
- 2: medium
- 3: high
- 4: very high

#### Ease of harvest

- 1: very difficult
- 2: difficult
- 3: medium
- 4: easy
- 5: very easy

#### Cracking of tubers

- 0: none
- 1: low
- 2: medium
- 3: high
- 4: very high

#### Consumer acceptability

- 1: very poor
- 2: poor
- 3: average
- 4: good
- 5: very good

On the basis of this evaluation, each variety has been classified using the following categories: first class recommendation, second class recommendation or third class recommendation, insufficient information or not recommended. This system should help countries to make a choice of varieties to introduce. If only a limited number can be introduced, the first class recommended varieties should get priority. If more varieties can be handled, the second and third class recommended ones should be considered for introduction.

Trials in Fiji (Koronivia and Sigatoka), Kiribati (Bikenibeu), Philippines (6 locations), Solomon Islands (Honiara), Tonga (Nuku'alofa), Tuvalu, Vanuatu (Tagabe and Santo) and Western Samoa (Apia) were conducted by Research Officers of the Department of Agriculture. The PRAP Sweet Potato Project advised which variety (or varieties) to introduce and collected and summarised the results. This was to assist those countries where staff and funds available for evaluation work were limited. In PNG the

project did the evaluations at NARI Wet Lowlands Islands Programme, Lowlands Agricultural Experimental Station (LAES), Keravat, East New Britain (wet lowlands) and worked in co-operation with national staff at Laloki Research Station for the evaluation of varieties under dry lowland conditions. The preliminary results of the PNG evaluation are given in a separate report (Guaf and Van Wijmeersch 1992). Details of results of other trials in the countries mentioned can be obtained from the institutions listed below. While the individuals in these positions have changed, their names have been included to acknowledge their contributions.

### List of country contacts<sup>2</sup>

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□

<sup>2</sup> These contact persons may no longer be holding these positions as the PRAP Project has finished.

The project is aware that recommendations are considerably influenced by results obtained under wet tropical lowland conditions in countries where scab disease can be a constraint. Scab is spread by rain splashes and is more prevalent under wet conditions. In PNG, Laloki Research Station is situated in the dry lowlands, whereas LAES is situated in the wet lowlands. As a result, scab disease scores are usually higher at LAES. By contrast, sweet potato weevil (*Cylas formicarius*) damage can be very high at Laloki where the climate is much drier. If harvests are postponed, yields are often substantially reduced due to weevil damage and in some cases no marketable yield is obtained. At LAES there is a dry season, but it is not very pronounced. Because of this, weevil damage is usually very low at LAES. Similarly in Fiji, scab disease pressure is often very high at Koronivia Research Station near Suva due to high and often constant rainfall, in contrast with Sigatoka where weather conditions are much drier. Rainfall on Santo in Vanuatu is higher than at Tagabe Station which is situated on the more southern island of Efate. It is likely, however, that a variety which performs well under wet conditions will perform even better under drier conditions, except under drought conditions.

Unfortunately 14 of the PNG lowland varieties were lost from the PNG collection because of severe weather conditions. Due to the termination of the ACIAR/IPS project and some problems in the tissue culture laboratory at Laloki, the re-introduction of those varieties and the introduction of varieties from other countries were delayed. Most of these cultivars were not introduced until the second half of 1992. For some cultivars, information was obtained from their introduction into other Pacific countries. For others, only very little information is available.

## 2. Summary of Recommendations

The comments and recommendations given here are based on the information available to the project in April 1993. It is an up-dating of short papers written by Van Wijmeersch and Guaf in 1992 (Van Wijmeersch and Guaf 1992a, 1992b). All the PNG varieties are commented on in the report, but this is not the case for all other countries from which varieties are available. Recommendations will be updated when more information becomes available.

### 2.1 First Class Recommendation

PNG lowland varieties: L 9, L 16, L 43, L 46, L 135, L 329.  
IITA varieties: TIS 2498 and TIS 3017.

### 2.2 Second Class Recommendation

PNG lowland varieties: L 19, L 49, L 188.  
PNG highland varieties: Markham (No. 415).  
Solomon Islands varieties: SI 78 (Other varieties available in tissue culture and recommended in Solomon Islands: SI 41, SI 43, SI 80, SI 108, SI 254, SI 268, SI 271, SI 275, and SI 290).  
Tongan varieties: 85016-100 (Other Tongan breeding lines: awaiting release in Tonga under a local name).  
IITA varieties: TIB 2.  
Philippines varieties: VSP 1 (Other varieties in tissue culture and recommended in the Philippines: VSP 2, VSP 3, VSP 4, VSP 5, UPL-SP1, UPL-SP2, BPI-SP3).

### 2.3 Third Class Recommendation

PNG lowland varieties: L 11, L 22, L 44, L 131, L 318.  
Tongan varieties: Hawaii and Halasika.  
Philippines varieties: BNAS 1.  
Puerto Rico varieties: Margarita.

## 2.4 Insufficient Information

PNG lowland varieties:	L 3, L 6 (promising), L 8, L 13 (promising?), L 18, L 50, L 116, L 183, L 186, L 259 (promising), L 292, L 295, L 296, L 297, L 300, L 303, L 312, L 326, L 330.
PNG highland varieties:	Kekori (No. 730, promising), Wanmun Large (promising), Boianai No. 3, Surenta (No. 545), Talaukwe, Mbakoka, Keango, Unduandopa.
IITA varieties:	TIB 4, TIB 5, TIS 1145, TIS 3270, TIS 5093, TIS 5125, TIS 7045.
AVRDC varieties:	L 389 (CN-1028-15), CN-1232-9, CN-1489-89, CN-1525-11.
Puerto Rico varieties:	Papota.
Australian varieties:	Beerwah Gold.

## 2.5 Not Recommended

PNG lowland varieties:	L 30, L 185, L 258, L 262.
PNG highland varieties:	Wanmun Kabiufa (No. 281), Gonime (No. 616), Habare (No. 443), Ma'alua (No. 323), Munduena (No. 735), Naveto (No. 265), Ng 7570 (Iita Variety Tis 2534), Tawa 1, Wasamia (No 820), Akaio (No. 175), Merikan (No. 507), Po (No. 509), Amasanto (No. 738), Esdiei (No. 717).
Tongan local varieties:	all, except for Hawaii and Halasika, because of their very high susceptibility to scab (they are not recommended in Tonga).
Western Samoa varieties:	all, because of their very high susceptibility to scab (there is no scab in Western Samoa). Despite its susceptibility, yields of IB 02 obtained at LAES were reasonable.
IITA varieties:	all, except for TIS 2498, TIS 3017, TIB 2, and those varieties with insufficient information, because of their susceptibility to scab and low yields under wet weather conditions.
AVRDC varieties:	L 383 (CN-1038-16), L 387 (AIS-0122-2), L 390 (CN-1108-13), I 57, and I 981.

**Table 1. SPC and IRETA tissue culture holdings**

Local Name or Accession Number	Other Accession Numbers	Country of Origin	IRETA Holdings	SPC Holdings
Beerwah Gold		Australia	*	
LO323	I 367 (AVRDC)	Australia	*	
Red Abundance	Q28019 (USDA)	Australia	*	
AIS 0122-2	L387 (PNG No.)	AVRDC	*	
CN 1028-15	L389 (PNG No.)	AVRDC	*	
CN 1038-16	L383 (PNG No.)	AVRDC	*	
CN 1108-13	L390 (PNG No.)	AVRDC	*	
CN 1232-9	IB061 (IRETA No.)	AVRDC	*	
CN 1489-43	IB051 (IRETA No.)	AVRDC	*	
CN 1525-11		AVRDC		*
I 57	Tainung 57	AVRDC	*	*
I 981	Tainung 66	AVRDC	*	*
L 383	= CN-1038-16	AVRDC	*	
L 387	= AIS-0122-2	AVRDC	*	*
L 389	= CN-1028-15	AVRDC	*	
L 390	= CN-1108-13	AVRDC	*	
SI 192	81 T	AVRDC		*
White		Burma	*	
ACC 307 (SI)	= TIS 2498	IITA	*	*
ACC 308 (SI)	= TIB 10	IITA	*	
ACC 309 (SI)	= TIB 2	IITA	*	*
ACC 391 (SI)	= TIB 2 = No 309	IITA	*	*
ACC 392 (SI)	= TIB 11	IITA	*	
NG7570 (PNG)	= TIS 2534 (No. 892 PNG)	IITA	*	
TIB 2	Acc. 309 SI/I 953	IITA	*	*
TIB 5		IITA	*	
TIB 9	I 954	IITA	*	
TIB 10	Acc. 308 SI/I 952	IITA	*	
TIB 11	Q 27803	IITA	*	
TIS 1499	I 950	IITA	*	
TIS 2498	Acc.307 SI/I 949	IITA	*	*
TIS 2525		IITA	*	
TIS 2532	I 955	IITA	*	*
TIS 2534	NG7570 (PNG)	IITA	*	*
TIS 2544	I 956	IITA	*	
TIS 3017	Lafalafa (Tonga)	IITA	*	*
TIS 3017	I 951/Cook Islands	IITA	*	*
TIS 3030		IITA	*	*
TIS 3270		IITA	*	
TIS 5081		IITA	*	

Evaluation of Sweet Potato Varieties in Eight Pacific Island Countries

Local Name or Accession Number	Other Accession Numbers	Country of Origin	IRETA Holdings	SPC Holdings
TIS 5125		IITA	*	
TIS 8250		IITA	*	
Hawhua		Philippines	*	
Kinabakap	= UPL-B77SP1	Philippines	*	
Tainung 57	I 57 (Taiwan)	Philippines	*	*
Tainung 66	I 981 Taiwan)	Philippines	*	*
VSP 1		Philippines	*	
VSP 3		Philippines	*	
VSP 4		Philippines	*	
Waimanalo		Philippines	*	
Amasonto	No. 738	PNG	*	
Boianai No. 3		PNG	*	*
Esdiei	No. 717	PNG	*	
Gonime	Kunime No. 616	PNG	*	*
Habare	No.443	PNG	*	
Keango		PNG	*	
Kekori	No. 730	PNG	*	
L 3	Higaturu	PNG	*	
L 6	Inabeia 3	PNG	*	
L 9	Imi Du Gogie	PNG	*	*
L 11	Koitaki 2 (I 928)	PNG	*	*
L 13	Kuriva 2	PNG	*	
L 16	Laloki 4	PNG	*	*
L 18	Milne Bay	PNG	*	
L 19	Murua 1	PNG	*	
L 22	Murua Wanmun	PNG	*	
L 43	Umokaka	PNG	*	
L 44	Unu 1	PNG	*	*
L 46	Alotau	PNG	*	*
L 49		PNG	*	*
L 50	Woksaken	PNG	*	
L 116	Kaintiba Wanmun	PNG	*	
L 131	Nomad 2	PNG	*	*
L 135	Nomad 6	PNG	*	*
L 183	Laloki 4	PNG		*
L 188	Godugudu	PNG		*
L 258	Cocope	PNG	*	
L 259	Katopai 1	PNG	*	*
L 303	I 1368 (AVRDC No.)	PNG	*	
L 312		PNG		*
L 318		PNG	*	*

Evaluation of Sweet Potato Varieties in Eight Pacific Island Countries

Local Name or Accession Number	Other Accession Numbers	Country of Origin	IRETA Holdings	SPC Holdings
L 329	Kumbani	PNG	*	*
Ma'alua	No. 323	PNG	*	
Markham	No. 415	PNG	*	*
Mbakoka		PNG	*	
Merikan	No. 507	PNG	*	
Munduena	No. 735	PNG	*	
Naveto	No. 265	PNG	*	
Po	No. 509	PNG	*	
Surenta	No. 545	PNG	*	
Talaukwe		PNG	*	*
Tawa-1		PNG	*	*
Unduandopa		PNG	*	
Wanmun Kabiufa	No. 281	PNG	*	
Wanmun Large		PNG	*	*
Wanmun Small		PNG	*	
Wasamea	No. 820	PNG	*	
Papota	I 1344	Puerto Rico	*	
Tapota	SPV-71 (I1347/Q26769)	Puerto Rico	*	
Wart		Puerto Rico	*	
SI 41	Moresi	Solomon Is.		*
SI 43	Gina 1	Solomon Is.		*
SI 73	Dada	Solomon Is.		*
SI 78	Igi	Solomon Is.	*	
SI 108	Sinulu	Solomon Is.	*	
SI 115	Atoifi	Solomon Is.		*
SI 149	Joel	Solomon Is.		*
SI 172	WV5	Solomon Is.	*	
SI 196	MK 3	Solomon Is.		*
SI 206	Three Months 2	Solomon Is.	*	
SI 213	Dingale R	Solomon Is.	*	
SI 214	WV 5	Solomon Is.		*
SI 231	Kira 4	Solomon Is.		*
SI 251	Alu 3	Solomon Is.		*
SI 253	Alu 5	Solomon Is.		*
SI 268	Reefs Jimi	Solomon Is.	*	*
SI 270	Lolobule	Solomon Is.		*
SI 272	Vanikoro 3	Solomon Is.		*
SI 275	Ngiziare	Solomon Is.	*	
SI 290	Anuta 3	Solomon Is.		*
83003-12	Q 27977 (USDA)	Tonga	*	
83003-13		Tonga	*	

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Local Name or Accession Number	Other Accession Numbers	Country of Origin	IRETA Holdings	SPC Holdings
83003-19	Q 27978 (USDA)	Tonga	*	
85002-103		Tonga	*	
85016-100	Lole (Tonga)	Tonga	*	*
85016-72		Tonga	*	
85019-17	Q 27979 (USDA)	Tonga	*	
Amelika	I 1188 (AVRDC)	Tonga	*	
Halasika		Tonga	*	
Hawaii	I 1189 (AVRDC)	Tonga	*	*
Kaloti		Tonga	*	*
Melefakahau	I 1249 (AVRDC)	Tonga	*	*
Siale		Tonga	*	*
Taiwani		Tonga	*	*
Tongamai	I 1248 (AVRDC)	Tonga	*	
Excel		USA		*
Resisto		USA		*
Hung Loc 4		Vietnam	*	
IB01		W. Samoa	*	
IB02		W. Samoa	*	
IB03		W. Samoa	*	
IB04		W. Samoa	*	
IB05	Hawaii (Tonga)	W. Samoa	*	
IB07		W. Samoa	*	
IB08		W. Samoa	*	
IB09		W. Samoa	*	
IB10		W. Samoa	*	
IB11		W. Samoa	*	
IB13		W. Samoa	*	
IB14		W. Samoa	*	
IB15		W. Samoa	*	

Note: **I** numbers are AVRDC accession numbers  
**Q** numbers are USDA accession numbers  
**IB** numbers are IRETA numbers  
**L** stands for Laloki Research Station in the lowlands of PNG. The other PNG varieties are from the highlands.  
**SI** stands for Solomon Islands.

Numbers in the list of Tongan varieties are from the breeding programme.

\* = present at the time of writing

A more recent list of the varieties available in tissue culture at SPC can be obtained from Dr. J. Rogers, Deputy Director General, SPC, Private Mail Bag, Suva, Fiji. Tel (679) 370021 Fax (679) 370733 E-mail [JimmieR@spc.int](mailto:JimmieR@spc.int)

## Appendix 1. Detailed Evaluation Results and Tissue Culture Availability

### 1.1 PNG Lowland Varieties

**L 3: Insufficient Information**

Available from IRETA

- PNG:
- Only recently re-introduced into PNG
  - M. Levett: one above average and one low yield in 1984.
  - M. Levett: above average yields with big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - Laloki: one low yield from the collection in 1987.
- Philippines:
- In top five yielding cultivars (with big tubers) in one of six wet season trials (35 varieties per trial), at different locations in 1990. Resistant to scab. Skin colour cream, flesh colour yellow. Dry matter content 29.1% (Amante 1991a).

**L 6: Insufficient Information (Promising)**

Available from IRETA

- PNG:
- Only recently re-introduced into PNG
  - M. Levett: low yields with average size tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: two high, one average and two low yields in 1985/87. Considered promising in 1987 (Rangai 1987).
  - Laloki: one low yield from the collection in 1987.
- Tonga:
- Third highest yield in a wet season intermediate trial which included 27 varieties in 1990/91. No scab and average specific gravity. Selected for advanced trial but, due to dry weather conditions, trials had to be postponed.
- Philippines:
- In top five yielding cultivars in one of six dry season trials (35 varieties per trial) at different locations in 1990/91 (Amante 1991a).

**L 8: Insufficient Information**

Not available from IRETA or SPC. Pathogen tested at AVRDC.

- PNG:
- M. Levett: one good yield with big tubers in a replicated trial in 1984.
  - M. Levett: average yields with small tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).

**L 9: First Class Recommendation**

Available from IRETA and SPC

- PNG:
- M. Levett: one high, one good and one low yield, with big tubers in 1984.
  - M. Levett: well above average yields with big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - LAES: four high and two average yields, average size tubers, medium rat damage, low rots, cracking can be high sometimes, most tubers of regular shape, of medium ease to harvest. Moderately susceptible to susceptible to scab, vigorous to very vigorous. Average protein content 3.58 % and dry matter content 34.6 %.
  - Laloki: one very high, three average and one zero yield, big tubers, low rat damage, low rots, low cracking, most tubers of regular shape, of medium ease to harvest. Moderately susceptible to scab, vigorous. Protein content 3.75 %, dry matter content 31.8 %, high taste panel score (Sowei et al. 1989).

Fiji: Tested in three non-replicated trials.

- Koronivia: Moderately susceptible to susceptible to scab, average vigour. Below average yield (one trial). Taste panel: sweet, somewhat firm, dry with a slightly pronounced flavour. White skin with yellow flesh. Not included in further evaluation trials.
- Sigatoka: resistant to scab with a below average yield.

Vanuatu: Tested in six replicated trials.

- Santo: one high and two average yields, average size tubers, low rat damage, low to medium rots, low cracking, most tubers of regular shape, of medium ease to harvest. Moderately susceptible to scab, vigorous.
- Tagabe: one very high, one above average, and one average yield, big tubers, low rat damage, low rots, low cracking, most tubers of regular shape, of medium ease to harvest. Resistant to scab, vigorous.
- **Note**: L 9 is most likely a duplicate from L 16 in Vanuatu (see comments for L 16).

Selected for further testing in various environmental sites.

Philippines: - In top five yielding cultivars (with big tubers) in one of six dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a).

**Note:** First class recommendation because of its high yields even in wet season conditions despite its susceptibility to scab disease.

**L 11: Third Class Recommendation**

Available from IRETA and SPC.

- PNG:
- M. Levett: two high, one average and one low yield with big tubers in trials in 1984/85.
  - M. Levett: above average yields with relatively small tubers in two wet season trials in 1985/87 (Levett and Osilis 1990). Recommended in 1987.
  - S. Rangai: two high, one average and two low yields in trials in 1985/87. Considered promising in 1987 (Rangai 1987).
  - LAES: two good, three average, and one below average yield, low rat damage, low rots, zero cracking, most tubers of regular shape, easy to harvest. Moderately susceptible to scab, vigorous to very vigorous. Protein content 4.17 %, dry matter content 24.0 %.
  - Laloki: one high and four above average yields, low rat damage, low rots, low cracking, most tubers of regular shape, easy to harvest. Resistant to scab, vigorous. Protein content 4.84 %, dry matter content 29.8 %. Low taste panel score despite its popularity in the Central Province (Sowei et al. 1989).

Fiji: Tested in three non-replicated observation trials.

- Koronivia: moderately susceptible to susceptible to scab, with a good yield. Taste panel: very sweet, fairly firm, slightly wet with a fairly pronounced flavour. White skin and pale yellowish flesh. Could be a different variety! In the ACIAR description list (Beetham and Freeman 1992), Vanuatu and PNG, the skin colour is red/purple, with yellow flesh.
- Sigatoka: resistant to moderately susceptible to scab, with an average yield.
- Koronivia: tested in three replicated trials. One high, one good and one average yield with relatively big tubers. Included in the next replicated trial.

Kiribati: - Included in one replicated trial with 14 varieties. No yield at three months and a low yield at four months, but at least some yield which was not the case for six other varieties.

Tonga: - One high yield in a dry season trial in 1989. A good yield in a wet season trial in 1990, with a resistant scab score, a dry matter content of 27.1 % and a poor taste rating score. Because of the low taste score, L 11 was not further included in evaluation trials, but it was included in the breeding programme.

- Vanuatu:
- Santo: tested in a non-replicated observation trial with a good yield, low rots, no cracking and good tuber shape.
  - Santo: tested in a replicated trial with an average yield, average rat damage and rots, and low tuber weight. Included in the next replicated trial.
  - Tagabe: tested in a replicated trial with a high yield and average size tubers.

**Note:** Third class recommendation because of its fluctuating and sometimes disappointing yields.

**L 13: Insufficient Information (Promising?)**

Available from IRETA.

PNG

- to be re-introduced into PNG.
- M. Levett: one high, one good and two average yields with average size tubers in trials in 1984/85.
- M. Levett: good yields with average tuber size in two wet season trials in 1985/87 (Levett and Osilis 1990).
- S. Rangai: one high, three average and two low yields in 1985/87. Considered promising in 1987 (Rangai 1987).
- Laloki: one average yield from the collection planting in 1987. High taste panel score (Sowei et al. 1989).

**L 16: First Class Recommendation**

Available from IRETA and SPC.

PNG:

- only recently re-introduced into PNG.
- M. Levett: one high and one low yield with big tubers in trials in 1984/85.
- M. Levett: good yields with average size tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
- S. Rangai: one high, three average and two below average yields with average size tubers in 1985/87. Considered promising in 1987 (Rangai 1987).

Fiji:

Tested in four non-replicated observation trials.

- Koronivia: moderately susceptible to susceptible to scab, vigorous, with a good yield.

Taste panel: sweet, fairly firm, slightly dry with a fairly pronounced flavour. White skin with yellowish flesh.

- Sigatoka: resistant to moderately susceptible to scab, with a low yield.
- Koronivia: tested in three replicated trials. One above average, one average, and one well below average yield, with small and average size tubers. Included in the next replicated trial.

Vanuatu:

- Santo: tested in three replicated trials. Two good and one average yield, average to big size tubers, low rat damage, very low rots, low cracking, most tubers of regular shape, medium ease of harvest, resistant to moderately susceptible to scab, vigorous to very vigorous.
- Tagabe: tested in three replicated trials. One very high, one high and one average yield, average to big size tubers, low rat damage, low rots, low cracking, most tubers of irregular shape (assessed in one trial only), resistant to scab, vigorous. Selected for further testing in various environmental sites.

Kiribati: - tested in a non-replicated trial. Relatively low yield, but there was some doubts if it was the right variety (Iqbal 1991).

Tuvalu: - tested in a replicated fertilizer and compost trial with L 329, Vaitupu Red, 85016-100 and Funafuti White. Although L 16 yielded somewhat lower than L 329 and Funafuti White, yields were comparable. L 16 was included in the next variety evaluation trial (Iqbal 1991).

**Note:** First class recommendation because of its high yields, even in wet season conditions, despite its susceptibility to scab disease.

**L 18:                   Insufficient Information**

Available from IRETA.

- PNG:
- Only recently re-introduced into PNG.
  - M. Levett: one high and one good yield in trials in 1984.
  - M. Levett: high yields with relatively big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: one very high, one average, one low and one very low yield in 1985/87. Considered promising in 1987 (Rangai 1987).
  - Laloki: one low yield from the collection in 1987. High taste panel score (Sowei et al. 1989).
  - Philippines: - In top five yielding cultivars (with big tubers) in two of six wet season trials (35 varieties per trial) at different locations in 1990. Resistant to scab. Description: skin colour cream, flesh colour cream, dry matter content 21.1 % (Amante 1991a).

**Note:** Could be a different variety in the ACIAR description list (Beetham and Freeman 1992). The skin colour of L 18 is purple, with yellow flesh.

**L 19:                   Second Class Recommendation**

Available from IRETA.

- PNG:
- M. Levett: one good yield and one low yield with relatively big tubers in 1984.
  - M. Levett: good yields with small tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: one very high, one average, and two well below average yields in 1985/87. Considered promising in 1987 (Rangai 1987).
  - LAES: three very high, two good, one average and one low yield, medium rat damage, low rots, cracking can be high sometimes, most tubers of regular shape, easy to harvest. Moderately susceptible to susceptible to scab, vigorous. Protein content 3.76 %, dry matter content 35.1 %. White skin and yellow flesh.

- Laloki: two very high, two average and one low yield, big tubers, rat damage can be high, low rots, cracking can be high sometimes, most tubers of regular shape. Moderately susceptible to susceptible to scab, vigorous. Protein content 3.69 %, dry matter content 37.1 %.
- Fiji:
- tested in two non-replicated observation trials at Koronivia. Moderately susceptible to susceptible to scab. Not included in further trials. Maintained in multiplication plot.
- Vanuatu:
- Tagabe: tested in two replicated trials, with two average yields, low rat damage, medium cracking, and medium to big size tubers. Moderately susceptible to susceptible to scab, vigorous. Not included in further evaluation trials.

**Note:** Second class recommendation because of its susceptibility to scab and cracking of the tubers which can be high sometimes. Yields, however, even in the wet season are high despite its susceptibility.

Due to low yields at LAES and Laloki in the beginning of the project, and its susceptibility to scab, Pacific countries were probably wrongly advised to discard L 19.

**L 22: Third Class Recommendation**

Available from IRETA.

- PNG:
- M. Levett: one comparably good yield and two below average yields with small tubers in trials in 1984/1985.
  - M. Levett: above average yields with relatively small tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: one good, two average and two below average yields in 1985/87 (Rangai 1987).
  - LAES: three good and two average yields, low to medium rat damage, no rots, medium cracking, most tubers of irregular shape, easy to harvest. Resistant to moderately susceptible to scab, vigorous to very vigorous.
  - LAES: performance of KAV 39 which is a duplicate of L 22: two high, three good and one below average yield, low to medium rat damage, very low rots, low to medium cracking, most tubers of irregular shape, easy to harvest. Resistant to moderately susceptible to scab, vigorous. Protein content 3.05 %, dry matter content 32.8 %.
  - Laloki: one high, one low and three zero yields, medium rat damage, no rots, low cracking, tubers of irregular shape. Resistant to scab, vigorous. Protein content 3.16 %, dry matter content 32.5 %. Low taste score (Sowei et al. 1989).

**Note:** Third class recommendation because of its irregular tuber shape and its yields which are usually good but not first class. Its deep purple skin colour, however, is very attractive.

**L 30: Not Recommended**

Not available from IRETA (on hold at IPS).

- PNG:
- M. Levett: one high, two below average and one low yield in trials in 1984/1985.
  - M. Levett: below average yields in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: one high, one good, two average and two low yields in 1985/87. Considered promising in 1987 (Rangai 1987).
  - LAES: one above average, one average, one below average, two low and one very low yield, low rat damage, low rots, low cracking, most tubers of regular shape, of medium ease to harvest. Susceptible to very susceptible to scab, vigorous. Protein content 2.97 %, dry matter content 29.2 %.
  - Laloki: one very high, two low, and two zero yields, high rat damage, low rots, low cracking, most tubers of regular shape. Moderately susceptible to scab, vigorous to very vigorous.

**L 43: First Class Recommendation**

Available from IRETA and SPC.

- PNG:
- M. Levett: one very high, one high and one low yield with relatively big tubers in 1984.
  - M. Levett: comparably high yields with big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: one good, two average, one below average and one low yield in 1985/87 (Rangai 1987).
  - LAES: six very high and two high yields, medium rat damage, low to medium rots, low cracking, most tubers of regular shape, easy to harvest. Susceptible to very susceptible to scab when disease pressure is high, average vigour to vigorous. Average protein content 3.67 %, average dry matter content 30.0 %.
  - Laloki: two good and three average yields, medium rat damage, no rots, no cracking, most tubers of regular shape. Moderately susceptible to scab, vigorous. Skin colour purple with purple flesh. High taste panel score (Sowei et al. 1989).

**Note:** First class recommendation, despite its susceptibility to scab, because of its high yields, low cracking, good tuber shape and high consumer acceptability.

**L 44: Third Class Recommendation**

Available from IRETA and SPC.

- PNG:
- M. Levett: one very high, one high, one good and one relatively low yield with big tubers in 1984/85. Higher yields than L 11 and L 22 in agronomic trials in 1984/86.

- M. Levett: good yields with big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
- S. Rangai: three average and two low yields in 1985/87. Considered promising in 1987 (Rangai 1987).
- LAES: one high, three good, three average and one very low yield, low rat damage, very low rots, low cracking, most tubers of irregular shape, easy to harvest. Moderately susceptible to very susceptible to scab when disease pressure is high, average vigour. Average protein content 2.71 %, average dry matter content 25.6 %.
- Laloki: one very high, one high, one average and two low yields, low rat damage, low rots, low cracking, most tubers of regular shape. Resistant to moderately susceptible to scab, vigorous. Protein content 2.31 %, dry matter content 29.3 %. Low taste panel score (Sowei et al. 1989).

Fiji: Tested in three non-replicated observation trials.

- Koronivia: moderately susceptible to susceptible to scab, vigorous, with an average yield.  
Taste panel: slightly sweet, fairly firm, slightly dry with a pronounced flavour. White skin with a pale yellow flesh. Not included in further evaluation trials.
- Sigatoka: resistant to scab, with an average yield.

Vanuatu: Tested in five replicated trials.

- Santo: one very high, one average and one relatively low yield, low rat damage, medium rots, medium cracking, relatively small tubers, most tubers of regular shape (in one trial most tubers of irregular shape), easy to harvest. Resistant to moderately susceptible to scab, medium vigour to vigorous.
- Tagabe: one average and one below average yield, low rat damage, low rots, medium cracking, medium size tubers.

Selected for further testing in various environmental sites.

**Note:** Third class recommendation because of fluctuating yields (usually yields are good but not excellent), tuber shape which can be irregular, and susceptibility to scab.

**L 46: First Class Recommendation**

Available from IRETA and SPC.

- PNG:
- M. Levett: one very high and one high yield with big tubers in 1984.
  - M. Levett: average yields with relatively big tubers in two wet season trials in 1985/87 (Levett and Osilis 1987).
  - S. Rangai: one high, two average and two low yields in 1985/87 (Rangai 1987).

- LAES: three very high, two high, one good and two average yields, very low rat damage, low rots, medium cracking, most tubers of regular shape, of medium ease to difficult to harvest. Resistant to moderately susceptible to scab, vigorous to very vigorous. Average protein content 2.12 %, average dry matter content 29.8 %. Skin colour purple with white flesh.
  - Laloki: one high, three above average and one below average yield, no rat damage, low rots, low cracking, most tubers of regular shape. Resistant to scab, very vigorous. Protein content 3.94 %, dry matter content 31.8 %. High taste panel score (Sowei et al. 1989).
- Fiji:
- Koronivia: tested in a non-replicated observation trial, with a zero scab score.  
Tested in a replicated trial with the second highest yield, big tubers and low damage by rats and rots. Included in the next replicated trial.
- L 49: Second Class Recommendation**
- Available from IRETA and SPC.
- PNG:
- M. Levett: one very high, one average and one below average yield, with small tubers in 1984/85.
  - M. Levett: comparably high yields with average size tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: one above average, two average one below average, and one low yield in 1985/87 (Rangai 1987).
  - LAES: two very high, one high, one average, one below average and two low yields, low rat damage, low rots, medium to high cracking, in some trials most tubers of irregular shape, medium ease to harvest. Resistant to moderately susceptible to scab, average vigour to vigorous. Average protein content 2.51 %, average dry matter content 33.9 %. White skin and flesh colour.
  - Laloki: one good, two low, and two zero yields, low rat damage, no rots, most tubers of regular shape. Resistant to scab, very vigorous. Protein content 4.13 %, dry matter content 39.6 %. High taste panel score (Sowei et al. 1989).
- Fiji:
- Tested in four non-replicated observation trials.
- Koronivia: zero scab score in three trials, vigorous with a high yield.  
Taste panel: sweet, fairly firm, slightly dry with a fairly pronounced flavour. White skin and flesh. Its taste is well appreciated.
  - Sigatoka: resistant to scab, highest yield of all the varieties tested.
  - Koronivia: tested in three replicated trials. Again a zero scab score while all other tested varieties showed at least some symptoms. One high and two average yields with average size tubers. Included in the next replicated trial.
- Kiribati:
- tested in a non-replicated evaluation trial, which included 11 varieties, with an average yield.

- Philippines:
- In top five yielding cultivars (with big tubers) in one of six wet season trials (35 varieties per trial) at different locations in 1990. Highly resistant to scab. Skin colour cream, flesh colour white, dry matter content 34.7 % (Amante 1991a).
  - In top five yielding cultivars (with big tubers) in one of six dry season trials (35 varieties per trial) at different locations in 1990/91 (Amante 1991a).

**Note:** Second class recommendation because of its sometimes disappointing yields, its high cracking in some trials, and its sometimes irregular shape. However, the zero scab scores at Koronivia, where disease pressure is high, are remarkable. In addition its taste is well appreciated.

**L 50:                   Insufficient Information**

Available from IRETA.

- PNG:
- only recently re-introduced into PNG.
  - M. Levett: tested in a replicated trial with a relatively high yield and big tubers in 1984.
  - M. Levett: comparably high yields with big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - Laloki: a good yield from one collection planting in 1987.

**L 116:                   Insufficient Information**

Available from IRETA.

- PNG:
- only recently re-introduced into PNG.
  - M. Levett: tested in a replicated trial which included 90 cultivars in 1984 but was not in the top 15 highest yielding cultivars.
  - M. Levett: zero yields in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: two average, one low and one very low yield in 1985/87 (Rangai 1987).

- Fiji:
- Koronivia: tested in a non-replicated observation trial with a resistant scab score (assessment at two months only). Tested in a replicated trial with a very low yield (yields of all varieties were relatively low), small tubers and low damage by rats and rots. Included in the next replicated trial.

**L 131:                   Third Class Recommendation**

Available from IRETA and SPC.

- PNG:
- to be re-introduced into PNG.
  - M. Levett: tested in a replicated trial which included 90 cultivars in 1984 but was not in the top 15 highest yielding cultivars.
  - M. Levett: comparably good yields with small tubers in two wet season

trials in 1985/87 (Levett and Osilis 1990).

L 131 is most likely a duplicate of the Keravat variety K 130. Results of K 130:

- LAES: one very high, three good and three average yields, low rat damage, no rots, no cracking, most tubers of regular shape, of medium ease to harvest. Moderately susceptible to scab, vigorous to very vigorous. Average protein content 2.53 %, average dry matter content 30.1 %. Red skin colour with white flesh. Locally, K 130 is a popular variety and is grown on some atoll islands.
- Laloki: one high, one low and two zero yields (due to weevil damage), no rat damage, no rots, no cracking, tubers of regular shape. Resistant to scab, average vigour to vigorous. Protein content 3.64 %, dry matter content 31.2 %.

Fiji: Tested in three non-replicated observation trials.

- Koronivia: Moderately susceptible to scab, with an above average yield. Taste panel: sweet, fairly firm, slightly wet with a slightly pronounced flavour. Red skin and white flesh.
- Sigatoka: resistant to scab, with a high yield.
- Koronivia: tested in three replicated trials. Moderately susceptible to scab. Two low and one very low yield, with relatively small tubers, low to medium damage by rats and rots. Included in the next replicated trial.

Vanuatu: - Santo: tested in a non-replicated observation trial with an average yield, medium damage by rats, rots and weevil, tubers of regular shape. Tested in a replicated trial which included eight varieties. No significant yield differences between varieties (all yields were low), low damage by rats and rots.

- Tagabe: tested in a replicated trial with the same varieties as on Santo. No significant differences between varieties (all yields were low due to dry weather conditions), big tuber size and low damage by weevils.

Tonga: - L 131 is most likely a duplicate of the 'Tongan variety Halasika, which is known to originate from PNG. Halasika was recommended for further testing in the wet season in 1984 (Van Wijmeersch 1986).

- Tested in an intermediate wet season evaluation trial in 1988/89. Relatively low yield, but comparable to the popular variety Hawaii, medium specific gravity (lower than Hawaii). Low scab score.

**Note:** Third class recommendation because of its fluctuating yields, in some trials high, in others low. The yield fluctuation of L 131 (Halasika) was also observed by Mr. F. Pole, Tongan Sweet Potato Agronomist. The variety, however, has an almost zero cracking index and most tubers are of regular shape. In addition, it is only moderately susceptible to scab and usually vigorous to very vigorous.

**L 135: First Class Recommendation**

Available from IRETA and SPC.

- PNG:
- M. Levett: tested in a replicated trial which included 90 cultivars in 1984 but was not in the top 15 highest yielding cultivars. Tested in two replicated trials with 10 cultivars in 1985, with top yields and big to average size tubers.
  - M. Levett: comparably high yields with small tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: one very high, two high, one good and one average yield in 1985/87. Considered promising in 1987 (Rangai 1987).
- LAES: four very high, two high and two good yields, medium rat damage, very low rots, cracking can be high sometimes, most tubers of regular shape, easy to harvest. Resistant to moderately susceptible to scab, vigorous to very vigorous. Average protein content 8.38 %, average dry matter content 21.0 %. Skin colour yellow/orange with orange flesh. Taste panel: firm (despite its low dry matter content), not sweet, acceptable taste.
- Laloki: two very high, two high and one average yield, low rat damage, very low rots, cracking can be high sometimes, most tubers of regular shape. Resistant to scab, very vigorous. Low taste panel score (Sowei et al. 1989).

- Fiji:
- Koronivia: tested in a non-replicated observation trial with a zero scab score. Tested in a replicated trial with an average yield, average damage by rats and rots, and average tuber size. Included in the next replicated trial.

- Philippines:
- In top five yielding cultivars in one of six wet season trials (35 varieties per trial), at different locations in 1990. Resistant to moderately susceptible to scab. White skin with orange flesh, dry matter content 28.1 % (Amante 1991a).
  - In top five yielding cultivars in one of six dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a).

**L 183: Insufficient Information**

Available from SPC. Pathogen tested by AVRDC.

- PNG:
- to be re-introduced into PNG.
  - M. Levett: above average yields with medium size tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - Laloki: one average yield from the collection in 1987.

**L 185: Not Recommended**

Not available from IRETA or SPC. Pathogen tested by AVRDC.

- PNG:
- M. Levett: average yields with very small tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).

- LAES: one average, one low, one very low, and two zero yields, medium rat damage, low rots, no cracking, most tubers of regular shape, easy to harvest. Moderately susceptible to scab, average to weak vigour.
- Laloki: one good, one well below average, one low, and two zero yields, medium rat damage, no rots, medium cracking, most tubers of irregular shape. Resistant to moderately susceptible to scab, vigorous. Protein content 6.29 %, dry matter content 19.5 %.

**L 186: Insufficient Information**

Not available from IRETA or SPC. Pathogen tested by AVRDC.

PNG:

- Not re-introduced into PNG yet.
- M. Levett: low yields with average size tubers in two wet season trials in 1986/87 (Levett and Osilis 1990).
- Laloki: a relatively good yield from the collection in 1987.

**L 188: Second Class Recommendation**

Available from SPC. Pathogen tested by AVRDC.

PNG:

- M. Levett: above average yields with big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
- LAES: two very high, one high, one good and two average yields, medium rat damage, low rots, cracking can be high sometimes, most tubers of regular shape, of medium ease to harvest. Moderately susceptible to susceptible to scab, average vigour. Protein content 1.86 %, dry matter content 30.8 %.
- Laloki: one high, one good, one average, one low, and one zero yield, low rat damage, no rots, cracking can be high sometimes, most tubers of regular shape. Resistant to moderately susceptible to scab, vigorous to very vigorous. Protein content 5.77 %, dry matter content 32.7 %.

**Note:** Second class recommendation because its yields, which are usually high, were a bit disappointing in some trials, and its cracking, which can be high sometimes.

**L 258: Not Recommended**

Available from IRETA.

PNG:

- M. Levett: above average yields with small tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
- LAES: five zero yields! Resistant to moderately susceptible to scab, average vigour.
- Laloki: one low and four zero yields! Resistant to scab, vigorous. Skin colour red with yellow flesh. Low taste panel score (Sowei et al. 1989).

**L 259: Insufficient Information (Promising)**

Available from IRETA and SPC.

- PNG: - Only recently re-introduced into PNG.  
- M. Levett: above average yields with relatively small tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
- Tonga: - Fourth highest yield in a wet season intermediate trial which included 27 varieties in 1990/91. Zero scab score and average specific gravity. Selected for advanced trial, but due to dry weather conditions, trials had to be postponed.
- Philippines: - In top five yielding cultivars (with relatively big tubers) in two of six wet season trials (35 varieties per trial), at different locations in 1990. Skin colour purple, flesh colour cream, average dry matter content 26.3 % (Amante 1991a). **Note:** Could be a different variety! In the descriptors given by Levett and Lummis (1987), the skin colour is red and the flesh colour is purple.  
- In top five yielding cultivars in one of six dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a).

**L 262: Not Recommended**

Was in the list of pathogen tested varieties at PRI in previous years. The variety was taken out of the final list at the end of the project. In addition, after giving above average yields with average size tubers in two wet season trials in 1985/87 (Levett and Osilis 1990), the variety performed very poorly at LAES and Laloki.

**L 292: Insufficient Information**

Not available from IRETA or SPC. Pathogen tested by AVRDC.

- PNG: - Not re-introduced into PNG yet.  
- M. Levett: above average yields with average size tubers in two wet season trials 1985/87 (Levett and Osilis 1990).  
- Laloki: one relatively high yield from the collection in 1987.

**L 295: Insufficient Information**

Not available from IRETA or SPC. Pathogen tested by AVRDC.

- PNG: - Not re-introduced into PNG yet.  
- Laloki: one below average yield from the collection in 1987.

**L 296: Insufficient Information**

Not available from IRETA or SPC. Pathogen tested by AVRDC.

- PNG: - Not re-introduced into PNG yet.  
- S. Rangai: two low yields in 1987 (Rangai 1987).  
- Laloki: one comparably very high yield from the collection in 1987.

**L 297:**

**Insufficient Information**

Not available from IRETA or SPC. Pathogen tested by AVRDC.

PNG:

- Not re-introduced into PNG yet.
- Laloki: one average yield from the collection in 1987.

**L 300:**

**Insufficient Information**

Not available from IRETA or SPC. Pathogen tested by AVRDC.

PNG:

- Not re-introduced into PNG yet.
- Laloki: one very low yield from the collection in 1987.

**L 303:**

**Insufficient Information**

Available from IRETA.

PNG:

- Only recently re-introduced into PNG.
- M. Levett: Comparably high yields with relatively big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
- Laloki: one relatively good yield from the collection in 1987.

**L 312:**

**Insufficient Information**

Available from SPC. Pathogen tested by AVRDC.

PNG:

- To be re-introduced into PNG.
- M. Levett: comparably good yields with average size tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
- Laloki: an average yield from the collection in 1987.

**L 318:**

**Third Class Recommendation**

Available from IRETA and SPC.

PNG:

- Only recently re-introduced into PNG.
- M. Levett: good yields with relatively big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
- Laloki: one low yield from the collection in 1987.

Fiji:

Tested in three non-replicated observation trials.

- Koronivia: moderately susceptible to susceptible to scab, with an average yield.  
Taste panel: sweet, fairly firm, slightly dry with a fairly pronounced flavour.  
Red skin with orange flesh.

- Sigatoka: resistant to scab, with the second highest yield (after L 49) of the 20 varieties tested.
  - Koronivia: tested in three replicated trials. Resistant to moderately susceptible to scab. One average and two low yields, with average size tubers. Included in the next replicated trial.
- Vanuatu:
- Santo: tested in a non-replicated trial which included six varieties, with a low yield, low rots and no cracking. Tested in a replicated trial which included six introduced varieties and two selected local cultivars. No significant differences in yield between varieties (all yields were low). Highest tuber weight in trial. Will be re-tested.
  - Tagabe: in a similar trial, no significant yield differences between varieties (all yields were low), but L 318 had the lowest average yield of all, with average size tubers.
- Philippines:
- In top five yielding cultivars (with big tubers) in one of six dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a). Not in top five performance in similar wet season trials in 1990. Selected by 85.1 % (highest score) of 26 farmers after evaluating 37 cultivars, which included 10 local varieties, for top growth, tubers and taste. Comments: red smooth skin, high yield, uniform round shape, dry and sweet (Amante 1991b).
- Note:** Third class recommendation because of its relatively poor yield in some trials compared to other varieties. Confirmation, however, of these results, is needed. The results of the taste panel in the Philippines are remarkable.
- L 322:** **Not Available Any More**  
L 322 was in the list of pathogen tested varieties at PRI in previous years. It was identified as duplicate of L 44.
- L 326:** **Insufficient Information**  
Not available from IRETA or SPC. Pathogen tested at AVRDC.
- PNG:
- Not re-introduced into PNG yet.
  - M. Levett: comparably good yields with average size tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - Laloki: high yield from the collection in 1987.
- L 329:** **First Class Recommendation**  
Available from IRETA and SPC.
- PNG:
- to be re-introduced into PNG.
  - M. Levett: good yields with small tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - Laloki: one well above average yield from the collection planting in 1987.
- Fiji:
- Tested in four non-replicated observation trials.
- Koronivia: resistant to moderately susceptible to scab, with a high yield.

Taste panel: sweet, fairly firm, slightly dry with a pronounced flavour. Pink skin and yellowish flesh. Its taste is well appreciated.

- Sigatoka: resistant to scab, with a below average yield.
- Koronivia: tested in three replicated trials. Resistant to moderately susceptible to scab. Three high to very high yields with big tubers. Included in the next replicated trial.

Kiribati:

- Tested in a non-replicated evaluation trial with the best yield of all entries.
- Tested in two replicated trials. highest yield of six varieties, both at three months and four months. Highest taste score both for its tubers and leaves (Iqbal 1991).

Tuvalu:

- Tested in a fertilizer and compost trial which included five varieties. Highest yield in three of the five treatments and highest average yield.

Recommended variety for atoll environment (Iqbal 1991).

Vanuatu:

Tested in six replicated trials.

- Santo: resistant to moderately susceptible to scab, vigorous. One highest, one high, and one average yield, with average to very big tubers, rat damage and rots can be high in some trials, medium cracking, most tubers of irregular shape, easy to harvest.
- Tagabe: resistant to moderately susceptible to scab, vigorous. Two high and one average yield with small to average size tubers, rat damage can be high, low rots, medium cracking, most tubers of regular shape (assessed in one trial only).

Selected for further testing in various environmental sites.

**L 330: Insufficient Information**

Not available from IRETA and SPC. Pathogen tested by AVRDC.

PNG:

- M. Levett: comparably high yields with relatively big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
- Laloki: good yield from the collection in 1987.

**Note:** L 383, L 387, L 389, and L 390, are AVRDC cultivars and are discussed in the section on AVRDC varieties.



- Australia: Reported to perform well under Queensland conditions (Taufatofua, Tongan Sweet Potato Breeder, personal communication).
- Amasanto (No. 738): Not Recommended**
- Available from IRETA.
- PNG: - **LAES:** one average, one low, one very low, and two zero yields. Moderately susceptible to scab, vigorous. Protein content 2.72 %, dry matter content 35.2 %.
- Boianai No. 3: Insufficient Information**
- Available from IRETA and SPC.
- PNG: - **LAES:** Only recently re-introduced into PNG.
- Fiji: - **Koronivia:** tested in a non-replicated trial, resistant to scab (recording at two months only). Planted in multiplication plot.
- Esdiei (No. 717): Not Recommended**
- Available from IRETA.
- PNG: - **LAES:** one high, one average, one low, one very low, and two zero yields. Susceptible to scab, vigorous. Protein content 3.39 %, dry matter content 29.9 % (from small tubers).
- Gonime (No. 616): Not Recommended**
- Available from IRETA and SPC.
- PNG: - **LAES:** two average, one low, one very low, and one zero yield, low rat damage, no rots, no cracking, most tubers of regular shape, easy to harvest. Susceptible to very susceptible to scab, vigorous. Protein content 3.60 %, dry matter content 31.5 %.
- Fiji: - **Koronivia:** tested in one non-replicated yield trial, susceptible to scab. Not included in further trials.
- Philippines: - In top five yielding cultivars (with small tubers) in one of six wet season trials (35 varieties per trial), at different locations in 1990. Resistant to scab score. Not in top five performers in similar wet season trials in 1990/91. Description: purple skin, with white flesh, dry matter content 29.8 % (Amante 1991a).
- Selected by 57.1 % (second highest score) of 26 farmers after evaluating 37 varieties, which included 10 local cultivars, for top growth, tubers and taste. Comments: red smooth skin, high yield, uniform cylindrical shape, resistant to diseases, sweet (Amante 1991b).
- Note:** Not recommended because of its low yields at LAES and its susceptibility to scab. Its performance in the Philippines, however, is remarkable.

**Habare**

(No. 443):

**Not Recommended**

Available from IRETA.

PNG:

- **LAES:** one average, one very low, and six zero yields. Susceptible to very susceptible to scab. Protein content 2.02 %, dry matter content 29.2 %.

Fiji:

- **Koronivia:** tested in a non-replicated observation trial, resistant to scab. Planted in another observation trial.

**Ma'alua**

(No. 323):

**Not Recommended**

Available from IRETA.

PNG:

- **LAES:** a well above average yield in the first planting, very low in the second planting, average in the third, and zero yields in the fifth and sixth planting. Susceptible to very susceptible to scab, vigorous. Protein content 5.52 %, dry matter content 31.7 %.

Tonga:

- included in an intermediate trial with a very low yield.

**Merikan**

(No. 507):

**Not Recommended**

Available from IRETA.

PNG:

- **LAES:** one above average, one low, one very low, and three zero yields. Susceptible to very susceptible to scab, vigorous. Protein content 1.67 %, dry matter content 34.1 %.

**Munduena**

(No. 735):

**Not Recommended**

Available from IRETA.

PNG:

- **LAES:** one good yield (first planting), one low, one very low, and four zero yields. Resistant to moderately susceptible to scab, vigorous. Protein content 2.1 %, dry matter content 33.5 %.

Tonga:

- tested in an intermediate trial with a low yield and an above average specific gravity.

**Naveto**

(No. 265):

**Not Recommended**

Available from IRETA.

PNG

- **LAES:** one good, two average, two low and three very low yields. Moderately susceptible to susceptible to scab, vigorous to very vigorous. Protein content 1.73 %, dry matter content 32.1 %.

Philippines:

- In top five yielding cultivars (with average tuber size) in one of six dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a).

- Po (No. 509): Not Recommended**  
Available from IRETA.
- PNG:** - **LAES:** two low and three zero yields. Resistant to moderately susceptible to scab, vigorous. Protein content 1.50 %, dry matter content 30.5 %.
- Tawa 1: Not Recommended**  
Available from IRETA.
- PNG:** - **LAES:** three zero yields. Resistant to moderately susceptible to scab, vigorous to very vigorous.
- Fiji:** - **Koronivia:** tested in a non-replicated observation trial, zero scab score. Replanted in another observation trial.
- Wanmun Kabiufa: (No 281) Not Recommended**  
Available from IRETA.
- PNG:** - **LAES:** three high, three good, one below average, one very low, and one zero yield, low to medium rat damage, very low rots, no cracking, most tubers of regular shape (although in some trials the tubers were mostly of irregular shape), unattractive appearance, easy to harvest. Susceptible to very susceptible to scab, average vigour to vigorous. Average protein content 4.31 %, average dry matter content 35.8 %.
- Note:** Not recommended because of the very low yields in recent trials at LAES compared to yields obtained in earlier trials, poor general appearance of the tubers, and its susceptibility to scab.
- Wasamia (No 820): Not Recommended**  
Available from IRETA.
- PNG:** - **LAES:** one average, one low, one very low, and two zero yields. Moderately susceptible to susceptible to scab, vigorous. Protein content 2.60 %, dry matter content 26.3 %.
- Philippines:** - In top five yielding cultivars (with average tuber size) in one of six dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a).
- NG 7570 (No. 892): Not Recommended**  
Available from IRETA.
- Is the IITA variety: TIS 2534, which is discussed under IITA varieties.
- Akaio : (No. 175)** Was in the ACIAR list in previous years. It was taken out of the list at the end of the project. It was a low yielder at LAES.

### 1.2.1 Highland varieties with no information

All of the following highlands varieties are available from IRETA. They have only recently been re-introduced into PNG. The project has either none or very little information about their performance:

Surenta (No. 545), Talaukwe , Mbakoka, Keango, Unduandopa , Wanmun Small

### 1.3 Solomon Islands

**Note:** After PNG, Solomon Islands has the largest collection of sweet potato varieties in the region with around 400 accessions. Most of the collection has been evaluated in several replicated trials in different locations under dry and wet weather conditions, first by Dr. G. Jackson, and later by Mr. P. Linton and Mr. C. Caiger. The final selection of 36 varieties, was made by Mr. R. Moss and Mr. J. Samu (Saelea 1990). Several of the selected varieties were tissue cultured and pathogen tested under the ACIAR/IPS project and by AVRDC. The other recommended varieties are now being tissue cultured and pathogen tested by IPS under the PRAP Sweet Potato Project.

**SI 78**

**(IQI):** **Second Class Recommendation**

Available from IRETA.

Recommended variety in the Solomon Islands.

**PNG:**

- **LAES:** one good, one above average, two average and one below average yield, low to medium rat damage, low to medium rots, cracking can be high sometimes, in some trials most tubers are of regular shape, in others most are of irregular shape, easy to harvest. Resistant to moderately susceptible to scab, vigorous. Purple skin, purple flesh colour with white patches. Protein content 3.64 %, dry matter content 37.6 %.

**Note:** Second class recommendation because of its overall average yields, its high cracking sometimes, and irregular shape in some trials. Its high dry matter content is a positive point.

#### 1.3.1 Other varieties available in tissue culture and recommended in Solomon Islands

The project currently has only little or no information about the performance of the following varieties.

**SI 41:**

Local name Moresi.

Available from SPC. Pathogen tested by AVRDC.

**SI 43:**

Local name Gina 1. Not in the list of 36 recommended varieties, but the cultivar is one of the most popular varieties (Saelea 1990).

Available from SPC. Pathogen tested by AVRDC.

**SI 80:**

Local name Varatara 1.

Not available at IRETA or SPC. Pathogen tested by AVRDC.

**SI 108:**

Local name Sinulu.

Available from IRETA.

**SI 254:**

Local name B/Pelobo.

Not available from IRETA or SPC. Pathogen tested by AVRDC.

**SI 268:**

Local name Reefs Jimi. One of the most popular varieties (Saelea 1990).

Available from IRETA and SPC.

- SI 271:** Local name Napeuale.  
Not available from IRETA or SPC. Pathogen tested by AVRDC.
- SI 275:** Local name Ngiriare.  
Available from IRETA.
- SI 290:** Local name Anuta 3.  
Available from SPC. Pathogen tested by AVRDC.
- SI 391:** Is the IITA variety TIB 2 (= SI 309).  
Available from IRETA and SPC and is discussed under the IITA varieties section.
- SI 392:** Is in fact the IITA variety TIB 11.  
Available from IRETA and is discussed under the IITA varieties section.

### 1.3.2 Other Solomon Islands varieties available from SPC

The following were pathogen tested by AVRDC and are not in the list of 36 selected varieties. The project has no or only little information about their performance.

SI 73 (Dada), SI 115 (Atoifi), SI 149 (Joel), SI 192 (81 T), SI 196 (MK 3), SI 214 (WV 5), SI 231 (Kira 4), SI 251 (Alu 3), SI 253 (Alu 5), SI 270 (Lolobule), and SI 272 (Vanikoro).

## 1.4 Tongan Varieties

### Hawaii: **Third Class Recommendation**

Available from IRETA and SPC.  
To be introduced into PNG.

- Tonga:
- Hawaii became a very popular variety in Tonga after the cyclone in 1982. At that time, it was difficult to grow several of the most popular varieties because of their susceptibility to scab. Hawaii appeared to have a reasonable level of resistance when exposed to typical scab disease pressure. The level of resistance, however, is insufficient to ensure a good yield when disease pressure is high. In addition, planting large areas under only one variety, could encourage the rapid increase and spread of other diseases and pests and the resistance might break down (Taufatofua et al. 1986). These are the reasons why a sweet potato breeding programme was initiated in Tonga.
  - Being a popular variety, Hawaii is included in most variety evaluation trials.
  - Among other trials, Hawaii was tested in intermediate and advanced dry and wet season trials in 1989/1990 (Sivan and Pole 1990).
- Dry season results: tested in two intermediate trials which included several breeding lines. One average and one below average yield. Resistant to scab and high specific gravity.  
Tested in two advanced trials which included breeding lines and other varieties. One average and one below average yield. Resistant to scab, dry matter content 32.1 %, highest taste score of all entries.

Wet season results: tested in an intermediate trial. Below average yield but higher than TIS 3017. Resistant to scab, high specific gravity.

Tested in an advanced trial. Average yield, resistant to scab, dry matter content 33.4 %, high taste score.

- Fiji: Tested in four non-replicated evaluation trials.
- Koronivia: Moderately susceptible to scab, vigorous, when disease pressure is not very high, but susceptible to very susceptible when disease pressure increases. Despite its susceptibility, an above average yield.  
Taste panel: slightly sweet, fairly firm, slightly wet with a fairly pronounced flavour. White skin with purple flesh.  
Not included in further evaluation trials.
  - Sigatoka: resistant to scab, with an above average yield.
- Kiribati: Tested in a replicated trial which included 14 varieties in 1991. A very low yield, but at least some yield, which was not the case for six other entries.
- Vanuatu: Tested in five replicated trials.
- Santo: one good, one below average, one low yield, below average size tubers, low to medium rat damage, zero to low rots, low to medium cracking, most tubers of regular shape, easy to harvest. Moderately susceptible to susceptible to scab, average growth vigour to vigorous. High consumer acceptability.  
Not included in further evaluation trials.
  - Tagabe: two low yields, with small to average size tubers, low rat damage, low rots, medium cracking. resistant to moderately susceptible to scab.
- Note:** Third class recommendation because its yields, compared to other varieties, are usually average or below average, and its susceptibility to scab when disease pressure is high. Its taste, however, is well accepted.
- Amelika: Not Recommended**
- Available from IRETA.  
Only recently introduced into PNG.
- Tonga: - One of the better varieties in trials done in 1982/84 (Van Wijmeersch 1986).  
- Not recommended in Tonga.
- Fiji: Tested in three non-replicated observation trials.
- Koronivia: resistant to scab, vigorous, when disease pressure is not very high, susceptible to very susceptible, when disease pressure increases.  
Taste panel: sweet, fairly firm, slightly dry with a pronounced flavour. Red skin and white flesh.  
Not included in further evaluation trials.
- Vanuatu: Tested in four replicated trials.
- Santo: one well below average and one very low yield, below average size

tubers, medium rat damage, no rots, low cracking, most tubers of regular shape, easy to harvest. Moderately susceptible to susceptible to scab. Not included in further evaluation trials.

- Tagabe: one average and one below average yield, big tubers, low rat damage, low rots, low cracking. Resistant to scab, vigorous. Weather conditions were dry during the first trial.

**Kaloti: Not Recommended**

Available from IRETA and SPC.

Tonga: - One of the better yielders in trials done in 1982/84, but susceptible to scab (Van Wijmeersch 1986).

- Not recommended in Tonga.

Fiji: Tested in two non-replicated trials at Koronivia. Moderately susceptible to susceptible to scab, weak growth vigour. Not included in further evaluation trials.

Vanuatu: Tested in four replicated trials.

- Santo: one below average and one very low yield, high percentage of tubers damaged by rats and rots, cracking can be high, most tubers of regular shape, of medium ease to harvest. Resistant to moderately susceptible to scab, vigorous in the first trial, weak vigour in the second trial.

- Tagabe: two well below average yields, average to big size tubers, low rat damage, low rots, medium cracking. In the first trial, resistant to scab and vigorous (rainfall was low), in the second trial, very susceptible to scab.

**Siale: Not Recommended**

Available from IRETA and SPC.

Tonga: - One of the popular varieties in Tonga before scab disease became a major problem. Good yields in the dry season, but too susceptible to scab in the wet season (Van Wijmeersch 1986).

- not recommended in Tonga.

Fiji: Tested in two non-replicated observation trials at Koronivia. Very susceptible to scab, vigorous. Not included in further evaluation trials.

Vanuatu: Tested in three replicated trials.

- Santo: one well below average yield, big size tubers, zero percentage of damage by rats and rots. Susceptible to scab, vigorous.

- Tagabe: one high, with very big tubers under dry weather conditions, and one very low yield under wet weather conditions. Low rat damage, low rots, low cracking.

**Taiwan: Not Recommended**

Available from IRETA and SPC.

- Tonga:
- Taiwan was high yielding in dry season trials in 1982/84, but it was very susceptible to scab when disease pressure increases (Van Wijmeersch 1986).
  - Included in two advanced dry season trials in 1989/90. One top and one very high yield, resistant to scab, dry matter content 24.8 %, acceptable to good taste score (Sivan and Pole 1990).
  - Included in an advanced wet season trial in 1990. Above average yields, resistant to scab, dry matter content 26.7 %, acceptable taste score (Sivan and Pole 1990).

Fiji: Tested in two non-replicated observation trials at Koronivia. Moderately susceptible to very susceptible to scab with a very weak growth vigour. Not included in further evaluation trials.

**Halasika: Third Class Recommendation**

Available from IRETA and SPC.  
Discussed under the PNG variety L 131.

### 1.4.1 Tongan breeding lines

**Note:** There is a restriction on the distribution of clones resulting from the Tongan breeding programme until they have been released in Tonga under a local name.

**85016-100**

**(Lole): Second Class Recommendation**

Available from IRETA and SPC.  
Only recently introduced into PNG.

- Tonga:
- 85016-100 is a released clone from the breeding programme under the name Lole (sweet). It is an open pollination of Hawaii.

Among other trials:

- Tested in a dry season trial in 1989, with a well above average yield (Sivan and Pole 1990).
- Tested in a wet season trial in 1990. Slightly below average yield, resistant to scab, dry matter content 32.5 %, highest taste score.
- Comments: 85016-100 was released as it was already being grown by a number of farmers. It yields lower in the wet season and is somewhat susceptible to scab. It has high dry matter and rated high in taste tests (Sivan and Pole 1990).

Fiji: Tested in four non-replicated evaluation trials.

- Koronivia: resistant to scab and vigorous, when disease pressure is not very high, moderately susceptible to very susceptible when disease pressure

increases. An average yield.

Taste panel: sweet, firm, dry with a neutral flavour. Red skin with purple flesh.

Not included in further evaluation trials.

- Sigatoka: resistant to scab with a low yield.

Vanuatu: Tested in five replicated trials.

- Santo: One top yield, one below average and one very low yield. The top yield was obtained in a trial during which the last months before harvest were relatively dry, while the low yield was obtained in a trial during which rainfall was constantly high. Big size tubers in the trial with high yield, below average size in the other trials, above average damage by rats and rots, medium cracking, most tubers of regular shape, easy to harvest. Very low to resistant scab scores, even in the trial with high rainfall, vigorous to very vigorous.

Not included in further evaluation trials.

- Tagabe: one average under dry and one low yield under wet weather conditions. Low rat damage, low rots, low cracking. Zero scab score in the dry and wet season trial.

Kiribati: Unsuccessfully tested in a replicated trial which included 14 varieties in 1991 (Iqbal 1991). No yield, but this was also the case for L 318, L 389, IB 09, Kaloti and TIS 2532.

**Note:** Second class recommendation because its low yields when rainfall is constantly high during the growing period, and its susceptibility to scab when disease pressure is very high, as can be the case at Koronivia. Its low scab scores in Tonga and Vanuatu are remarkable, the variety has a good dry matter content, and its taste is well accepted.

## 1.5 Western Samoa

**IB 02: Not Recommended**

Available from IRETA.

PNG: - LAES: one comparably good, one above average, and two average yields, low rat damage, low rots, medium cracking, most tubers of irregular shape, of medium ease to harvest. Susceptible to very susceptible to scab, medium vigour to vigorous. Protein content 3.46 %, dry matter content 31.3 %.

Fiji: - Koronivia: tested in two non-replicated observation trials. Very susceptible to scab, average vigour.  
Not included in further evaluation trials.

**Note:** Not recommended because of its high susceptibility to scab and irregular tuber shape. Despite its susceptibility, yields obtained at LAES were not bad. It is a recommended variety in Western Samoa, but scab disease does not exist there.

### 1.5.1 Other Western Samoan varieties

All varieties are available from IRETA.

All other Western Samoan varieties were tested in non-replicated trials at Koronivia in Fiji.

- IB 01:** Tested in one non-replicated trial. Susceptible to scab. Not included in further trials.
- IB 03:** Tested in two non-replicated trials. Very susceptible to scab, very weak growth vigour. Not included in further evaluation trials.
- IB 04:** Tested in one non-replicated trial. Very susceptible to scab. Not included in further evaluation trials.
- IB 05:** Is a duplicate of the Tongan variety Hawaii. Discussed under Tongan varieties.
- IB 07:** Tested in one non-replicated trial. Moderately susceptible to scab. Not included in further evaluation trials.
- IB 08:** Tested in four non-replicated evaluation trials.
- Fiji
- Koronivia: very susceptible to scab, weak growth vigour, with a low yield. Taste panel: not sweet, fairly firm, slightly wet with a slightly pronounced flavour. Red skin with a pale yellow flesh. Not included in further variety evaluation trials.
  - Sigatoka: moderately susceptible to scab, with a very low yield.
- IB 09:** Tested in four non-replicated observation trials.
- Fiji
- Koronivia: susceptible to very susceptible to scab, average vigour, with a very low yield. Taste panel: not sweet, firm, somewhat dry with a neutral flavour. Pink skin colour with pale yellowish flesh. Not included in further evaluation trials.
  - Sigatoka: resistant to moderately susceptible to scab, very low yield.
- IB 10:**
- Koronivia: tested in three non replicated trials. Susceptible to very susceptible to scab, average vigour and average yield. Taste panel: sweet, fairly firm, somewhat dry with a fairly pronounced flavour. White skin with a yellow flesh. Not included in further evaluation trials.
- IB 11:**
- Tested in one non-replicated trial. Moderately susceptible to scab. Planted in another observation trial.
- IB 13:**
- Tested in one non-replicated trial. Moderately susceptible to scab, weak growth vigour. Not included in further evaluation trials.
- IB 15:**
- Tested in three non-replicated trials. Susceptible to very susceptible to scab. Not included in further evaluation trials.
- Note:** None of the local Western Samoa, varieties are recommended because of their high susceptibility to scab. Some of them, however, might be high yielding when scab disease is not a problem.

## 1.6 IITA Varieties

### TIS 3017: First Class Recommendation

Available from IRETA and SPC.  
Only recently introduced into PNG.

Fiji: Tested in seven replicated trials in different locations in 1985/88. In most of these trials TIS 3017 gave a good yield but not on of the top yielders. Resistant to scab. Dry matter content 31.0 % (Kumar et al. 1985, 1986, 1987 and 1988).

Tested in four non-replicated observation trials.

- Koronivia: moderately susceptible to scab, vigorous, with an average yield. Taste panel: slightly sweet, slightly dry with a fairly pronounced flavour. Red skin and white flesh.
- Sigatoka: resistant to scab, with a good yield.
- Koronivia: tested in three replicated trials. Resistant to moderately susceptible to scab, vigorous to very vigorous. Two average and one below average yield, a low percentage of damage by rats and rots, average size tubers. Replanted in the next replicated trial.

Released under the name Talei. Recommended variety.

Tonga: TIS 3017 has been released under the name Lafalafa and is a recommended variety. Among other trials, the variety was tested in an intermediate and advanced trial in the dry and wet season in 1989/90 (Sivan and Pole 1990).

- Dry season trial results: resistant to scab, with a good and a relatively low yield.
- Wet season results: resistant to scab, a low and average yield, dry matter content 31.3 %, good taste score.

Vanuatu: Tested in several replicated wet and dry season trials in 1985/87 (Van Wijmeersch and Bule 1988).

Comments: cultivar TIS 3017 is a vigorous variety (plant vigour index 3.9), and it performed very well on Santo and Efate. The vines completely covered the ground about two months after planting when the cuttings are planted on ridges made 1.0 m apart. Because the variety is moderately susceptible to scab disease (scab index 1.6) attention should be given to the choice of planting material (only scab free material should be planted) when plantings are made after a period of wet weather.

Although a relatively high yield is obtained from early harvests at four months, harvests are best made at 5-6 months depending on the weather conditions during the growing period. Only a moderate yield is obtained from plantings made during the wet season from November to April. During the dry season, cultivar TIS 3017 is high yielding (25 - 35 t/ha), producing a high number of marketable tubers (four - six tubers per plant) of medium size (300 - 400 g per tuber). Most tubers are of regular shape and they are of medium ease to harvest. Harvest of the shallow tubers around the base of the plant should not be postponed to avoid rat damage and rots. The consumer acceptability of the

tubers is average.

Kiribati: Unsuccessfully tested in a replicated trial which included 10 varieties. Yields in the trial were in general very low, with TIB 2 having the highest yield of five t/ha.

Western Samoa: One of the five released varieties in 1990 for distribution to farmers.

**TIS 2498: First Class Recommendation**

Available from IRETA and SPC.  
Only recently introduced into PNG.

Note: because of a mix up with TIS 3017 in previous years, TIS 2498 has only recently been evaluated in various Pacific countries.

Fiji: Tested in a trial which included six varieties in 1987/88. Resistant to scab, with the highest yield (Kumar et al. 1988).

Tested in four non-replicated observation trials.

- Koronivia: resistant to moderately susceptible to scab, very vigorous, with a below average yield.  
Taste panel: sweet, firm, slightly dry with a somewhat pronounced flavour. Red skin and white flesh.
- Sigatoka: resistant to scab, with a below average yield.
- Koronivia: tested in three replicated trials. Resistant to scab, vigorous. Two top yields and one good yield, with a medium rat damage, and average size tubers. Included in the next replicated trial.

Vanuatu: Tested in two non-replicated observation trials. One low and one top yield, low rat damage, most tubers of regular shape.

Tested in five replicated trials.

- Santo: no significant yield differences between varieties (all yields were low in the trial), relatively low damage by rats and rots, small tuber size.
- Tagabe: zero scab score, very vigorous (assessed in two trials). One top yield, two comparably high, and one comparably low yield, average damage by rats and rots, average tuber size, most tubers of regular shape.

Recommended for evaluation in various environmental sites.

Western Samoa: One of the five released varieties in 1990 for distribution to farmers.

Solomon Islands: Included as an experimental check in all evaluation trials. Most of the tested IITA varieties were reported as very susceptible to scab except for TIS 2498 and TIB 2 (Caiger 1988).

**TIB 2: Second Class Recommendation**

Available from IRETA and SPC.  
Only recently introduced into PNG.

PNG: - LAES: Tested in a non-replicated observation trial. Moderately susceptible to scab, vigorous. Good yield. Skin colour white, flesh colour light orange, which is the same description as in Kiribati and SI 309 (= TIB 2) in the ACIAR list.

NOTE: could be a different variety from the original IITA cultivar, which was described with a white skin and white flesh.

Fiji: Evaluated in seven replicated trials in 1985/87 (Kumar et al. 1985, 1986, 1987, 1988).

- Wet season results: one top yield and one average yield. Resistant to scab.

- Dry season results: two top, one average, and two very low yields. Resistant to scab.

Comments: TIB 2 which average the highest yield in previous trials gave the lowest yields in dry season trials in 1986 (Sivan et al. 1986). This variety established and grew poorly in the dry conditions that prevailed soon after planting. It appears that this variety is susceptible to drought.

Kiribati: - Tested in a replicated trial with nine other IITA varieties in 1988. A top yield with big size tubers. White skin, light orange flesh (Finlay 1989).

- Tested in a non-replicated evaluation trial in 1990. High yield and high taste score (Iqbal 1991).

- Tested in a replicated trial in 1991. Second highest yield (after L 329), high taste score for its tubers and leaves.

Recommended variety for atoll environments (Iqbal 1991).

Vanuatu: Evaluated in several trials in 1985/87. Comparably good yields in wet season and some dry season trials, resistant to scab, but a very weak growth vigour when rainfall is low (Van Wijmeersch and Bule 1988). For this reason the variety was Not included in further evaluation trials.

Solomon Islands: TIB 2 is in the list of 36 selected varieties under the Acc. No. 391. Reported as one of the only two tested IITA varieties with resistance to scab (Caiger 1988).

Western Samoa: One of the five released varieties in 1990 for distribution to farmers.

**Note:** Second class recommendation because of its drought susceptibility.

**TIB 9: Not Recommended**

Available from IRETA.

Vanuatu: - Tested in several replicated trials in 1985/87 (Van Wijmeersch and Bule 1988). Average yields in the dry season and below average yields in the wet season. When disease pressure is high, TIB 9 is very susceptible to

scab, with a weak growth vigour.

Kiribati: - Tested in a replicated trial which included nine IITA varieties. Average yield with small tubers. White skin colour, and light cream flesh colour, good taste score (Finlay 1989).

Solomon Islands: Unsuccessfully tested in at least one trial.

**TIB 10: Not Recommended**

Available from IRETA.

Vanuatu: - Tested in several replicated trials in 1985/88 (Van Wijmeersch and Bule 1988). Good to high yields in dry season trials, but below average in the wet season. Susceptible to scab, average vigour.

Fiji: - Tested in four replicated trials in 1985/86 (Kumar et al. 1985, 1986). In both the wet season and dry season, one average and one below average yield. Moderately susceptible to susceptible to scab. Not included in further evaluation trials.

- Mentioned by Dr Jackson as one of the IITA varieties with a moderate resistance to scab but generally poor yields (Jackson 1986).

Solomon Islands: - tested in at least three trials without recommendation (Caiger 1988).

**Note:** Not recommended because of its susceptibility to scab and its low yields during the wet season.

**TIB 11: Not Recommended**

Available from IRETA and SPC.

PNG: Only recently introduced into PNG. Planted in a non-replicated observation trial. Very susceptible to scab, average growth vigour. Low yield. White skin colour, yellow with some orange flesh colour.

Kiribati: Tested in a replicated trial with nine other IITA varieties. Below average yield, with a dry matter content of 28.9 %, white skin, very slight orange flesh, cortex cream (Finlay 1989).

Tonga: Tested in a non-replicated wet season observation trial in 1983/84 (Van Wijmeersch 1986). Relatively high yield (yields were extremely low in the trial), with a moderately susceptible scab score.

Solomon Islands: TIB 11 is in the list of 36 selected varieties, under the Acc. NO 392 (Saelea 1990). The variety, however, was not mentioned as being more resistant to scab than the other tested IITA varieties which are mostly susceptible to scab (Caiger 1988).

Fiji: Dr. Jackson (who was involved in the evaluation of IITA varieties in Fiji and Solomon Islands) recommended only 4 of the IITA varieties for the countries where scab disease is present. These varieties (TIS 3017, TIS 2498, TIS 3030, and TIB 2) were recommended, as they combined good resistance to scab with high yields. TIB 10, TIB 11, TIS 1487 and TIS 1499, have moderate resistance but yields were usually poor. Many of the IITA

varieties produce very low yields, especially in the wet seasons (Jackson 1986).

**Note:** Not recommended because at present there are many better performing varieties available in tissue culture.

**TIS 1499: Not Recommended**

Available from IRETA.

Vanuatu: Tested in several replicated trials in 1985/87 (Van Wijmeersch and Bule 1988). Average yields in the dry season and well below average yields in the wet season. Susceptible to very susceptible to scab, average vigour to vigorous.

Kiribati: Tested in a replicated trial which included nine IITA varieties. Highest yield after TIB 2, with big tubers. Purple skin colour and white flesh, good taste score (Finlay 1989).

Fiji:

- Tested in four replicated trials in 1985/86 (Kumar et al. 1985, 1986). A low and below average yield in the dry season, a low and very low yield in the wet season. Moderately susceptible to scab.
- Mentioned by Jackson (1986) as one of the IITA varieties with a moderate resistance to scab but generally poor yields.

Solomon Islands: tested in at least three trials without recommendation (Caiger 1988).

**TIS 2525: Not recommended**

Available from IRETA.

Kiribati: Tested in a replicated trial which included nine IITA varieties. Average yield with average size tubers. White skin and flesh colour, poor taste score (Finlay 1989).

Solomon Islands: tested in at least three trials without recommendation (Caiger 1988).

**TIS 2532: Not Recommended**

Available from IRETA and SPC.

Kiribati:

- Tested in a replicated trial which included nine IITA varieties. Below average yield with below average size tubers. Skin colour dark red, flesh colour white. Very high taste score (Finlay 1989).
- Tested in a non-replicated observation trial, which included 11 varieties, with a below average yield (Iqbal 1991).
- Tested in a replicated trial which included 14 varieties, with a very low yield (Iqbal 1991).

Solomon Islands: Tested in at least three replicated trials without recommendation. Susceptible to scab.

**TIS 2534: Not Recommended**

Available from IRETA and SPC.  
PNG name: NG 7570 (NO 892 in the highlands collection).

**Kiribati:** Tested in two replicated trials which included nine IITA varieties.  
In the first trial, yields were very low for all entries, with the highest yield being five t/ha for TIB 2. TIS 2534 was one of the few varieties with at least some tuberisation.  
In the second trial, all tubers were stolen, but it was noticed that tuberization was highest for TIS 2534 and TIS 3017 (Iqbal 1991).

**Solomon Islands:** Tested in at least two replicated trials with no recommendation (Caiger 1988). Susceptible to scab.

**Philippines:** - In top five yielding cultivars (with average tuber size, variety NG 7570) in one of six wet season trials (35 varieties per trial), at different locations in 1990. Not in the top five performers in similar trials in the dry season.  
Description: skin colour pink, flesh colour white, dry matter content 25.4 %. Zero scab scores for all varieties.

**TIS 2544: Not Recommended**

Available from IRETA.

**Kiribati:** Tested in a replicated trial which included nine IITA varieties. Average yield with small tubers. Dark red skin colour, white flesh, acceptable taste (Finlay 1989).

**Solomon Islands:** Tested in a replicated dry season trial in 1983. Susceptible to scab, with the lowest yield of all entries (Jackson 1986).

**TIS 3030: Not Recommended**

Available from IRETA and SPC.

**Fiji:** Tested in nine replicated wet and dry season trials in 1985/88. Resistant to moderately susceptible to scab. In most trials yields were comparable to TIS 3017, with medium size well shaped tubers, dry matter content 31.0 %. However, even during the wet season trials, rainfall was relatively low. Yields were considerably lower during a wet season trial in 1988 (Kumar et al. 1985,1986, 1987, 1988).  
TIS 3030 was first considered for release to farmers together with TIS 3017, TIS 2498 and Honiara, but was dropped later because of its more obvious susceptibility to scab.

**Vanuatu:** Tested in several trials in 1985/87 (Van Wijmeersch and Bule 1988). Although TIS 3030 yielded well in dry season trials, its performance was poor in the wet season. During wet seasons the variety is moderately susceptible to susceptible to scab, of medium vigour to vigorous, with medium to high rat damage, low rots, tubers of regular shape, easy to harvest. Good consumer acceptability. Not recommended.

**Kiribati:** Unsuccessfully tested in two replicated trials (low yields for all entries) in 1990/91 (Iqbal 1991).

**Solomon Islands:** Tested in at least four trials without recommendation.

Western Samoa: One of the five released varieties in 1990 for distribution to farmers. Note: scab disease does not exist in Western Samoa.

**Note:** Not recommended despite its good yields during the dry season, its attractive colour and shape, and good taste, because of its susceptibility to scab, which might be the reason for its low yields during the wet season.

**TIS 5081: Not Recommended**

Available from IRETA.

Vanuatu: Tested in several replicated trials in 1985/87 (Van Wijmeersch and Bule 1988). Good to average yields in the dry season, below average to low yields in the wet season. Susceptible to very susceptible to scab, average vigour. Good taste score.

Solomon Islands: Tested in at least two replicated trials without recommendation (Caiger 1988).

**TIS 5125: Insufficient Information**

Available from IRETA.

Kiribati: Tested in a replicated trial which included nine IITA varieties. A low yield with small tubers. Dark purple/red skin colour, orange with cream areas flesh colour. Very low taste score (Finlay 1989).

**TIS 8250: Not Recommended**

Available from IRETA.

Fiji: Tested in a wet season observation trial which included five other IITA varieties in 1988 (Kumar et al. 1988). Below average yield, very susceptible to scab.

Kiribati:

- Tested in a replicated trial which included 11 varieties in 1990. Below average yield (Iqbal 1991).
- Tested in a replicated trial which included 14 varieties in 1991 (Iqbal 1991). A comparably good yield (but considerably lower than L 329 and TIB 2). Good taste score for the tubers, acceptable score for the leaves.

### 1.6.1 Other IITA varieties tested in the pacific but not any more available in tissue culture in the region

**TIS 1145: Insufficient Information:**

Available from CIP.

Fiji: Tested in a very dry season evaluation trial which included four IITA cultivars and Honiara as "local" check. A relatively low yield compared to the other entries (Kumar et al. 1987).

**TIS 1487: Not Recommended**

Available from CIP.

Kiribati: Tested in a non-replicated evaluation trial and a replicated trial, which included 14 varieties in 1990/91. No tuberisation in both trials.

Solomon Islands: Tested in four replicated trials without recommendation (Caiger 1988).

Fiji: Mentioned by Jackson (1986) as one of the IITA varieties with moderate resistance to scab but generally poor yields.

**TIS 5093: Insufficient Information**

Kiribati: Tested in a replicated trial, which included nine IITA varieties. The lowest yield of all entries with small tubers. White skin colour, cream to slight orange flesh colour, acceptable taste (Finlay 1989).

**TIS 5270: Not Recommended**

Vanuatu: Tested in several trials in 1985/87 (Van Wijmeersch and Bule 1988). Average to below average yields in the dry season, below average to low yields in the wet season. Susceptible to very susceptible to scab, vigorous to very vigorous. Poor consumer acceptability.

Solomon Islands: Tested in at least two replicated trials with no recommendation (Caiger 1988).

**TIS 7045: Insufficient Information**

Fiji: Tested in a non-replicated evaluation trial, which included five IITA varieties in 1988 (Kumar et al. 1988). Average yield, moderately susceptible to scab.

**1.6.2 IITA varieties at IRETA or AVRDC with no information**

**TIB 4:** Not available from IRETA. Was available from AVRDC.

**TIB 5:** Available from IRETA.

**TIS 3270:** Available from IRETA.

**1.7 AVRDC Varieties**

**L 383: Not Recommended**

Available from IRETA.  
Is the AVRDC variety: CN-1038-16

- PNG:
- M. levett: relatively high yields with average size tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: one very high and one good yield in two trials in 1987. Considered promising in 1987 (Rangai 1987).
  - LAES: one high, two good and two average yields, low rat damage, low rots, cracking can be high, most tubers of regular shape, easy to harvest.

Susceptible to very susceptible to scab, vigorous. Protein content 3.19 %, dry matter content 19.8 %. Skin colour pink, flesh colour white with yellow spots, as in the ACIAR description list (Beetham and Freeman 1992).

- Laloki: one high, two average and one zero yield, rat damage can be high, low to medium rots, low to medium cracking, most tubers of regular shape, of medium ease to harvest. Susceptible to very susceptible to scab, vigorous. Protein content 2.97 %, dry matter content 26.0 %.
- Fiji:
- Koronivia: tested in two non-replicated evaluation trials. Very susceptible to scab with a very weak vigour. Not included in further evaluation trials.

- Vanuatu:
- Tested in two replicated trials.
- Santo: an average yield with a high percentage of damage by rots and rats, no cracking, relatively small tubers, most tubers of regular shape, of medium ease to harvest. Susceptible to scab, vigorous. Light purple skin, light yellow flesh (fits the ACIAR description). Not included in further evaluation trials.
  - Tagabe: the lowest yield of all entries, no rat damage, average size tubers, very susceptible to scab, average vigour.

- Philippines:
- In top five yielding cultivars in four of six wet season trials (35 varieties per trial) at different locations in 1990. Resistant to moderately susceptible to scab. Skin colour purple, flesh colour yellow. Dry matter content ranging between 19.8 % and 31.4 %, with an average of 25.1 % (Amante 1991a).
  - In top five yielding cultivars in three of six dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a).

Because of its low and unstable dry matter content, the variety was expected not to be acceptable to consumers (Amante 1991a).

**Note:** The variety tested at LAES, in Vanuatu and the Philippines could be a different variety from the original AVRDC clone, which was described with a white skin and white flesh (AVRDC 1988).

Not recommended (for the variety fitting the ACIAR description list (Beetham and Freeman 1992)) because, despite of the often good to high yields, the dry matter content is low, affecting the consumer acceptability, and the high susceptibility to scab.

**L 387: Not Recommended**

Available from IRETA and SPC.  
Is the AVRDC variety: AIS-0122-2.

- PNG:
- M. Levett: relatively high yields with average size tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).
  - S. Rangai: a high yield in a trial in 1986. Considered promising in 1987 (Rangai 1987).
  - LAES: one very high, one high, one good, one well above average, and two average yields, rat damage and rots can be high if not harvested in time, medium to high cracking, most tubers of regular shape, easy to

harvest. Susceptible to very susceptible to scab. Protein content 4.47 %, dry matter content 15.4 % (from small tubers). Low consumer acceptability. Skin colour orange, flesh colour orange, as in the ACIAR description list (Beetham and Freeman 1992) (no information about the original AVRDC description).

- Laloki: one high, two above average and one zero yield, rat damage and rots can be high if not harvested in time, medium cracking, most tubers of regular shape, easy to harvest. Moderately susceptible to scab, vigorous to very vigorous. Protein content 5.88 %, dry matter content 25.1 %.

Fiji: - Koronivia: tested in a non-replicated observation trial. Moderately susceptible to scab. Planted in another non-replicated observation trial.

**Note:** Not recommended (for the variety which fits the ACIAR description list (Beetham and Freeman 1992)) despite its high to good yields, because of its high susceptibility to scab, high rots, and low consumer acceptability due to its low dry matter content.

**L 389:                    Insufficient Information**

Available from IRETA.  
Is the AVRDC variety: CN-1028-15.

PNG: - Only recently re-introduced into PNG.  
  
- M.Levett: comparably very high yields with relatively big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).

Fiji: Tested in four non-replicated observation trials.  
  
- Koronivia: Moderately susceptible to susceptible to scab, with a very low yield.  
Taste panel: sweet, somewhat firm, slightly wet with a pronounced flavour. Pink skin with deep yellow flesh.  
The description roughly fits the AVRDC description with a violet/red skin and an orange/yellow flesh colour (AVRDC 1988), but not with the ACIAR description list (Beetham and Freeman 1992) in which L 389 has a cream skin colour and yellow flesh.  
Not included in further evaluation trials.  
  
- Sigatoka: Moderately susceptible to scab.

**L 390:    Not Recommended**

Available from IRETA.  
Is the AVRDC variety: CN-1108-13.

PNG: - M.Levett: highest yield of all varieties tested, with relatively big tubers in two wet season trials in 1985/87 (Levett and Osilis 1990).  
- S. Rangai: high yield in an evaluation trial in 1987. Considered promising in 1987 (Rangai 1987).  
- LAES: one average, two low, two very low, and one zero yield, medium rat damage, no rots, low to medium cracking, most tubers of irregular shape, easy to harvest. Very susceptible to scab, vigorous. Protein content 3.22 %, dry matter content 24.7 % (from small tubers). Skin

colour purple, flesh colour yellow.

Probably a different variety from the original AVRDC one. In the AVRDC description, the variety has a light red/orange skin and orange flesh colour! No information about the skin and flesh colour in the ACIAR description list (Beetham and Freeman 1992).

- Laloki: one good and three average yields, low rat damage, rots can be high if not harvested in time, medium cracking, most tubers of irregular shape, easy to harvest. Very susceptible to scab, average vigour. Skin colour purple, flesh colour yellow as observed at LAES.

Fiji:

- Koronivia: the variety CN-1108-13 was tested in a non-replicated evaluation trial. Susceptible to scab while the other tested varieties had low scores.  
Not included in further evaluation trials.

Philippines:

- In top five yielding cultivars (with average tuber size) in three of six wet season trials (35 varieties per trial) at different locations in 1990. Resistant to moderately susceptible to scab. Skin colour tan, flesh colour orange, average dry matter content 25.7 % (Amante 1991a). The description fits the AVRDC one.
- In top five yielding cultivars (with average tuber size) in one of six dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a).
- The variety was expected unlikely to be accepted by consumers because of its low dry matter content, which consumers associate with orange flesh colour (Amante 1991a).

**Note:** this association between orange flesh colour and low dry matter content has also been noted for some varieties at LAES, but this is not the case for all varieties with an orange flesh colour!

**Note:** Not recommended because of its susceptibility to scab, despite its good yields in the Philippines (the results at LAES and Laloki are not taken into account as the descriptions did not fit the AVRDC ones for CN-1108-13), and its low dry matter content which affects its consumer acceptability.

**CN-1232-9:**

**Insufficient Information**

Available from IRETA.

Fiji:

Tested in four non-replicated evaluation trials.

- Koronivia: when disease pressure is high, susceptible to very susceptible to scab, average vigour. Despite this susceptibility, an above average yield.

Taste panel: sweet, fairly firm, slightly dry and a fairly pronounced flavour. White skin with a dull yellowish flesh.

Not included in further evaluation trials.

- Sigatoka: resistant to moderately susceptible to scab, with an average yield.

- Vanuatu: Tested in two replicated trials which included eight varieties in 1992.
- Santo: no significant yield differences between the varieties, which included TIS 2498, L 318, L 11, L 131, and two selected local varieties (the yield of all varieties was low). High damage due to rats and rots, and average size tubers.
  - Tagabe: no significant yield differences between the varieties tested, average size tubers. As on Santo, yields were low for all varieties due to very dry weather conditions.

**Note:** Insufficient information, the variety is susceptible to scab, when disease pressure is high, but the yields obtained at present are comparable to some of the better varieties. The results obtained in Vanuatu have to be confirmed.

**CN-1489-89: Insufficient Information**

Not available from IRETA or SPC. Pathogen tested by AVRDC.

- Fiji: Tested in four non-replicated evaluation trials.
- Koronivia: when disease pressure is high, susceptible to very susceptible to scab, average vigour. Despite this susceptibility, an above average yield.  
Taste panel: not sweet, fairly firm, dry with slightly pronounced flavour. White skin with a pale yellowish flesh.  
Not included in further evaluation trials.
  - Sigatoka: resistant to scab. No yield data.

- Vanuatu: Tested in two replicated trials which included eight varieties in 1992.
- Santo: no significant yield differences between the varieties, which included TIS 2498, L 318, L 11, L 131, and two selected local varieties (the yield of all varieties was low). Below average damage due to rats and rots, and average size tubers.
  - Tagabe: no significant yield differences between the varieties tested, average size tubers. As on Santo, yields were low for all varieties due to very dry weather conditions.

**Note:** Insufficient information, the variety is susceptible to scab, when disease pressure is high, but the yields obtained at present are comparable to some of the better varieties. The results obtained in Vanuatu have to be confirmed.

**CN-1525-11: Insufficient Information**

- Available from SPC.
- Fiji: Tested in two non-replicated observation trials. Resistant in the first trial, removed from the second trial because of little leaf symptoms.
- Kiribati: Tested in a non-replicated evaluation trial with 11 varieties in 1990. Below average yield (Iqbal 1991).

**I 57**

**(Tainung 57):**

**Not Recommended**

Available from IRETA and SPC.

Fiji:

Tested in one non-replicated observation trial. Moderately susceptible to susceptible to scab, while most of the 33 other tested varieties had low scores.

Not included in further evaluation trials.

Philippines:

- In top five yielding cultivars in two of six wet season trials (35 varieties per trial), at different locations in 1990. Resistant to scab in one trial (low scab scores for all varieties in this trial), susceptible in the other trial.

Description: Skin colour salmon, flesh colour orange, dry matter content 25.5 % (Amante 1991a).

- In top five yielding cultivars in one of six dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a).

**I 981**

**(Tainung 66):**

**Not Recommended**

Available from IRETA and SPC.

Fiji:

Tested in two non-replicated observation trials at Koronivia. Susceptible to very susceptible to scab (most other tested varieties had lower scores), with a low growth vigour.

Not included in further evaluation trials.

Philippines:

- In top five yielding cultivars (with average tuber size) in two of six dry season trials (35 varieties per trial), at different locations in 1990/91. Zero scab scores for all the top five varieties (Amante 1991a).

**Note:**

Of the AVRDC varieties not mentioned in this report, the project has no information.

- Dr. Jackson (who was involved in the evaluation of IITA varieties in Fiji and Solomon Islands) found most of the AVRDC introductions were extremely susceptible to scab. Many had orange flesh with high B-carotene content which imparted a flavour not liked in many countries, and in addition, dry matter content was low. (Many of the AVRDC varieties have probably been selected for other purposes, like processing, rather than for table consumption. This is also the case for some of the Philippines' varieties (Jackson 1986).

## 1.8 Philippines Varieties

**VSP 1:**

**Second Class Recommendation**

Available from IRETA.

Recommended in the Philippines.

PNG:

- LAES: two very high, one good and one average yield, low to medium rat damage, medium rots, very low cracking, most tubers of regular shape, easy to harvest. Susceptible to scab, vigorous. Protein content 2.58 %, dry matter content 27.0 %. The taste is not well accepted because of its low dry matter content. However, the tubers are not so soft as some other orange flesh varieties after cooking.

- Philippines:
- Villamayor Jr.: Morphological description: green mature leaf colour, no mature leaf lobbing, green immature leaf colour, abaxial vein colour of immature leaf: all veins purple, moderately purple petiole pigmentation. Skin colour purple, flesh colour orange.  
Agronomic characteristics: maximum yield 24 t/ha, recommended harvest time three to four months, moderately susceptible to weevil, moderately susceptible to scab, not tolerant to poor soils, not tolerant to shade, not tolerant to drought, usually there is tuber production from lateral vines.  
Storage characteristics: high weight loss, very low sprouting, low rots.  
Utilization characteristics: slightly acceptable when boiled, protein content 2.2 %, highest dry matter content 26 %, good for processing (Villamayor Jr. 1988).
  - Van Den: texture after boiling very moist, dry matter content 24.6 %, fresh root consumption very poor, flour good, starch very poor, fried chips/strips very good, ketchup very good, fruity products very good (Van Den 1992).

**Note:** Second class recommendation despite its good yield and good shape, because of its low dry matter content, which affects the consumer acceptability.

**BNAS 1: Third Class Recommendation**

Not available from IRETA or IPS. Pathogen tested at PRI.

- PNG:
- LAES: three very high and one average yield, rat damage can be high, very low rots, medium cracking, most tubers of irregular shape, of medium ease to harvest. Moderately susceptible to susceptible to scab, vigorous. Protein content on dry basis 2.94 %, dry matter content 31.6 %. White skin colour and orange flesh.

- Philippines:
- The variety does not appear in the list of recommended varieties (Villamayor Jr. 1988).

**Note:** Third class recommendation because of its irregular tuber shape, which makes the tubers look un-attractive.

### 1.8.1 Other varieties recommended in the Philippines and available in tissue culture

All varieties to be introduced into PNG.

- VSP 2:**
- Not available from IRETA or SPC. Pathogen tested at IPS.
- Villamayor Jr.: moderately resistant to scab, not tolerant to poor soils, not drought resistant, seldom tuber production from lateral vines, skin colour orange/brown, flesh colour orange with purple spotting. Moderately acceptable when boiled, protein content 2.0 %, highest dry matter content 33 %, good for processing. High weight loss during storage, low sprouting, very high rotting (Villamayor Jr. 1988).
  - Van Den: very moist after boiling, dry matter content 28.9 %, fresh root consumption very poor, flour good, starch very poor, fried chips/strips good, ketchup good, fruity products very good (Van Den 1992).

**VSP 3:** Available from IRETA.

- Villamayor Jr.: highly susceptible to scab, moderately tolerant to poor soils, highly tolerant to drought, seldom tuber production from lateral

vines, skin colour red, flesh colour yellow. Moderately acceptable when boiled, protein content 2.0 %, maximum dry matter content 33 %, good for bakery products. Moderate weight loss during storage, very high sprouting, very low rotting (Villamayor Jr. 1988).

- Van Den: neither dry nor moist after boiling, dry matter content 33.0 %, fresh root consumption very good, flour good, starch good, fried chips/strips good, ketchup good, fruit products very poor (Van Den 1992).

**VSP 4:** Available from IRETA.

- Villamayor Jr.: moderately susceptible to scab, not tolerant to poor soils, highly tolerant to drought, usually production from lateral vines, skin colour white, flesh colour yellow with orange spotting. Moderately acceptable when boiled, protein content 1.7 %, maximum dry matter content 34 %. Moderate weight loss during storage, low sprouting, very low rotting (Villamayor Jr. 1988).
- Van Den: slightly moist after boiling, dry matter content 31.0 %, fresh consumption good, flour good, starch good, fried chips/strips very good, ketchup fair, fruity products poor (Van Den 1992).

**VSP 5:** Not available from IRETA or SPC. Pathogen tested at IPS.

- Villamayor Jr.: moderately resistant to scab, not tolerant to poor soils, highly tolerant to drought, tuber production from lateral vines normal, skin colour red, flesh colour purple. Slightly acceptable when boiled, protein content 1.4 %, maximum dry matter content 42 %, good for bakery products. High weight loss during storage, very low sprouting, high rotting (Villamayor Jr. 1988).
- Van Den: neither dry nor moist after boiling, dry matter content 31.4 %, fresh consumption good, flour very poor, starch good, fried chips/strips very poor, ketchup poor, fruity products fair (Van Den 1992).

**UPL-SP1:** Available from IRETA.

- Villamayor Jr.: moderately susceptible to scab, moderately tolerant to poor soils, not tolerant to drought, seldom tuber production from lateral vines, skin colour red, flesh colour white. Highly acceptable when boiled, protein content 1.6 %, maximum dry matter content 37 %. High weight loss during storage, moderate sprouting, low rots (Villamayor Jr. 1988).

**UPL-SP3:** At IPS, not pathogen tested yet.

- Villamayor Jr.: moderately resistant to scab, highly tolerant to poor soils, moderately tolerant to drought, seldom tuber production from lateral vines, skin and flesh colour white. Highly acceptable when boiled, protein content 1.6 %, maximum dry matter content 39 %, good for flour. Moderate weight loss during storage, low sprouting, very low rotting (Villamayor Jr. 1988).

**BPI-SP1:** Not available from IRETA or SPC. At IPS, not pathogen tested yet.

- Villamayor Jr.: moderately susceptible to scab, no data on tolerance to

poor soils, no data on tolerance to drought, seldom tuber production from the lateral vines, skin colour and flesh colour orange. Slightly acceptable when boiled, protein content no data, maximum dry matter content 26 % (Villamayor Jr. 1988).

**BPI-SP2:** Not available from IRETA or SPC. Pathogen tested by IPS.

- Villamayor Jr.: highly susceptible to scab, moderately susceptible to poor soils, no data on tolerance to drought, seldom tuber production on lateral vines, skin and flesh colour white. Moderately acceptable when boiled, protein content 1.7 %, maximum dry matter content 31 %. Moderate weight loss during storage, moderate sprouting, very low rotting (Villamayor Jr. 1988).

## 1.9 Puerto Rico

**Margarita:** **Third Class Recommendation**

Not available from IRETA and SPC. Pathogen tested at IPS.

**PNG:**

- LAES: two high, one comparably good and one below average yield, medium rat damage, low rots, zero to low cracking, most tubers of regular shape, relatively difficult to harvest. Resistant to moderately susceptible to scab, average vigour to vigorous. Skin colour purple, flesh colour white. Protein content 2.20 %, dry matter content 40.4 %.

**Note:** Third class recommendation because of its on overall only average yields. Its high dry matter content is certainly a positive point.

**Papota:** **Insufficient Information**

Available from IRETA.  
Only recently introduced into PNG.

**Fiji:**

- Koronivia: tested in a non-replicated observation trial. Moderately susceptible to susceptible to scab.  
Not included in further evaluation trials.

**Philippines:**

- In top five yielding cultivars in one of six wet season trials (35 varieties per trial), at different locations in 1990. Description: tan skin colour, cream flesh colour, dry matter content 27.0 % (Amante 1991a).
- In top five yielding cultivars in two of six similar dry season trials (35 varieties per trial), at different locations in 1990/91 (Amante 1991a).
- Selected by 57.1 % (second highest score) of 26 farmers after evaluating 37 varieties which included 10 local ones for top growth, tubers and taste.  
Comments: attractive colour, high yield, uniform shape, medium sized roots, sweet.

**Western Samoa:**

- Papota has been released for distribution to farmers. It is said to be a non-sweet variety.  
Note: scab disease does not exist in Western Samoa.

### 1.9.1 Other Puerto Rico varieties available from IRETA

**Tapota and Wart** No information.

## 1.10 Other varieties available from IRETA

### 1.10.1 Australia

**Beerwah Gold:**                    **Insufficient Information**

Tonga:                                Reported to perform well under Queensland conditions (P. Taufatofua, Tongan Sweet Potato Breeder, personal communication). Introduced recently into Tonga.

**Lo 323:**                            **No information**

**Red Abundance:**                **No information**

### 1.10.2 Burma

**White:**                             **No information (selected by CIP)**

### 1.10.3 Vietnam

**Hung Loc 4:**                    **No information (selected by CIP)**

## 1.11 Other Varieties Available from SPC

### 1.11.1 USA

**Excel and Resisto:**            **No information**

Recently introduced into Fiji.

## 1.12 Other Varieties in Tissue Culture

There are a large number of other cultivars pathogen tested at IPS, AVRDC, and USDA from Japan, Malaysia, China, Peru, USA, Guatemala, Mexico, Venezuela, Sri Lanka, Thailand, Indonesia, Vietnam, Bangladesh, Puerto Rico, Korea, India, Niue, and Cook islands (Van Wijmeersch et al. 1992), of which the project has no information at present. In addition, other institutions might have varieties from the Pacific Region or other countries.

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