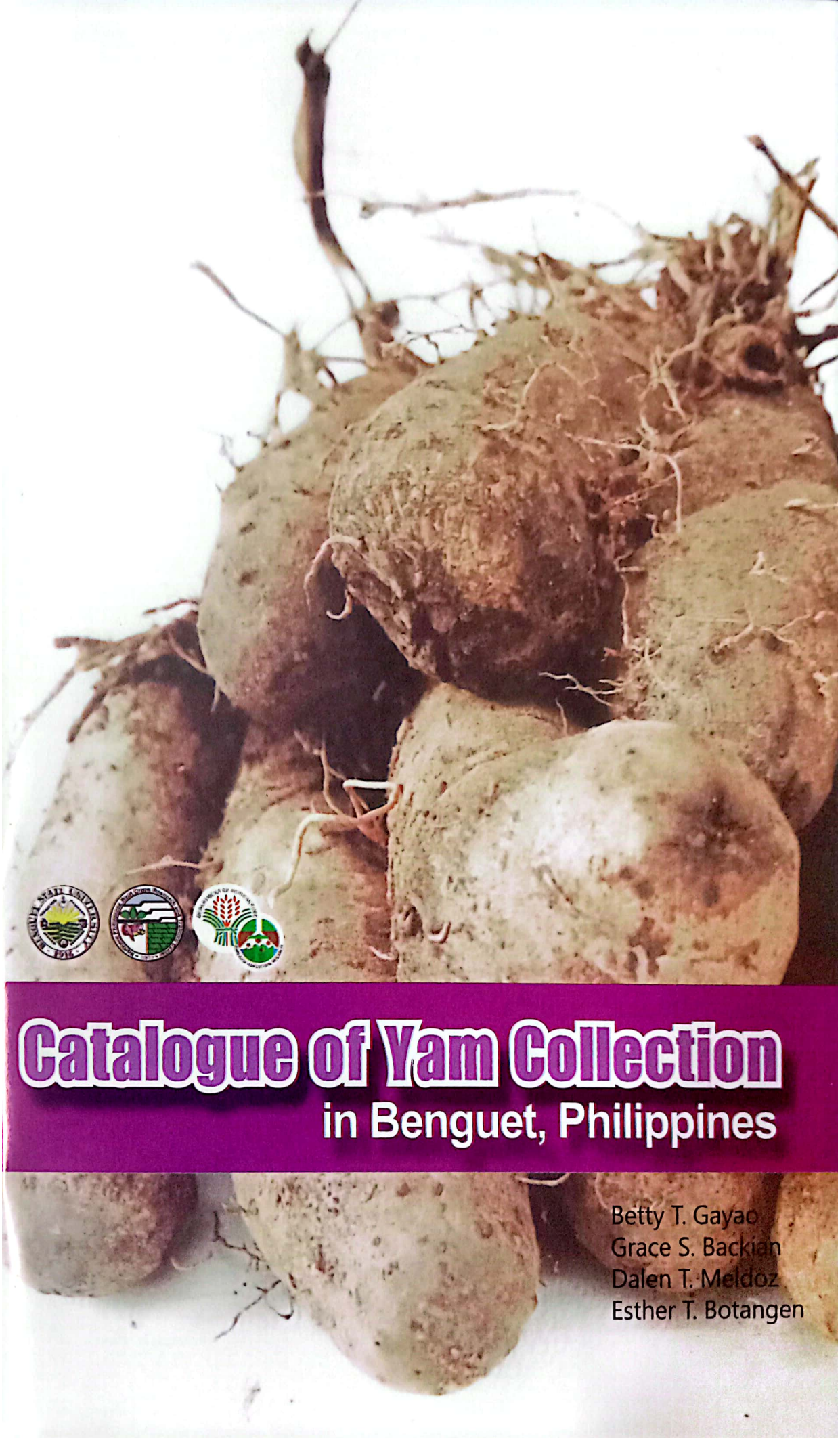
Catalogue of Yam Collection in Benguet, Philippines

Betty T. Gayao
Grace S. Backian
Dalen T. Meldoz
Esther T. Botangen



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Preface

The yam family (*Dioscorea spp., Dioscoreaceae*) is a large genus with more than 600 species. The Asiatic yam is also known as the first and most commonly cultivated species in Southeast Asia. This catalogue is on the Asiatic yam or greater yam (*Dioscorea alata*) found in Benguet, Philippines. Locally, this species is known as *ubi, ube, ubih, ongo, liwet, ulang* or *guhhuddan* among the ethno-linguistic groups in northern Philippines. The export potential and industry importance of this crop as flavorings in ice cream, cakes and confectioners prompted research and commercialization.

The Northern Philippines Root Crops Research and Training Center of the Benguet State University (NPRCRTC-BSU) is among the institutions that embarked in this endeavor. In 1994-95, Dr. Violeta B. Salda embarked in the collection, ethno-botany, physico-chemical analysis and industrial food uses of Philippine yams as part of her doctoral dissertation at Hongkong University, then continued on the commercial processing cum research of purple yam powder in partnership with some Korean investors in 2001. In 2003, with congressional funding from party-list group, CIBAC, germplasm acquisition, preliminary trials, advance yield trial, and on-farm evaluation for pests and diseases and processing qualities were conducted. At the end of 2003, the Luzon Yam Network was established, but then R&D activities at the NPRCRTC slowed down. Again, in 2008 and 2010, work perked-up in the mass propagation of purple yam seeds piloted with farmers in Benguet with funding assistance from the Department of Agriculture (DA-BAR, Land Bank and DA-CAR); and the dispersal of purple yam seedlings in Kalinga through the office of congressman Manuel Agyao.

Meanwhile, remnants of the 250 yam germplasm collected by previous yam researchers, Dr. Violeta B. Salda and Dr. Johnny G. Dati, were salvaged from the NPRCRTC storage and re-planted for in-situ conservation in Taloy Sur, Tuba, Benguet (2008-09 cropping). It was also in 2009, that a farmer, Ms. Sonia Loquitan requested technical assistance for identification of her yam collection, most of which were endemically growing in Tuba, Benguet. It was at this point, that documentation of yam descriptors started.

The Descriptors for Yam (IPGRI/IITA, 1997) was used as guide. Characterization data and photographs were gathered from the yam collections of the farmer and the NPRCRTC which were planted and maintained at the NPRCRTC on-farm station, and at the in-situ conservation farms established by farmer-partners in Bauwek, Taloy Sur, Tuba and in Palali, Sablan in the Province of Benguet

This catalogue is published in view of the fast occurrence of genetic loss and changing priorities in research. It is a tribute to the farmer-conservators and a beginning for those who will continue work on yam variety improvement, crop management, and seed production.

BETTY T. GAYAO
Principal Documentor

Foreword

This publication on the yam catalogue is another result of the many activities of the Northern Philippines Root Crops Research and Training Center in the collection, documentation, on-station and on-farm monitoring of root and tuber crops not only in Benguet but also in other parts of northern Philippines.

The Yam Program is a priority next to white potato and sweetpotato program of the Center, not only in terms of funding but most especially in terms of the number of client requests for technical assistance and seed supply. Documenting the wealth of our indigenous roots and tubers being maintained and/or collected by farming households and research institutions will hopefully start a more focused research and technology development.

It is an urgent need of the yam processing industry and growers for more quality seeds and improved yam production technologies to be addressed. Thus we look forward to come up with solutions and publications soon.

INES C. GONZALES, PhD.
Director
Northern Philippines Root Crops
Research and Training Center
Benguet State University

Message

My heartfelt congratulations to the Northern Philippines Root Crops Research and Training Center (NPRCRTC) of the Benguet State University for another worthy initiative through this publication titled, "Catalogue of Yam Collection in Benguet, Philippines."

Ubi (*Dioscorea alata*) is one of the economically-important yam varieties grown in the Philippines. The value of ubi is evident particularly in the food industry, being a source of carbohydrates and as an ingredient in a variety of confectioneries. Believing in the crop's potentials in addressing food security, the Bureau of Agricultural Research supported NPRCRTC's work years ago that involves mass propagation of purple yam seeds which was piloted among Benguet farmers.

Coming up with this catalogue of yam collection is an essential part of research and development activities on ubi. Providing information on the 101 indigenous yam varieties can aid research efforts including producing quality seeds and developing improved yam production technologies. The publication of this reference material provides a link that readily connects the collections to end users, giving them access to valuable information on collections with market potentials; potential resistance to pests and diseases; and tolerance to shading, typhoons, and weed growth; among other things.

Congratulations again to NPRCRTC for this fruitful undertaking and let us continue working on research and commercialization of Philippine root crops.

Mabuhay!

NICOMEDES P. ELEAZAR, PhD., CESO IV
Director
Bureau of Agricultural Research
Department of Agriculture

Acknowledgment

This book is to acknowledge the efforts of the very few farmers and indigenous peoples who still continuously maintain their yam acquisitions, usually passed-on from their forefathers, relatives and neighbors within their locality. Most especially, to Sonia Loquitan and her family in Bauwek, Taloy Sur, Tuba; and to Limon Calado and the Gayao Family Tree Farm in Palali, Sablan, Benguet. Not to be forgotten are the nameless farmers in Sablan and Tuba, and in Nueva Vizcaya, whose yam were sold to assembler-traders like Bayani Baldazan, that in some way found their way among those included in the NPRCRTC collections.

Lastly, we would like to thank Benguet State University for institutional funding; Bureau of Agricultural Research for funding the repackaging and printing of this publication; printing supplies from the Neys-van Hoogstraten Foundation supported project; and our supervisors and colleagues: namely Dr. Ines C. Gonzales, Dr. Luciana M. Villanueva, Dr. Violeta B. Salda, and Dr. Donita K. Simongo for their support and assistance during the data gathering process and encouraging comments in coming up with this publication.

BETTY T. GAYAO
GRACE S. BACKIAN
DALEN T. MELDOZ
ESTHER T. BOTANGEN

Acronyms and Abbreviations

BSU	Benguet State University
DA-BAR	Department of Agriculture-Bureau of Agricultural Research
DA-CAR	Department of Agriculture-Cordillera Administrative Region
IPGRI	International Plant Genetic Resources Institute
IITA	International Institute of Tropical Agriculture
NPRCRTC	Northern Philippines Root Crops Research and Training Center
NPY	Northern Philippines Yam
R&D	Research and Development

The information in this catalogue is intended to provide a means to assess the diversity and identify endemism of the yam varieties found in Benguet and the adjoining provinces. This will also serve as a reference for researchers, extensionists, growers, buyers, processors and consumers who tend to be confused because of the several or similar local names for the same or different varieties. Growers are not also very certain of the nature or characteristics of their yam.

The photographs and characterization were taken mostly during the initial establishment (2009-11) of the in-situ and ex-situ conservation sites, though some were taken during the collection period (2008-10) and at the latest during the 2014 harvest of the in-situ collections. Important passport and characterization descriptors accompany photograph of each germplasm collection. A photographic description of the yam descriptor's used in the morphological characterization is included in the appendices.

Results of clustering analysis of plant characterization descriptors and quality characteristics of tubers, as well as results of initial assessment on the yam varieties with market potentials, those with potential resistance to common pests and diseases and those with tolerance to shading, typhoons and weed growth are also included as appendices.

All the information included in this publication resulted from the implementation of the project entitled `In-situ conservation, characterization, evaluation and utilization of yam in partnership with farmers in Benguet.' The project proposal was submitted to PCARRD in 2010 and accepted as a component of the National Plant Genetic Resources R and D. Unfortunately, funding assistance was not granted. Again, the proposal was submitted for CHED funding in 2013 but instead was recommended for institutional funding. Nevertheless, this publication documents what has been done so far.

Summary List of Yam Collection

NPY #	Known Local Name	NPY #	Known Local Name
001	Padihot, Balulong, Ul-uleg	026	
002		027	
003	Sampero original	028	
004		029	Padihot
005	Maube	030	Padihot
006	Padinse, Daking	031	
007	Dimdima, Ramay-ramay	032	
008	Tungkol Mindoro	033	
009		034	Sampero
010		035	Sampero
011		036	Sampero
012	Daking, Padinse	037	
013	Tuwiran, Padihot, Balulong	038	
014	Tungkol Mindoro	039	
015	Tungkol white	040	
016	Tungkol Mindoro	041	
017		042	
018	Tuwiran	043	
019	Padihot, Ul-uleg	044	
020	Biscong, Balulong, Ul-uleg	045	
021	Biscong	046	
022	Shiket violet	047	
023	Shiket white	048	
024		049	Maube white
025		050	Maube

NPY #	Known Local Name	NPY #	Known Local Name
051	Padinse	076	
052		077	
053	Tungkol, Padinse	078	
054	Tungkol, Padinse	079	Daking
055		080	
056		081	
057	Dimdima	082	
058		083	
059	Maube	084	Maube
060	Padinse, Tungkol	085	Dimdima, Lima-lima
061		086	
062		087	
063		088	
064	Tuwiran	089	Padinse
065	Tuwiran	090	
066		091	Dimdima, Rapang-rapang
067	Maube	092	Padinse
068		093	
069		094	
070		095	Majas
071	Sampero original	096	
072		097	
073		098	
074	Sampero white	099	
075		100	
		101	

Yam Collection Clusters

Clustering analysis of the 101 local collections involving 70 characterization variables resulted to 55 clusters as follows:

Cluster	NPY Number/s	Cluster	NPY Number/s
1	001, 019, 020, 030	29	046
2	002	30	048
3	003, 034,035	31	049, 075, 095
4	004, 029,044, 047	32	051, 053, 070, 073
5	005	33	052
6	006, 014, 016, 054, 060	34	056
7	007	35	057
8	008, 037, 066	36	058
9	009	37	062, 084
10	010, 011, 031, 043, 085, 086, 087	38	063
11	012	39	068
12	013, 018, 024, 061, 064, 065	40	071
13	015, 050	41	072
14	017	42	074
15	021	43	076
16	022	44	077, 099, 100
17	023	45	078
18	025	46	079
19	026	47	080, 081
20	027	48	082, 088
21	028, 032	49	083
22	033	50	089
23	036	51	090, 091
24	038, 059, 067, 069	52	092, 094
25	039, 045, 055	53	093, 101
26	040	54	096, 097
27	041	55	098
28	042		

Majority are single collection clusters, and the rest are 2, 3, 4, 5, 6, and 7 collection clusters whose pictures are shown below.

Cluster 1

Cluster 4

Cluster 8

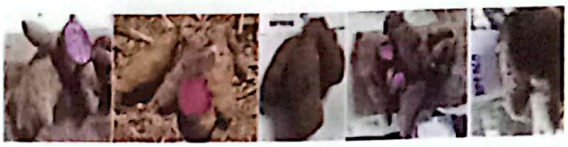
Cluster 13

Cluster 24

Cluster 31

Cluster 3

Cluster 6



Cluster 12

Cluster 21

Cluster 25

Cluster 32

Cluster 37

The 101 NPY collections were also sorted in excel program as to tuber shape, flesh color, and mature leaf shape descriptors as easily seen.

Tuber Shape (TuSha)

1 Round
2 Oval
3 Oval-oblong
4 Cylindrical
5 Flattened
6 Irregular
  6.1- Short
  6.2- Long
7 Elongated
  7.1- C-shaped, reniform, falcate
  7.2- Slightly spiral (S-shaped)
  7.3- Spiral

Flesh Color at Cross Section (FlCoCS)

1 White
2 Yellowish white or off-white
3 Yellow
4 Orange
5 Light Purple
6 Purple
7 Purple with white
8 White with purple
9 Outer purple/ Inner yellowish

Mature Leaf Shape (MLS)

1 Ovate
2 Cordate
3 Cordate long
4 Cordate broad
5 Sagittate long
6 Sagittate broad
7 Hastate

NPY #	TuSha	FlCoCS	MLS
074	1	1	6
034	1	5	3
036	1	5	3
003	1	6	3
035	1	6	3
071	1	6	5
072	1	6	5
076	2	8	6

NPY #	TuSha	FlCoCS	MLS
007	5	7	4
026	5	8	3

NPY #	TuSha	FlCoCS	MLS
067	3	1	3
069	3	1	3
075	3	1	4
040	3	1	5
027	3	2	6
009	3	5	3
037	3	5	3
073	3	6	4
070	3	7	4
055	3	7	6
057	3	8	3
005	3	8	3
039	3	8	5

NPY #	TuSha	FICoCS	MLS
049	4	1	2
095	4	1	2
038	4	1	3
059	4	1	3
056	4	1	3
048	4	5	2
058	4	5	3
066	4	5	3
042	4	5	5
077	4	5	6
008	4	6	3
051	4	6	3
053	4	6	3
014	4	6	5
060	4	6	5
006	4	6	6
016	4	6	6
041	4	6	6
054	4	6	6
080	4	6	6
068	4	7	3
078	4	7	5
081	4	7	5
015	4	8	2
050	4	8	2
052	4	8	2
079	4	8	2
045	4	8	4

NPY #	TuSha	FICoCS	MLS
090	6.1	6	4
032	6.1	1	3
086	6.1	6	3
091	6.1	6	3
010	6.1	7	4
011	6.1	8	3
031	6.1	8	3
087	6.1	8	3
062	6.1	8	4
084	6.1	8	6
017	6.2	2	3
033	6.2	2	3
088	6.2	6	4
089	6.2	6	4
012	6.2	6	6
043	6.2	7	3
092	6.2	7	3
083	6.2	7	5
093	6.2	7	5
085	6.2	8	4
094	6.2	8	5

Considering tuber shape, flesh color and mature leaf shape, excel sorting will result to 68 groups or clusters.

NPY #	TuSha	FlCoCS	MLS
049	4	1	2
095	4	1	2
038	4	1	3
059	4	1	3
056	4	1	3
048	4	5	2
058	4	5	3
066	4	5	3
042	4	5	5
077	4	5	6
008	4	6	3
051	4	6	3
053	4	6	3
014	4	6	5
060	4	6	5
006	4	6	6
016	4	6	6
041	4	6	6
054	4	6	6
080	4	6	6
068	4	7	3
078	4	7	5
081	4	7	5
015	4	8	2
050	4	8	2
052	4	8	2
079	4	8	2
045	4	8	4

ASSESSMENT OF COOKED YAM TUBERS QUALITY CHARACTERISTICS

Out of the 101 local collections, 60 had undergone cooked yam quality characterization on poundability of boiled tuber, color of tuber after cooking, attractiveness, texture, stickiness, flavor, moisture, bitterness, sweetness and aroma of cooked tuber.

Overall results showed 8 local collections having high assessment, 16 were assessed in-between high and intermediate, 23 collections as intermediate and the remaining 14 collections assessed as poor. Poundability of boiled tuber is generally good, texture is mostly described as grainy to fibrous, flavour is mostly acceptable except NPY 007, 010, 033, 034 and 100. Only two collections is bitter (NPY007 and 033). Most have bland taste with few like NPY 013, 032, 052, 055, 071, 083, 084 and 101 with sweetness. Except for NPY039, all the collections are not sticky.

Overall assessment
3 Low
5 Intermediate
7 High

Appearance of tuber after cooking
3 Poor
5 Fair
7 Good

Colour of tuber after cooking
1 White/Not colored
9 Highly colored

Attractiveness of cooked tuber
3 Low
5 Intermediate
7 High

NPY #	Overall	Colour	Appearance	Attractiveness
12	7	9	7	7
8	7	9	7	7
16	7	9	6	7
3	7	9	6	6
71	7	9	6	5
65	7	7	7	6
24	7	5	7	7
74	7	1	7	7

NPY #	Overall	Colour	Appearance	Attractiveness
91	6	9	7	7
80	6	9	7	7
53	6	9	7	7
35	6	9	7	7
51	6	8	7	7
55	6	7	7	6
5	6	7	7	6
77	6	7	6	6
81	6	6	6	6
78	6	5	6	5
48	6	5	6	5
13	6	5	5	6
50	6	3	6	5
39	6	3	7	6
101	6	3	6	5
19	6	2	6	6

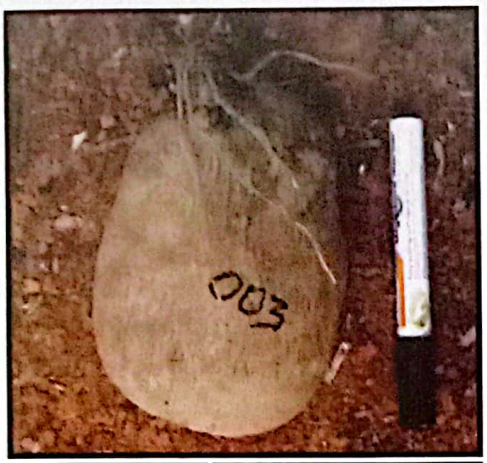
NPY #	Overall	Colour	Appearance	Attractiveness
86	5	9	7	7
4	5	9	6	7
18	5	8	6	6
93	5	8	5	6
87	5	7	6	6
68	5	7	6	5
85	5	6	5	5
94	5	6	6	6
79	5	6	6	5
2	5	5	6	5
42	5	3	4	4
98	5	2	6	5
67	5	2	5	5
56	5	2	5	5
52	5	2	5	5
49	5	2	5	4
99	5	2	5	5
75	5	1	6	6
29	5	1	5	4
23	5	1	5	4
15	5	1	5	4
1	5	1	5	4
32	5	1	4	4
34	4	6	4	5
58	4	5	5	5
90	4	4	5	5
7	4	3	4	4
84	4	1	4	3
57	4	1	5	3
21	4	1	5	4
95	4	1	5	4
20	4	1	4	4
88	3	9	4	5
83	3	6	6	5
10	3	3	3	3
100	3	2	3	3
33	3	1	3	3

Description

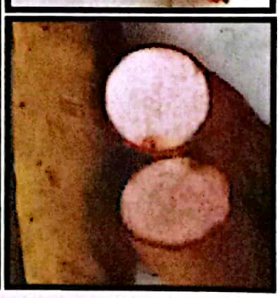
and photographs of yam collections

Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated S-shaped
Flesh color	White
Mature leaf shape	Cordate long

Accession #	NPY002
Donor	B. Baldazan/S. Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Taloy/Bauwek, Taloy Sur
Collecting Source	Market/Swidden farm
Tuber shape	Elongated C-shaped
Flesh color	Light to dark purple
Mature leaf shape	Sagitate long

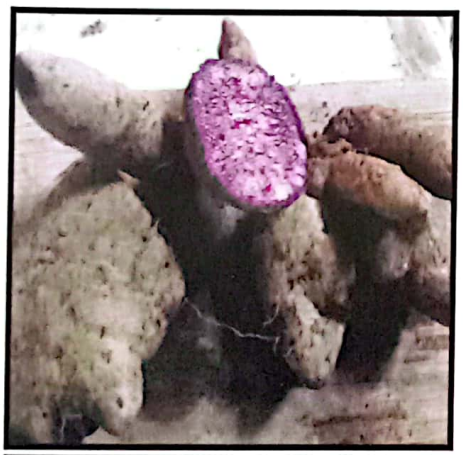


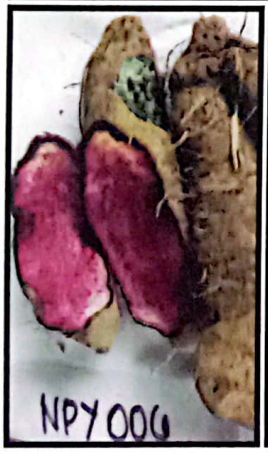
Accession #	NPY003
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Sampero original
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Round
Flesh color	Purple
Mature leaf shape	Cordate long



Accession #	NPY004
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-02
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated
Flesh color	White with purple
Mature leaf shape	Cordate long

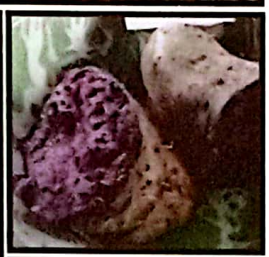
Accession #	NPY005
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Maube
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-02
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Oval oblong
Flesh color	White with purple
Mature leaf shape	Cordate long



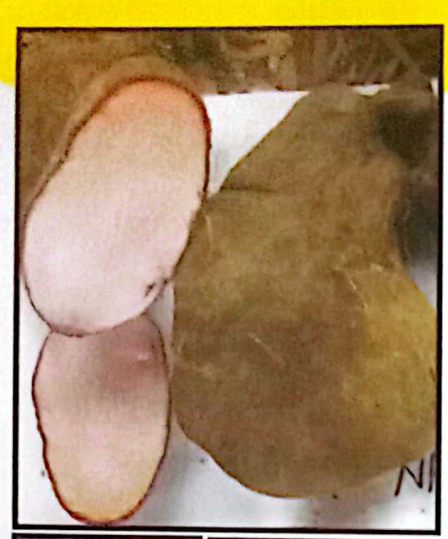


Accession #	NPY006
Donor	Sonia Loquitan/Limon Calado
Genus/Species	*Dioscorea alata*
Variety/Local Name	Padinse/Daking
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2-2-09/2-21-11
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Palali, Sablan/Bauwek, Taloy Sur
Collecting Source	Farm fallow
Tuber shape	Cylindrical
Flesh color	Purple
Mature leaf shape	Sagitate broad

Accession #	NPY007
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Dimdima/Ramay-ramay
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Flattened
Flesh color	Purple with white
Mature leaf shape	Cordate long

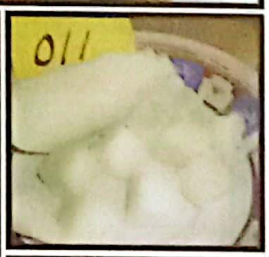


Accession #	NPY008
Donor	Felimon Laruan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tungkol-Mindoro
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	Purple
Mature leaf shape	Cordate long



Accession #	NPY009
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Oval Oblong
Flesh color	Light purple
Mature leaf shape	Cordate long

Accession #	NPY010
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Irregular short
Flesh color	Purple with white
Mature leaf shape	Cordate broad



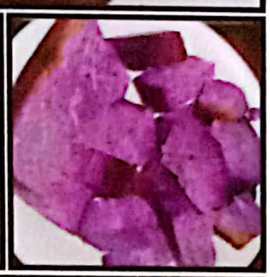
Accession #	NPY011
Donor	Sonia Loquitan
Genus/ Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Irregular short
Flesh color	White with purple
Mature leaf shape	Cordate long

Accession #	NPY012
Donor	Sonia Loquitan/Limon Calado
Genus/Species	*Dioscorea alata*
Variety/Local Name	Daking/Padinse
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02/2011-02-21
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Palali, Sablan/Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Irregular long
Flesh color	Purple
Mature leaf shape	Sagitate broad

Accession #	NPY013
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tuwiran/Padihot/Balulong
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated C-shape
Flesh color	Purple
Mature leaf shape	Sagitate long

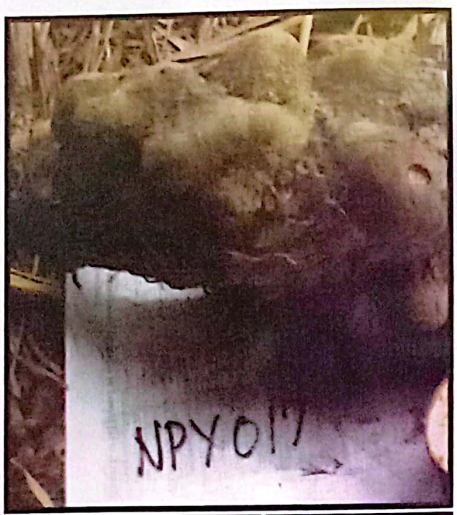
Accession #	NPY014
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tungkol Mindoro
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2002-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	Purple
Mature leaf shape	Sagitate long

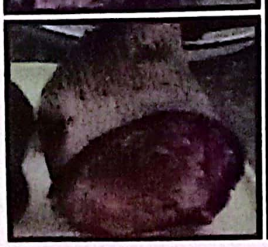
Accession #	NPY015
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tungkol white
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	White with purple
Mature leaf shape	Cordate



Accession #	NPY016
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tungkol Mindoro
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2-2-09/1-20-10
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Farm fallow
Tuber shape	Cylindrical
Flesh color	Purple
Mature leaf shape	Sagitate broad

Accession #	NPY017
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Irregular long
Flesh color	Yellowish white
Mature leaf shape	Cordate long





Accession #	NPY018
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tuwiran
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated C-shaped
Flesh Color	Light purple
Mature leaf shape	Sagitate long

Accession #	NPY019
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Padihot/Ul-uleg
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated snake-like
Flesh color	White
Mature leaf shape	Cordate long

Accession #	NPY020
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Biscong/Ul-uleg /Balulong
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated snake-like
Flesh color	White
Mature leaf shape	Cordate long

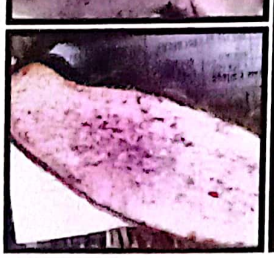
Accession #	NPY021
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Biscong
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated C-shaped
Flesh color	Off-white
Mature leaf shape	Cordate broad

Accession #	NPY022
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Shiket violet
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated
Flesh color	Purple
Mature leaf shape	Cordate long

Accession #	NPY023
Donor	Sonia Loquitan
Genus/ Species	*Dioscorea alata*
Variety/Local Name	Shiket white
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated
Flesh color	White
Mature leaf shape	Cordate long

Accession #	NPY024
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated
Flesh color	Light purple
Mature leaf shape	Cordate long

Accession #	NPY025
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated
Flesh color	White with purple
Mature leaf shape	Cordate broad

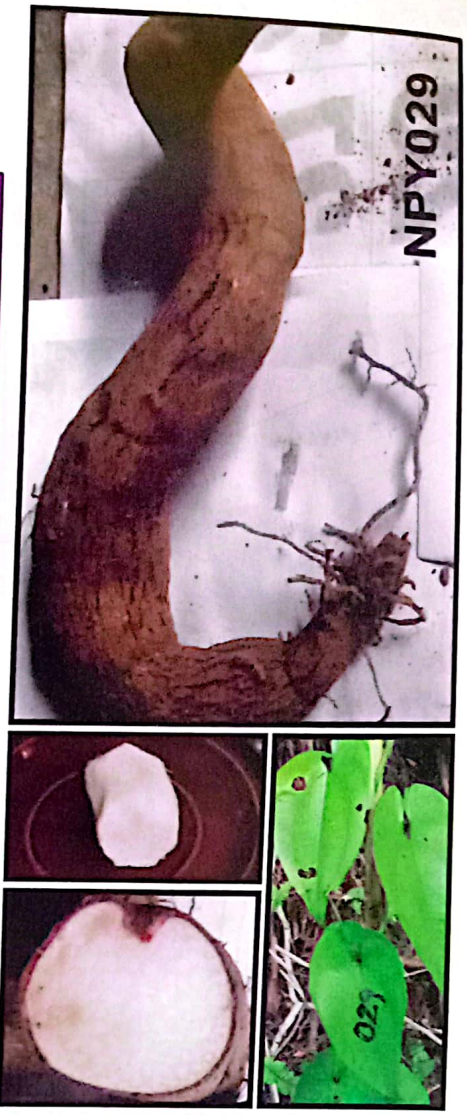


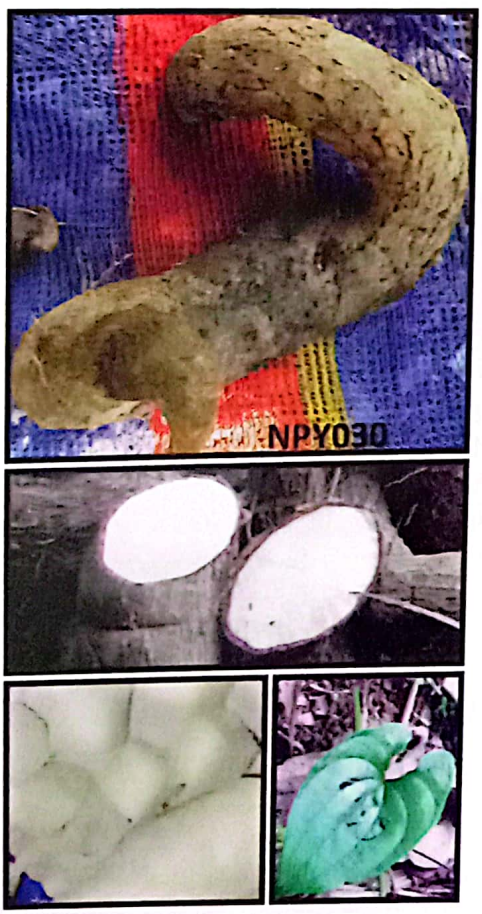
Accession #	NPY026
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Flattened
Flesh color	White with purple
Mature leaf shape	Cordate long

Accession #	NPY027
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Oval oblong
Flesh color	Off-White
Mature leaf shape	Sagitate broad

Accession #	NPY028
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated C-shaped
Flesh color	Off-white
Mature leaf shape	Cordate long

Accession #	NPY029
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Padihot
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated S-shaped
Flesh color	White with purple
Mature leaf shape	Cordate long

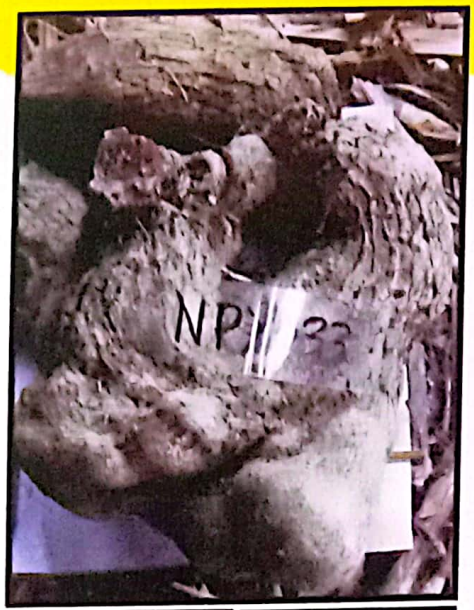




Accession #	NPY030
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Padihot
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated C-shape
Flesh color	White
Mature leaf shape	Cordate long

Accession #	NPY031
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Irregular short
Flesh color	White with purple
Mature leaf color	Cordate long

Accession #	NPY032
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Irregular short
Flesh color	White
Mature leaf shape	Cordate long

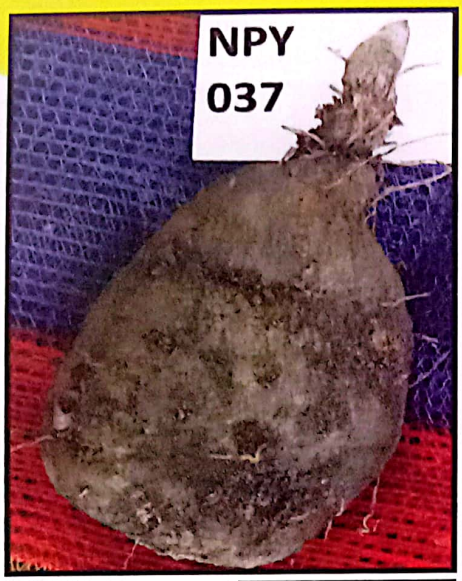


Accession #	NPY033
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Irregular long
Flesh color	Off-white
Mature leaf shape	Cordate long

Accession #	NPY034
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Sampero
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Round
Flesh color	Light purple
Mature leaf shape	Cordate long

Accession #	NPY035
Donor	San Fernando retailer
Genus/Species	*Dioscorea alata*
Variety/Local Name	Sampero
Pedigree/Origin	Caba, La Union
Acquisition Date	2009-04-20
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	San Fernando, La Union
Collecting Source	Market
Tuber shape	Round
Flesh color	Purple
Mature leaf shape	Cordate long

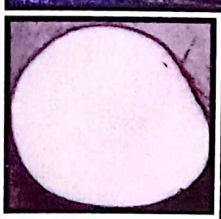
Accession #	NPY036
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Sampero
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Round
Flesh color	Light purple
Mature leaf shpae	Cordate long



Accession #	NPY037
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Oval oblong
Flesh color	Purple
Mature leaf shape	Cordate long

Accession #	NPY038
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	White
Mature leaf shape	Cordate long

Accession #	NPY039
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Oval oblong
Flesh color	White with purple
Mature leaf shape	Sagitate long



Accession #	NPY040
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Oval oblong
Flesh color	White
Mature leaf shape	Sagitate long

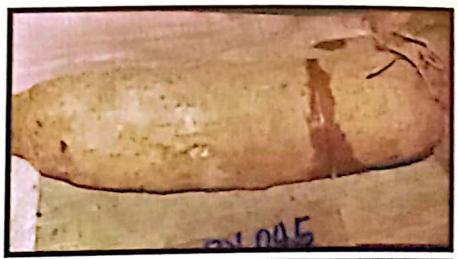
Accession #	NPY041
Donor	Teresita Cales
Genus/Species	*Dioscorea alata*
Variety/Local Name	(from aerial tuber)
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2002-02-09
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Bayabas, Sablan
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	Purple
Mature leaf shape	Sagitate broad

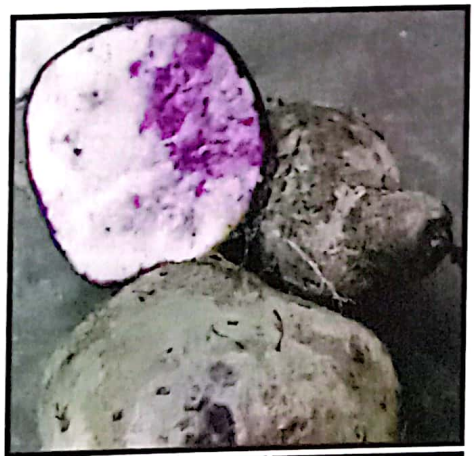
Accession #	NPY042
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	Light purple
Mature leaf shape	Sagitate long

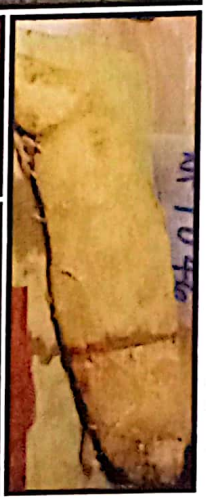
Accession #	NPY043
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Irregular long
Flesh color	Purple with white
Mature leaf shape	Cordate long

Accession #	NPY044
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Elongated C-shape
Flesh color	White with purple
Mature leaf shape	Cordate broad

Accession #	NPY045
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	White with purple
Mature leaf shape	Cordate broad



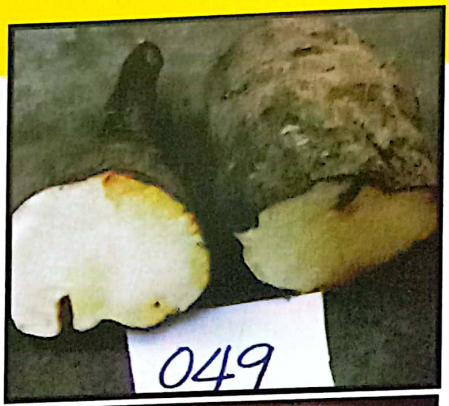




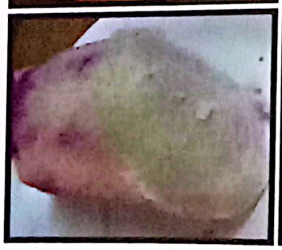
Accession #	NPY046
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar- Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Elongated C-shape
Flesh color	White with purple
Mature leaf shape	Sagitate broad

Accession #	NPY047
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated
Flesh color	Purple with white
Mature leaf shape	Cordate

Accession #	NPY048
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	Light purple
Mature leaf size	Cordate

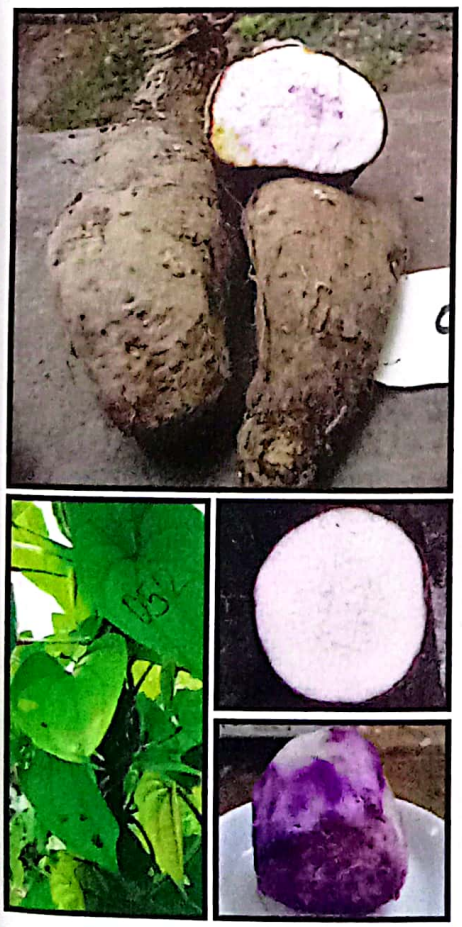


Accession #	NPY049
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Maube white
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	White
Mature leaf shape	Cordate

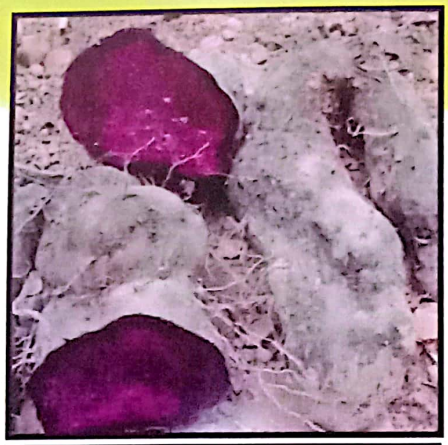


Accession #	NPY050
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Maube
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	White with purple
Mature leaf shape	Cordate

Accession #	NPY051
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Padinse
Pedigree/Origin	Traditional cultivar- Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	Purple/Purple with white
Mature leaf shape	Cordate long



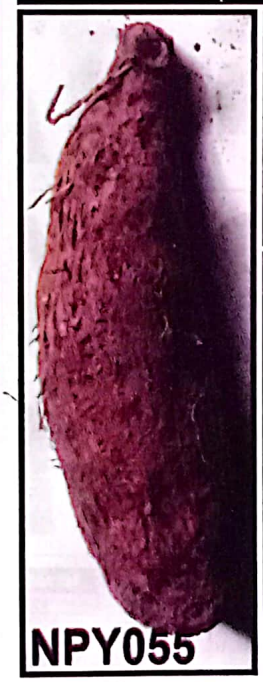
Accession #	NPY052
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	White with purple
Mature leaf size	Cordate

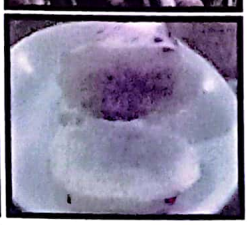


Accession #	NPY053
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tungkol/Padinse
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	Purple
Mature leaf shape	Cordate long

Accession #	NPY054
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tungkol/Padinse
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	Purple
Mature leaf size	Sagitate broad

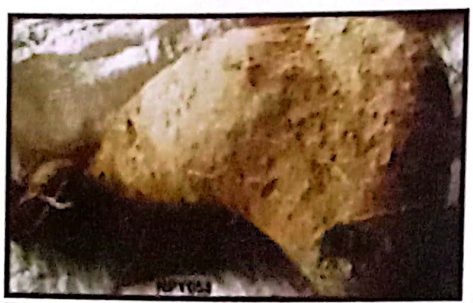
Accession #	NPY055
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Oval oblong
Flesh color	Purple with white
Mature leaf shape	Sagitate broad



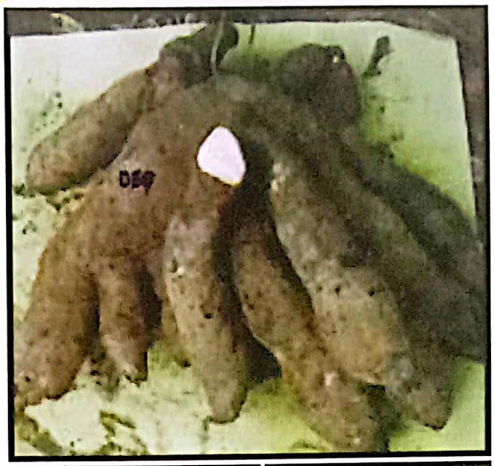


Accession #	NPY056
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	White
Mature leaf shape	Cordate long

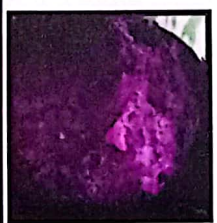
Accession #	NPY057
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Dimdima
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Flattened
Flesh color	White with purple
Mature leaf shape	Cordate long

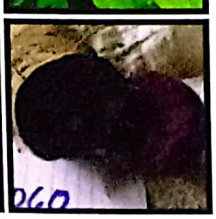


Accession #	NPY058
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	Light purple
Mature leaf shape	Cordate long



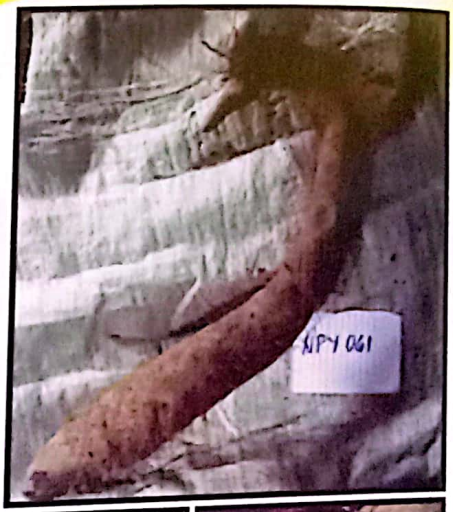
Accession #	NPY059
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Maube
Genus/ Species	Traditional cultivar-Benguet
Variety/Local Name	2009-02-20
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Collecting Site	Cylindrical
Collecting Source	White with purple
Mature leaf shape	Cordate long





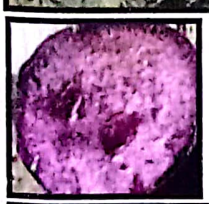
Accession #	NPY060
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Padinse/Tungkol
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	Purple
Mature leaf shape	Sagitate long

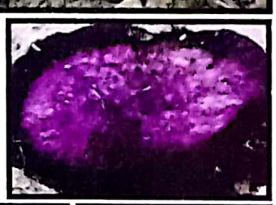
Accession #	NPY061
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Elongated
Flesh color	Light purple
Mature leaf shape	Cordate broad



Accession #	NPY062
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Irregular short
Flesh color	White with purple
Mature leaf shape	Sagitate broad

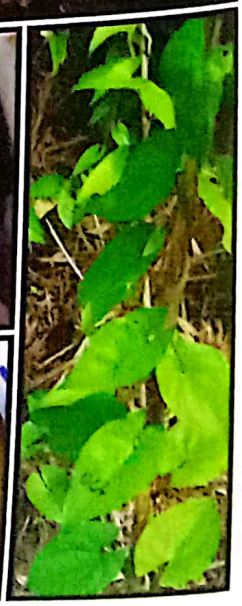
Accession #	NPY063
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Elongated
Flesh color	Purple
Mature leaf shape	Cordate





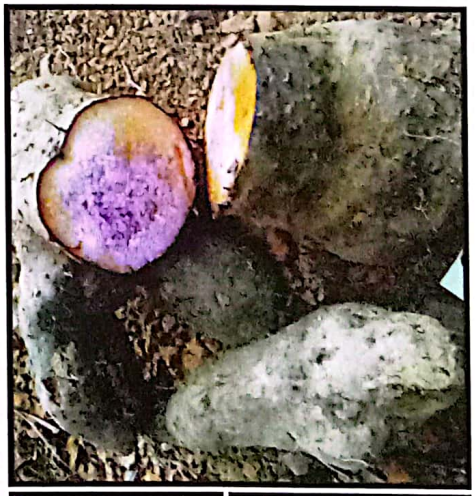
Accession #	NPY064
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tuwiran
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Elongated C-shape
Flesh color	Purple
Mature leaf shape	Cordate long

Accession #	NPY065
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Tuwiran
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2011-02-21
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Elongated C-shape
Flesh color	Light purple
Mature leaf shape	Cordate long



Accession #	NPY066
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	Light purple
Mature leaf shape	Cordate broad

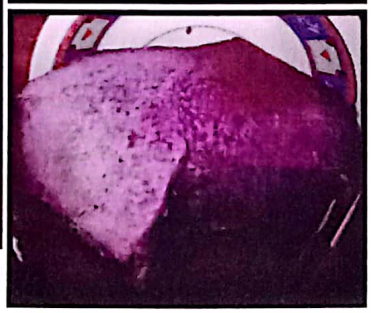
Accession #	NPY067
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Maube
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2011-02-21
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Oval oblong
Flesh color	White
Mature leaf shape	Cordate long



Accession #	NPY068
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2009-02-20
Material Collected	Tuber
Collecting Institute	Kadasan Farm
Collecting Site	Bauwek, Taloy Sur
Collecting Source	Swidden farm
Tuber shape	Oval oblong
Flesh color	Purple with white
Mature leaf shape	Cordate long

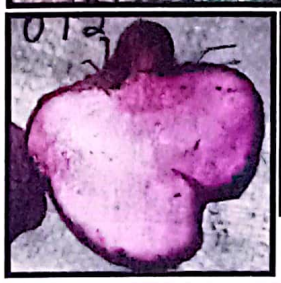
Accession #	NPY069
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Oval Oblong
Flesh color	White
Mature leaf shape	Cordate long

Accession #	NPY070
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety- Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Oval oblong
Flesh color	Purple with white
Mature leaf shape	Cordate long

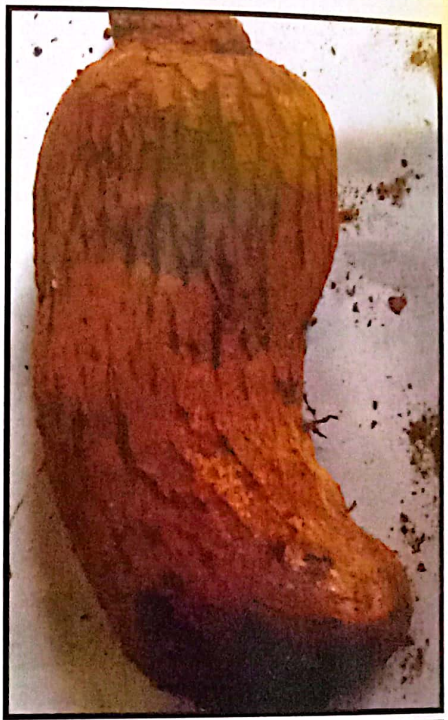


Accession #	NPY071
Donor	Swamp retailer
Genus/Species	*Dioscorea alata*
Variety/Local Name	Sampero orig
Pedigree/Origin	Naguilian, La Union
Acquisition Date	2009
Material Collected	Tuber
Collecting Institute	NPRCRTC
Collecting Site	Bagulin/Naguilian, La Union
Collecting Source	Market
Tuber shape	Round
Flesh color	Purple
Mature leaf shape	Sagitate long

Accession #	NPY072
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Round
Flesh color	Purple
Mature leaf shape	Sagitate long

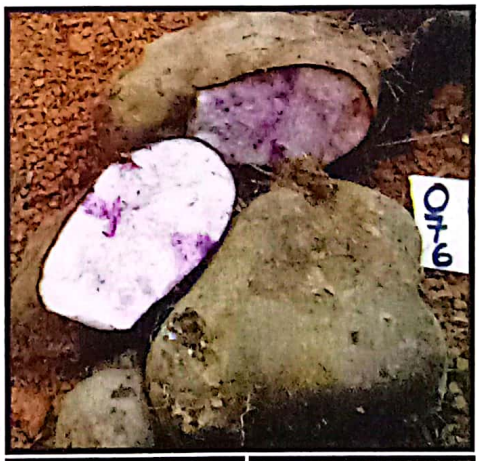


Accession #	NPY073
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Oval oblong
Flesh color	Purple
Mature leaf shape	Cordate broad



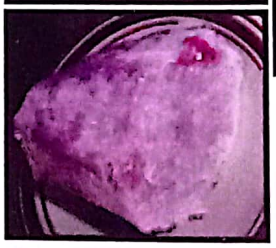
Accession #	NPY074
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Sampero white
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2009-02-02
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Round
Flesh color	White
Mature leaf shape	Sagitate broad

Accession #	NPY075
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2009-02-02
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Oval oblong
Flesh color	White
Mature leaf shape	Cordate long

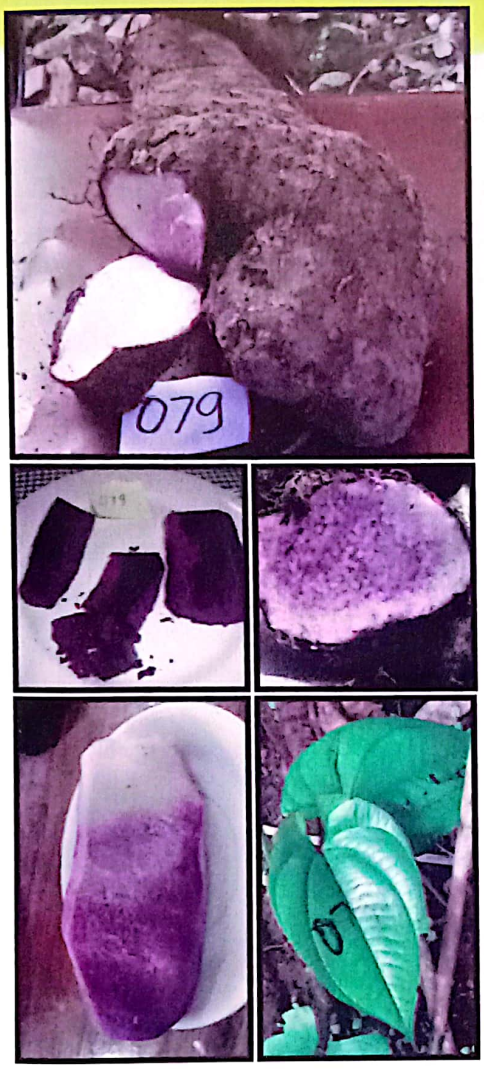


Accession #	NPY076
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Oval
Flesh color	White with purple
Mature leaf shape	Sagitate broad

Accession #	NPY077
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	Light purple
Mature leaf shape	Sagitate broad



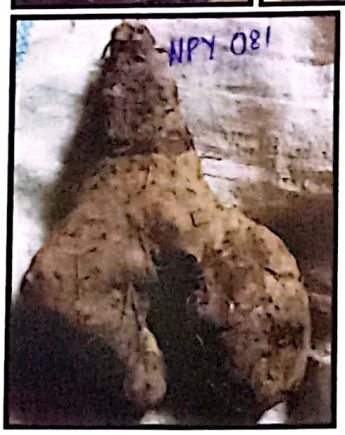
Accession #	NPY078
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	Purple with white
Mature leaf shape	Sagitate long



Accession #	NPY079
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Daking
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Cylindrical
Flesh color	White with purple
Mature leaf shape	Cordate

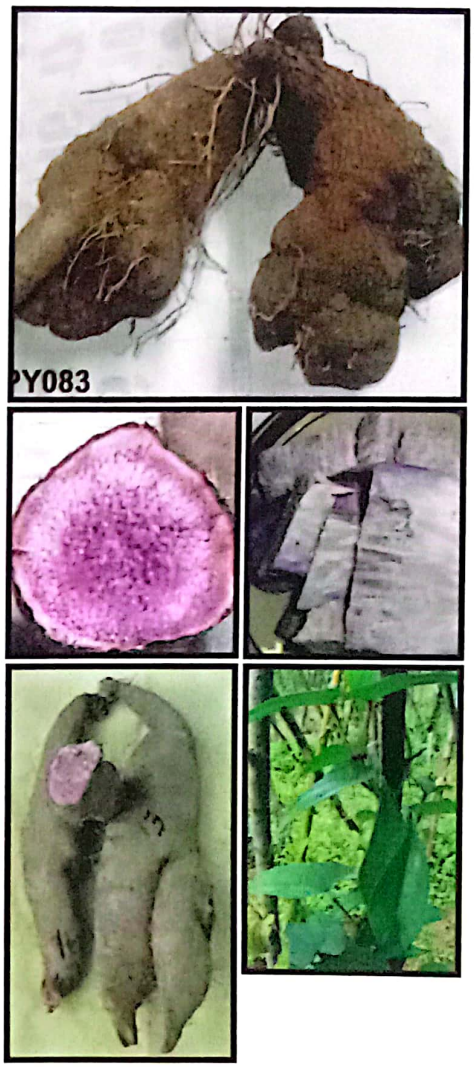
Accession #	NPY080
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya/ Bauwek, Tuba
Collecting Source	Swidden farm
Tuber shape	Cylindrical
Flesh color	Purple
Mature leaf shape	Sagitate broad

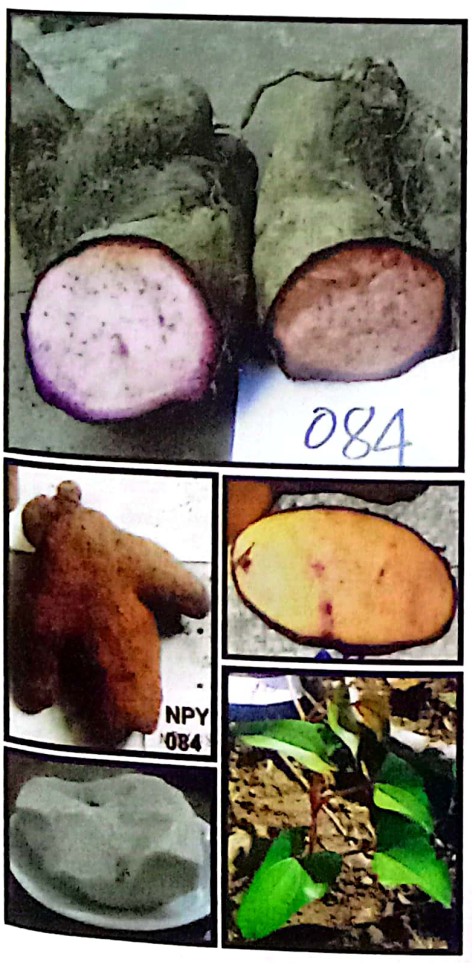
Accession #	NPY081
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2009-02-02
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Cylindrical
Flesh color	Purple with white
Mature leaf shape	Sagitate long



Accession #	NPY082
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2009-02-02
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Elongated
Flesh color	Purple with white
Mature leaf shape	Cordate broad

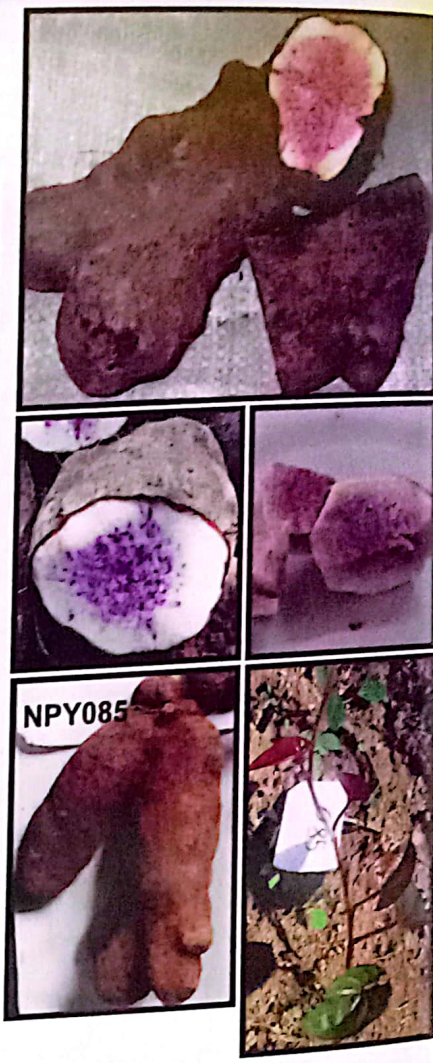
Accession #	NPY083
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Irregular long
Flesh color	Purple with white
Mature leaf shape	Sagitate long





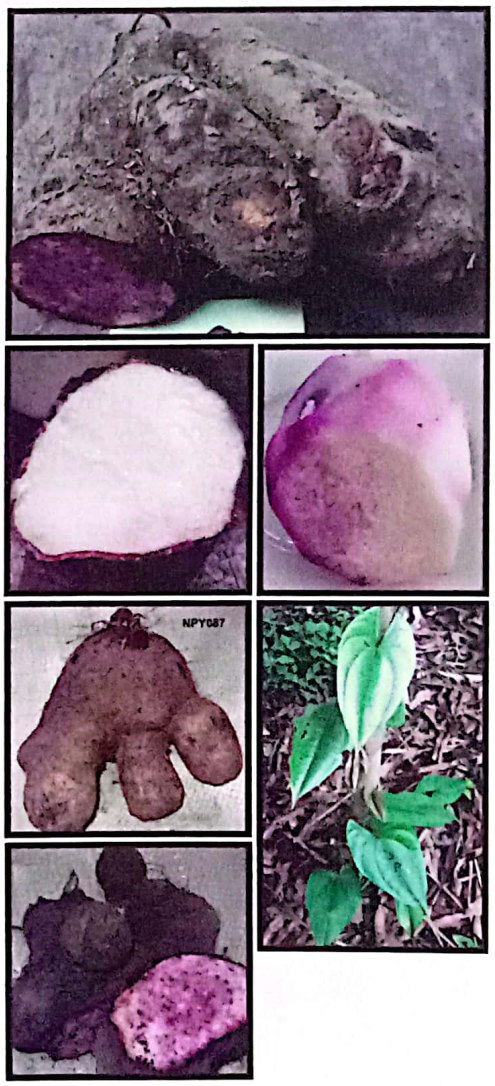
Accession #	NPY084
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Maube
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2009-02-02
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Irregular short
Flesh color	White with purple
Mature leaf shape	Sagitate broad

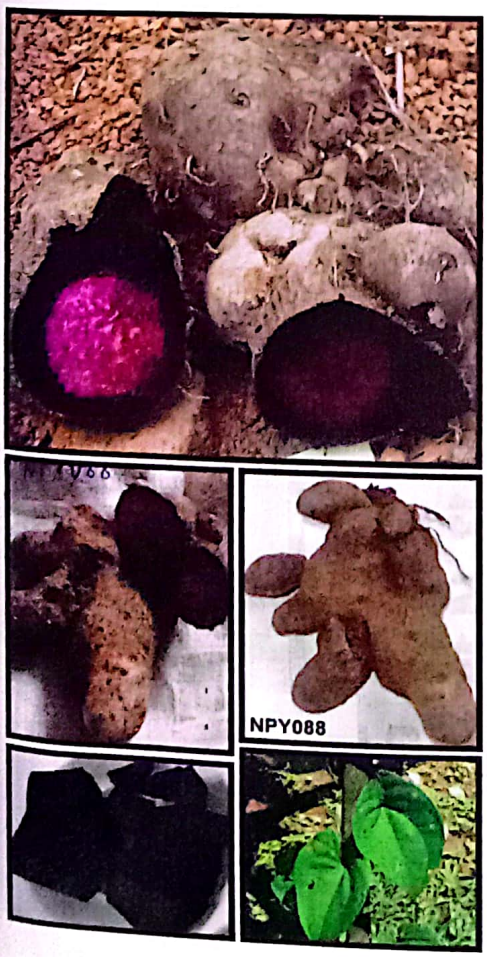
Accession #	NPY085
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Dimdima/Lima-lima
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Irregular long
Flesh color	White with purple
Mature leaf shape	Cordate long



Accession #	NPY086
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Irregular short
Flesh color	Purple
Mature leaf shape	Cordate long

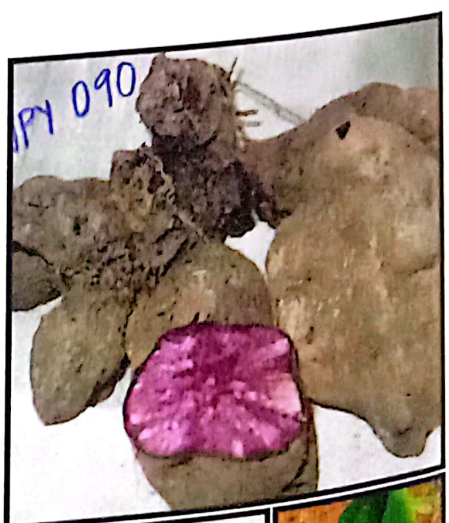
Accession #	NPY087
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU/Kadasan Farm
Collecting Site	Banila/Bauwek, Taloy Sur
Collecting Source	Farm
Tuber shape	Irregular short
Flesh color	White with purple
Mature leaf shape	Cordate long





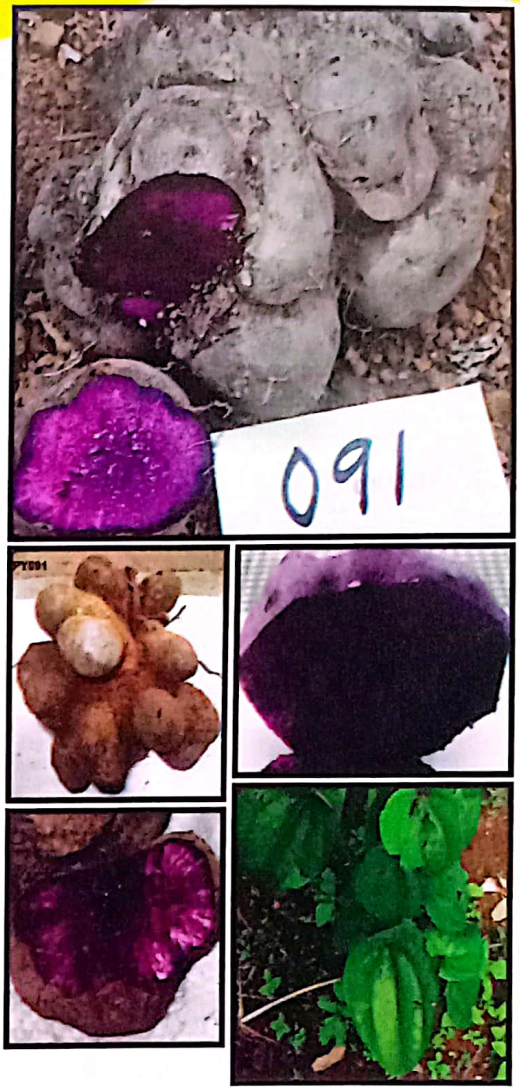
Accession #	NPY088
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2009-02-02
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Irregular long
Flesh color	Purple
Mature leaf shape	Cordate broad

Accession #	NPY089
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Padinse
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2011-02-21
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya Bauwek/Tuba, Benguet
Collecting Source	Swidden farm
Tuber shape	Irregular long
Flesh color	Purple
Mature leaf shape	Cordate broad



Accession #	NPY090
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2009-02-02
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Irregular short
Flesh color	Purple
Mature leaf shape	Cordate broad

Accession #	NPY091
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Dimdima/Rapang-rapang
Genus/Species	Traditional variety-Benguet
Variety/Local Name	2007
Pedigree/Origin	Tuber
Acquisition Date	NPRCRTC-BSU
Material Collected	Banila/Ganao, Nueva Vizcaya
Collecting Institute	Farm
Tuber shape	Irregular short
Flesh color	Purple
Mature leaf shape	Cordate long

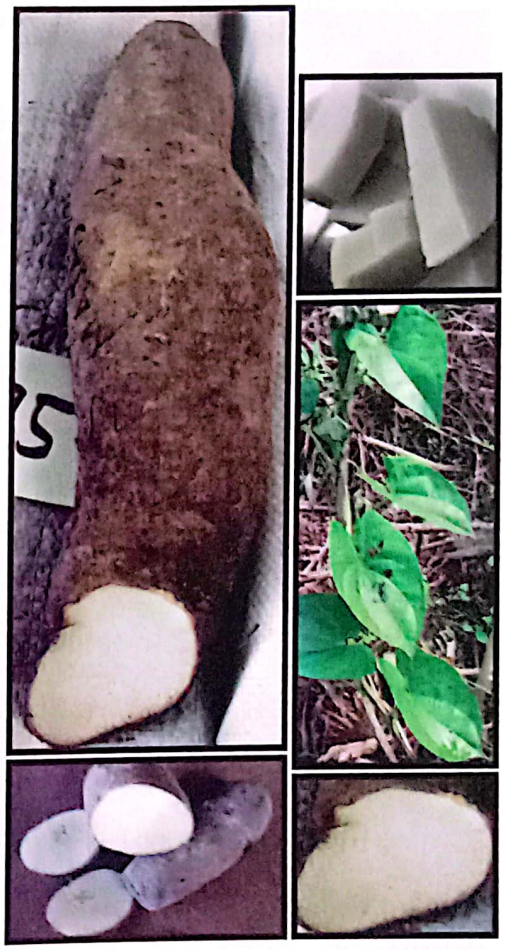


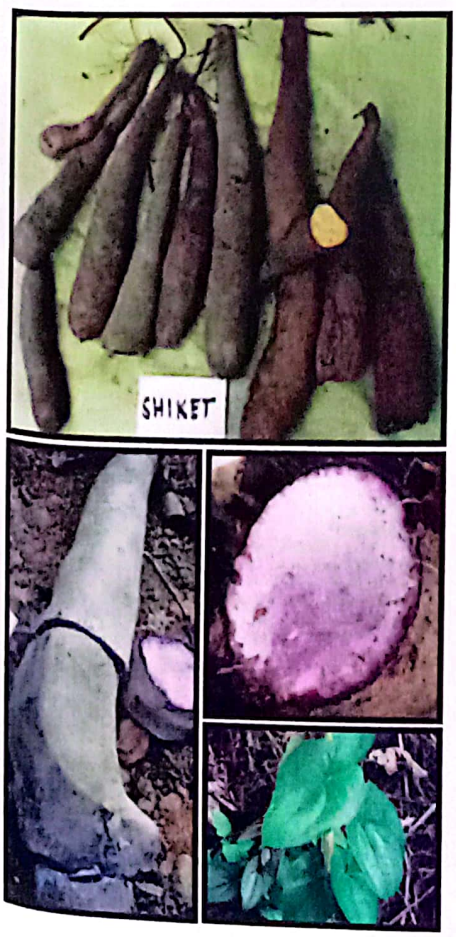
Accession #	NPY092
Donor	Bayani Baldazan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Padinse
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Irregular long
Flesh color	Purple
Mature leaf shape	Cordate long

Accession #	NPY093
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Irregular long
Flesh color	Purple with white
Mature leaf shape	Sagitate long

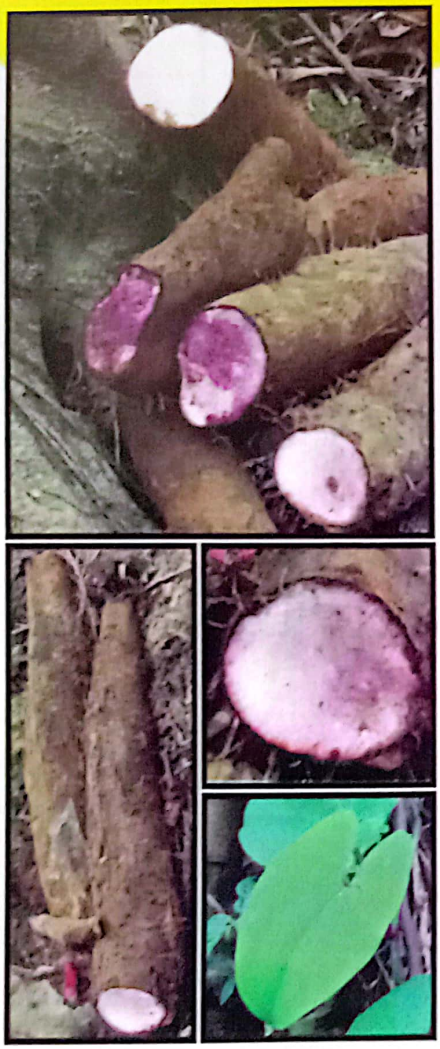
Accession #	NPY094
Donor	Bayani Baldazan/Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional variety-Benguet
Acquisition Date	2007/2009-02-02
Material Collected	Tuber
Collecting Institute	NPRCRTC-BSU
Collecting Site	Banila/Ganao, Nueva Vizcaya
Collecting Source	Farm
Tuber shape	Irregular long
Flesh color	White with purple
Mature leaf shape	Sagitate long

Accession #	NPY095
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	Majas
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2009-02-02
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Cylindrical
Flesh color	White
Mature leaf shape	Cordate





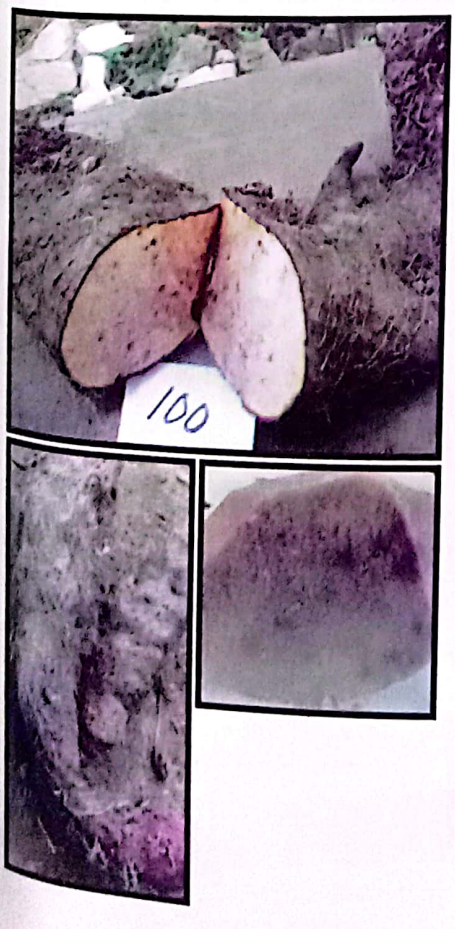
Accession #	NPY096
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2011-02-21
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Elongated
Flesh color	White with purple
Mature leaf shape	Cordate long



Accession #	NPY097
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2011-02-21
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Elongated
Flesh color	Purple with white
Mature leaf shape	Cordate long

Accession #	NPY098
Donor	Sonia Loquitan
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Genus/Species	Traditional cultivar-Benguet
Variety/Local Name	2011-02-21
Pedigree/Origin	Tuber
Acquisition Date	Kadasan Farm
Material Collected	Bauwek, Taloy Sur
Collecting Institute	Swidden farm
Tuber shape	Elongated
Flesh color	White
Mature leaf shape	Cordate long

Accession #	NPY099
Donor	B. Gayao
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2-13-2014
Material Collected	Tuber
Collecting Institute	NPRCRTC
Collecting Site	Palali, Sablan, Benguet
Collecting Source	Forest/Fallowed Farm
Tuber shape	Irregular long
Flesh color	White with purple
Mature leaf shape	Cordate long



Accession #	NPY100
Donor	B. Gayao
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2-13-2014
Material Collected	Tuber
Collecting Institute	NPRCRTC
Collecting Site	Palali, Sablan, Benguet
Collecting Source	Forest/Fallowed Farm
Tuber shape	Irregular long
Flesh color	White with purple
Mature leaf shape	Cordate

Accession #	NPY101
Donor	B. Gayao
Genus/Species	*Dioscorea alata*
Variety/Local Name	
Pedigree/Origin	Traditional cultivar-Benguet
Acquisition Date	2-13-2014
Material Collected	Tuber
Collecting Institute	NPRCRTC
Collecting Site	Palali, Sablan, Benguet
Collecting Source	Forest/Fallowed Farm
Tuber shape	Irregular short
Flesh color	White with purple
Mature leaf shape	Cordate

APPENDICES

Appendix 1

Local yam collections with market potentials

Good tuber shape and purple flesh color are the characteristics most often considered by processors and market buyers. Based on these characters, 29 NPY collections had round, oval-oblong and cylindrical tuber shapes, and light purple, purple and purple with white flesh color. Out of these 29 collections, eight were rated having intermediate to high cooking quality assessment. Initially, all 29 NPY collections are recommended for mass propagation.

	NPY #	Tuber Shape	Flesh Color at Cross Section	Overall Cooking Quality Assessment		NPY #	Tuber Shape	Flesh Color at Cross Section	Overall Cooking Quality Assessment
1	034	1	5	4	16	048	4	6	6
2	036	1	5	-	17	008	4	6	7
3	003	1	6	6	18	051	4	6	6
4	035	1	6	6	19	053	4	6	6
5	071	1	6	5	20	014	4	6	-
6	072	1	6	-	21	060	4	6	-
7	009	3	5	-	22	006	4	6	-
8	037	3	5	-	23	016	4	6	7
9	073	3	6	-	24	041	4	6	-
10	070	3	7	-	25	054	4	6	-
11	055	3	7	3	26	080	4	6	7
12	058	4	5	3	27	068	4	7	5
13	066	4	5	-	28	078	4	7	5
14	042	4	5	5	29	081	4	7	7
15	077	4	5	7					

Tuber Shape
1 Round
3 Oval oblong
4 Cylindrical

Flesh Color at Cross Section
5 Light purple
6 Purple
7 Purple with white

Overall Cooking Quality Assessment
7 High
9 Intermediate
3 Poor
(-) No data

Appendix 2

Local yam collections with potential resistance to common yam pests and diseases

Assessment of the yam cultivars' resistance to common pests and diseases was gathered at 4MAP and every month thereafter until 7MAP in three locations (Tuba, Sablan and La Trinidad, Benguet). The following rating criteria were used:

Rating criteria for diseases (anthracnose)	Rating criteria for insects (chrysomelid beetle)
1 - none (no symptom on leaf and stem)	1 - more than 50% damage
3 - 1-25% infected	2 - 26-50% damage
5 - 26-50% infected	3 - 6-25% damage
7 - 51-75% infected	4 - 1-5% damage
9 - 76-100% infected	5 - none

Disease severity

There were eight collections with zero to less than 1% infection, and seven collections had 1-25% infection, therefore indicating a better disease resistance than the other collections, though none were selected for their marketability potential. On other side, there were 14 collections with high disease severity ranging from 51-100% infection.

NPY #	Disease Severity	NPY #	Disease Severity	NPY #	Disease Severity
010	0.0	030	3.4	071	4.2
020	0.0	084	3.4	029	4.3
031	1.0	094	3.5	080	4.3
067	1.0	081	3.5	023	4.3
002	2.0	033	3.6	032	4.3
028	2.0	012	3.7	087	4.3
088	2.1	092	3.7	091	4.3
001	2.5	038	3.8	047	4.4
082	2.6	040	3.8	064	4.4
050	2.8	078	3.8	024	4.5
018	3.0	019	4.0	076	4.5
025	3.0	026	4.0	077	4.6
057	3.0	021	4.1	079	4.6
049	3.1	059	4.1	090	4.6
075	3.1	083	4.1	052	4.7
		039	4.2	041	4.7
		070	4.2	069	4.7

Appendix 2

NPY #	Disease Severity	NPY #	Disease Severity	NPY #	Disease Severity
013	4.8	058	5.3	097	6.5
053	4.8	015	5.3	066	6.6
036	4.9	044	5.4	016	6.6
043	4.9	056	5.4	003	6.6
093	4.9	017	5.5	008	6.6
074	4.9	073	5.5	051	6.8
009	5.0	062	5.6	014	6.9
042	5.0	048	5.7	063	7.0
045	5.0	035	5.7	065	7.0
068	5.0	054	5.8	061	7.2
089	5.0	055	5.8	096	7.7
072	5.1	037	5.8	004	7.8
085	5.1	022	5.9	086	8.3
007	5.1	005	6.0	027	9.0
060	5.1	006	6.1	098	9.0
034	5.3	011	6.5		
046	5.3	095	6.5		

Insect Damage

Results show that four collections (NPY002, NPY032, NPY068, and NPY018) had zero or less than 1% insect damage. The highest percentage rating in insect damage (0-2.3%) was seen in seven NPY collections (NPY053, NPY092, NPY056, NPY010, NPY020, NPY028, and NPY077).

NPY #	Insect damage	NPY #	Insect damage	NPY #	Insect damage	NPY #	Insect damage	NPY #	Insect damage
002	5.0	066	4.0	015	3.6	055	3.3	047	2.8
032	5.0	027	4.0	086	3.6	094	3.3	090	2.6
068	5.0	041	3.8	088	3.6	038	3.3	024	3.4
018	4.5	051	3.8	036	3.6	059	3.3	003	3.4
001	4.0	049	3.8	007	3.6	013	3.3	087	3.4
025	4.0	039	3.8	048	3.6	050	3.3	076	3.4
057	4.0	019	3.8	052	3.6	091	3.3	037	3.4
033	4.0	079	3.8	061	3.6	016	3.3	072	3.4
026	4.0	085	3.8	089	3.5	012	3.2	060	3.3
021	4.0	034	3.8	031	3.5	035	3.2	084	3.3
029	4.0	096	3.8	030	3.5	006	3.2	004	3.3
023	4.0	083	3.7	064	3.5	065	3.2	053	2.3
069	4.0	070	3.7	045	3.5	042	3.2	092	2.0
093	4.0	071	3.7	022	3.5	063	3.1	056	1.8
009	4.0	080	3.7	095	3.5	014	3.1	010	0.0
058	4.0	043	3.7	098	3.5	075	3.0	020	0.0
017	4.0	074	3.7	081	3.5	046	3.0	028	0.0
062	4.0	008	3.7	067	3.4	044	3.0	077	0.0
005	4.0	054	3.6	040	3.4	097	3.0		
011	4.0	082	3.6	078	3.4	073	2.9		

Appendix 3

Local yam collections with tolerance to shading, typhoons and weed growth under natural conditions

Assessment for abiotic stress susceptibility was gathered on the yam collections planted for conservation and characterization planted in Sablan, Tuba and La Trinidad, Benguet. Observations/reactions of the ube plants to partial shading, typhoons and weed growth under natural conditions were rated based on a susceptibility scale (IPGRI, 1997) from 1 to 9 viz:

1 - Very low or no visible signs of susceptibility
3 - Low
5 - Intermediate
7 - High
9 - Very high

Reaction to partial shading

Out of the 34 cultivars planted under partial shading, 79% showed no visible signs of growth retardation at 118 DAP and even increasing to 83% at 165DAP. This is because the yam vines climb the tree saplings or poles.

In terms of tuber yield, the collections that showed no visible signs of retarded growth under shading showed higher yield than those with low to intermediate signs of growth retardation. Yield however, was low averaging at 177g/hill.

Rating scale	118DAP		165DAP	
	# of NPY collections	%	# of NPY collections	%
1 - no visible signs of retarded growth	27	79	25	83
3 - low	6	18	5	17
5 - intermediate	1	3	0	
7 - high	0		0	
9 - very high	0		0	

Appendix 3

# of Yam Collections	Reaction to partial shading	Yield (g/hill)	Yam collections				
27	1 - no visible signs of retarded growth	177	NPY001	NPY016	NPY038	NPY057	NPY079
			NPY003	NPY019	NPY040	NPY059	NPY081
			NPY006	NPY021	NPY045	NPY062	NPY084
			NPY009	NPY022	NPY049	NPY063	NPY087
			NPY010	NPY024	NPY050	NPY067	NPY092
			NPY012	NPY070			
6	3 - low	20	NPY015	NPY039	NPY046		
			NPY036	NPY043	NPY076		
1	5 - intermediate	20	NPY034				
Correlation, r		-0.116					

Reaction to typhoons

At typhoon signal #2 (tropical cyclone winds of 60-100 km/hr), 85% of the yam plants showed no visible signs of typhoon damage. At typhoon signal #3 (tropical cyclone winds of 100-185 km/hr), 55% of the yam crop showed high to very high susceptibility; 39% showed low to intermediate susceptibility, and only 6% (NPY001, NPY040, NPY059) showed no visible signs of typhoon damage. Signal #3 occurred 186 days or six months after planting, and this maybe the reason why there is very little correlation between typhoon damage and yield.

Rating scale	Signal 2 Typhoon		Signal 3 Typhoon		Yield (g/hill)	
	# of NPY collections	%	# of NPY collections	%	Open	Shade
1 - no visible signs of typhoon damage	61	85	4	6	100	152
3 - low	8	11	14	20	247	268
5 - intermediate	3	4	13	19	355	164
7 - high	0		8	11	377	36
9 - very high	0		31	44	256	78
Total	72	100	70	100		
Correlation, r					-0.07597	

Appendix 3

Reaction to weeds

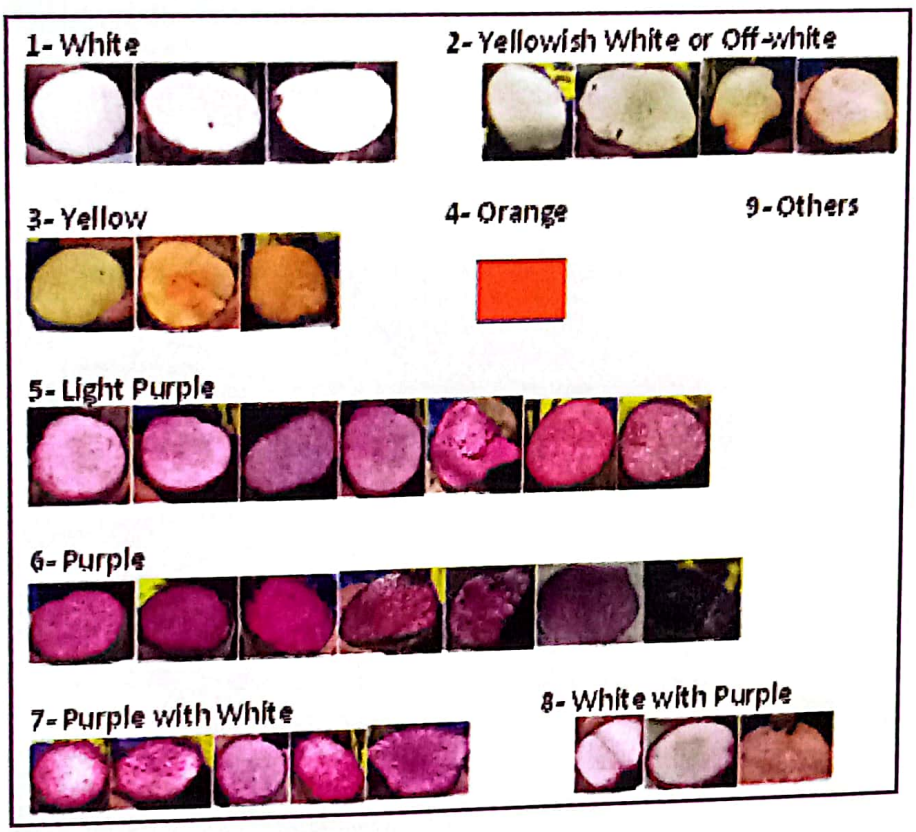
At zero weeding after planting, there was less weed growth in the yam crop planted under partial shading as compared to those planted in non-shaded areas. Thirty five (35%) percent of the yam grown under no shading were highly infiltrated with weeds. However, yield was not directly affected with weed growth as shown in the table.

Rating scale	% of NPY collections		Yield (g/hill)	
	No shading	Partially shaded	No shading	Partially shaded
1- no visible signs of weed growth	45	59	210	100
3- low	0	29		92
5- intermediate	20	2	143	71
7- high	15		340	
9- very high	20		264	
Correlation, r			0.058939	

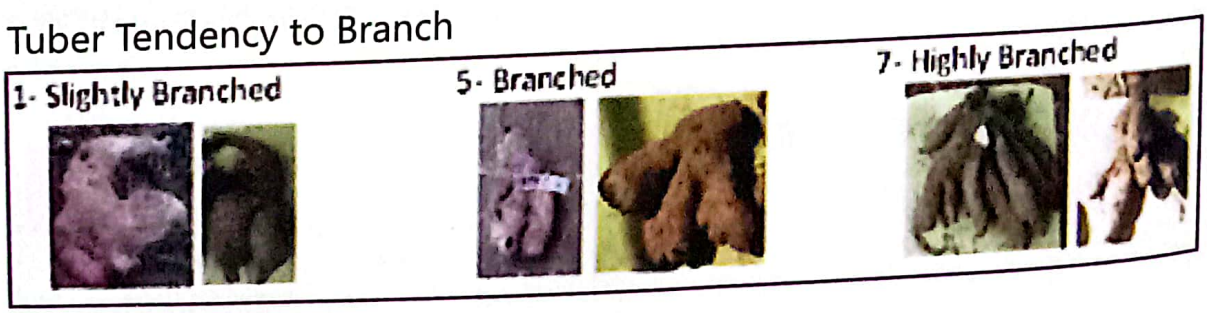
Appendix 4

Photograph of Yam Descriptors used in Characterization

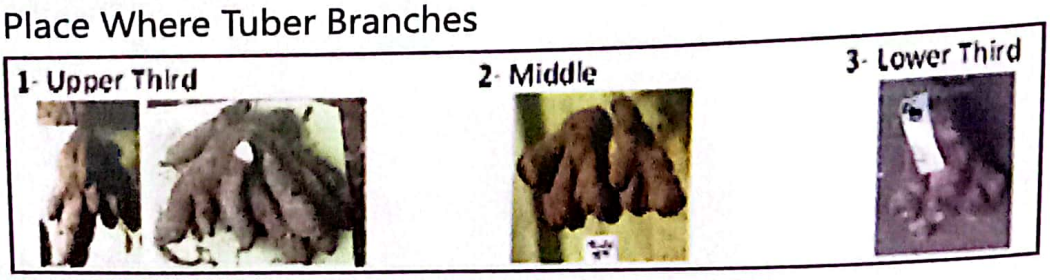
Yam Flesh (Transverse Cross-Section)



Tuber Tendency to Branch

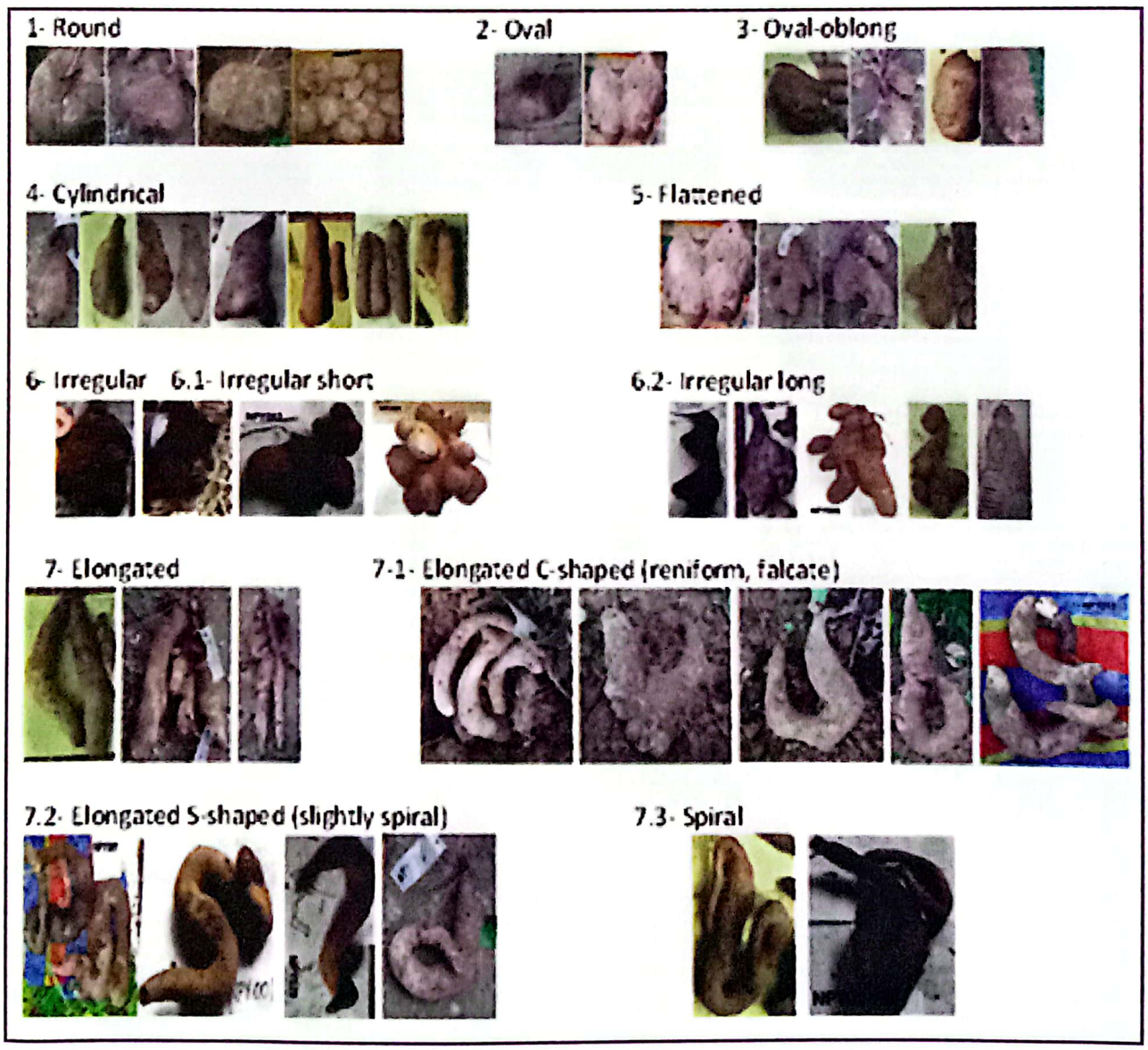


Place Where Tuber Branches



Appendix 4

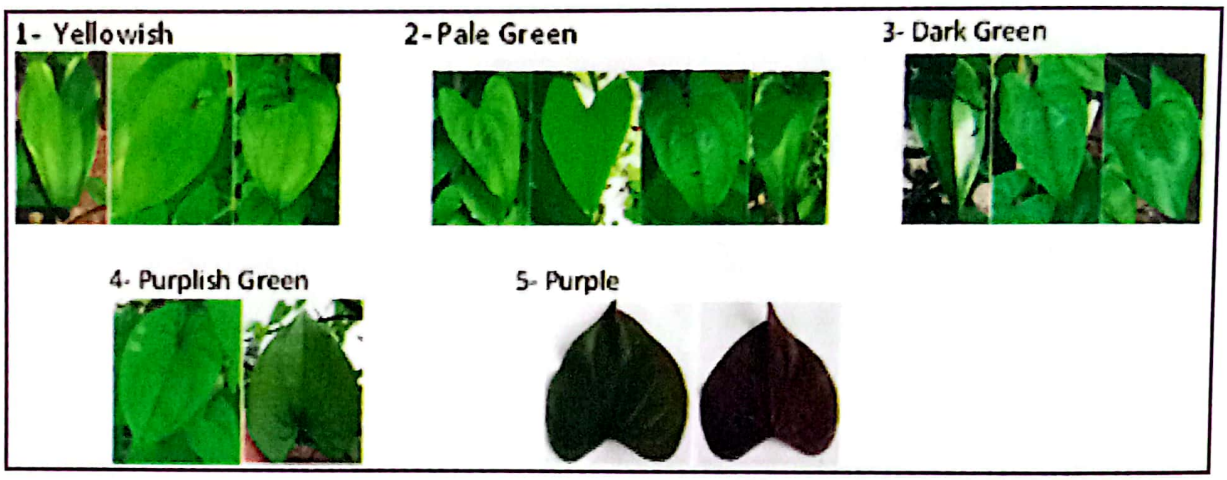
Yam Tuber Shape



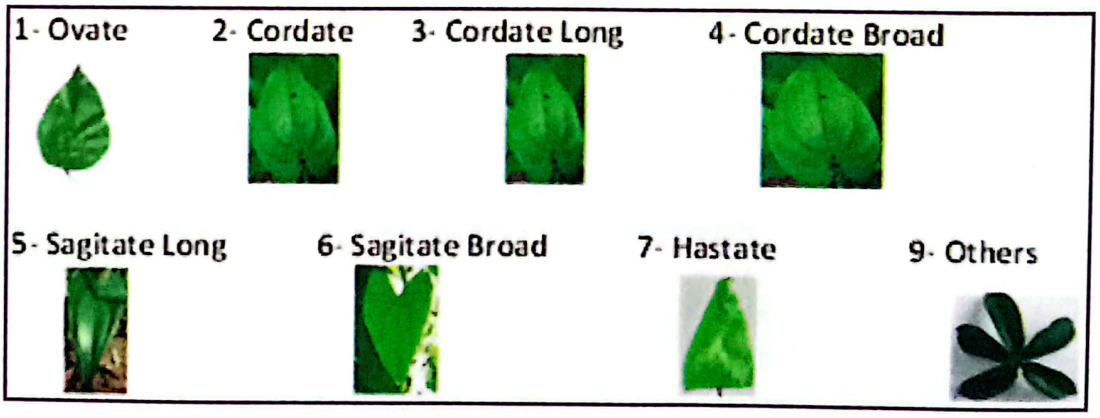
Appendix 4

Photograph of Yam Descriptors used in Characterization

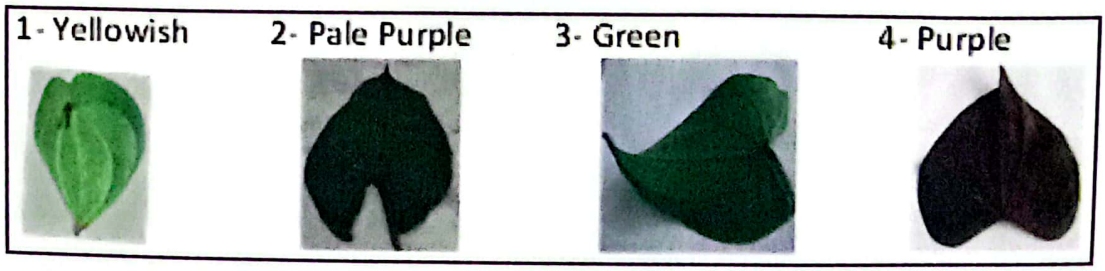
Mature Leaf Color



Leaf Shape



Leaf Vein Color



APPENDIX TABLES

Appendix Table 1

Vine Stem and Leaf Characterization

1	2	3	4	5	6	7	8	9	10	11	12	13
NPY#	DTE	YSL	#INT	MSH	#ST	InL	YSC	MSC	MSD	#IB	#BG	WaYS
001	5	134	13	2	1	12	1	1	0.5	1	1	1
002	27	90	9	2	2	13	1	1	0.5	1	1	1
003	20	135	12	2	1	10	1	1	0.5	0	1	1
004	23	101	12	2	2	7	1	1	0.4	0	3	1
005	40	90	10	2	1	17	2	2	0.5	0	3	1
006	36	98	14	3	2	13	1	1	0.6	2	1	1
007	58	110	14	2	1	12	2	1	0.5	1	1	1
008	56	12	1	3	1	11	1	1	0.4	0	3	1
009	16	120	9	2	1	19	1	1	0.4	1	1	1
010	30	101	13	2	1	9	1	1	0.4	4	2	1
011	3	171	17	3	1	16	1	1	0.6	0	0	1
012	3	171	14	2	1	12	1	2	0.7	2	2	1
013	40	58	8	2	1	9	1	2	0.5	0	3	0
014	19	138	15	2	2	11	1	2	0.6	0	1	1
015	50	128	16	2	2	12	1	1	0.3	0	0	0
016	22	44	9	2	1	8	2	1	0.5	1	2	1
017	28	88	11	2	2	10	4	2	0.6	1	1	1
018	24	87	10	2	1	15	1	1	0.5	0	0	1
019	41	57	7	2	1	8	1	1	0.5	0	0	1
020	2	168	19	2	1	1	1	1	1.0	1		1
021	28	53	11	2	1	14	2	1	0.5	1	1	1
022	53	121	11	2	1	11	1	1	0.6	0	2	1
023	6	148	10	2	2	15	1	1	0.5	0	1	1
024	29	87	14	2	1	8	1	2	0.5	1	1	1
025	10	136	16	2	1	12	1	1	0.5	0	2	1
026	34	70	26	2	2	10	1	1	0.4	1	2	1
027	33	82	15	1	2	12	2	1	0.6	0	1	1
028	7	182	26	2	1	12	2	2	0.7	1	2	0
029	35	126	19	2	2	12	1	1	0.5	2	2	1
030	24	65	13	2	2	12	1	1	0.4	0	0	1
031	20	109	13	2	1	12	1	1	0.5	1	1	1
032	15	122	18	2	2	11	1	1	0.6	0	1	1
033	13	129	14	2	1	12	2	2	0.6	1	1	0
034	39	37	9	2	2	20	3	1	0.5	7	1	1

Appendix Table 1

Vine Stem and Leaf Characterization

1	2	3	4	5	6	7	8	9	10	11	12	13
NPY#	DTE	YSL	#INT	MSH	#ST	InL	YSC	MSC	MSD	#IB	#BG	WaYS
035	35	47	9	2	1	6	1	1	0.4	0	2	0
036	51	87	11	2	1	8	1	2	0.5	2	1	1
037	40	68	9	2	1	10	2	1	0.5	1	2	1
038	46	75	11	2	1	12	2	1	0.5	0	1	1
039	26	82	12	2	2	10	2	2	0.6	2	2	1
040	26	69	7	2	1	10	2	1	0.6	1	2	1
041	50	28	7	1	1	8	1	2	0.4	0	0	0
042	13	90	13	1	2	7	1	1	0.4	0	2	0
043	25	64	11	2	1	9	2	1	0.4	0	1	1
044	20	92	13	2	1	12	2	1	0.4	0	2	0
045	33	49	8	2	2	10	3	2	0.5	0	1	1
046	31	41	10	2	2	10	4	1	0.4	1	1	1
047	42	52	7	2	2	15	2	1	0.6	1	1	1
048	28	87	10	2	2	7	1	1	0.5	0	3	1
049	32	43	9	2	2	10	2	1	0.5	1	1	1
050	36	99	13	2	2	9	2	1	0.5	1	1	1
051	37	83	13	3	1	11	3	1	0.5	1	1	1
052	42	91	11	2	1	12	3	1	0.5	1	1	1
053	53	62	11	2	2	11	4	1	0.5	0	1	1
054	36	68	10	2	1	10	2	3	0.6	0	1	1
055	27	45	10	1	1	6	2	4	0.5	0	3	1
056	37	91	12	2	1	9	2	1	0.6	1	1	1
057	13	128	17	2	1	11	1	2	0.5	0	1	1
058	12	88	11	2	1		1	1	0.5	0	3	1
059	15	92	10	2	2	11	1	1	0.5	1	1	1
060	53	80	13	2	1	9	2	3	0.5	0	2	1
061		164	21	2	1	9	1	2	0.6	2	4	1
062	20	84	10	2	2	9	1	2	0.5	0	1	0
063	28	103	10	2	1	8	2	1	0.5	1	1	1
064	59	131	15	2	1	11	2	2	0.5	1	2	1
065	59	2	15	2	1	11	2	2	0.5	1	2	1
066	26	85	15	2	2	9	2	2	0.5	0	2	1
067	41	51	7	2	1	10	1	1	0.4	0	0	0
068	17	117	20	2	2	11	1	2	0.4	0	0	0
069	27	90	14	2	1	10	1	2	0.5	1	2	1
070	42	64	11	2	1	11	3	1	0.5	0	1	1
071	15	53	6	2	2	11	2	2	0.5	1	0	1
072	32	18	4	2	2	10	5	1	0.6	0	0	1

Appendix Table 1

Vine Stem and Leaf Characterization

1	2	3	4	5	6	7	8	9	10	11	12	13
NPY#	DTE	YSL	#INT	MSH	#ST	InL	YSC	MSC	MSD	#IB	#BG	WaYS
073	28	43	8	2	1	14	3	2	0.4	3	2	1
074	34	108	16	2	1	10	2	1	0.4	1	1	0
075	21	56	5	2	1	9	1	1	0.6	0	2	1
076	38	31	3	2	1	12	4	1	0.6	0	2	1
077	54	103	16	2	1	12	2	1	0.5	0	0	1
078	30	30	6	2	1	8	5	1	0.5	0	0	1
079	22	88	12	2	1	11	1	1	0.4	0	0	1
080	32	55	10	2	2	11	2	2	0.7	2	1	1
081	33	49	9	3	1	8	2	1	0.5	1	2	0
082	26	85	8	2	2	8	5	1	0.5	0	2	1
083	17	84	9	2	1	8	4	1	0.4	0	0	1
084	28	66	12	2	1	10	2	1	0.5	2	1	1
085	40	112	13	2	2	8	2	2	0.5	1	1	1
086	22	61	10	1	1	8	2	1	0.6	0	1	0
087	34	42	7	3	2	13	2	1	0.5	2	1	1
088	25	34	7	2	1	9	5	2	0.7	0	2	1
089	24	114	17	1	1	9	1	1	0.4	1	1	1
090	50	26	6	2	1	8	5	1	0.5	0	0	1
091	49	31	1	2	2	8	5	1	0.5	0	1	1
092	42	69	11	3	1	9	2	1	0.4	2	1	0
093	20	59	12	1	1	7	1	1	0.4	0	0	0
094	40	70	10	2	1	10	2	1	0.4	0	0	0
095	39	56	18	2	1	8	1	1	0.5	0	3	1
096	17	117	12	2	2	8	2	2	0.5	0	1	1
097	42	277	24	2	1	16	1	2	0.7	6	2	0
098	17	117	12	2	1	8	2	2	0.5	0	1	1
099												
100												
101												

Appendix Table 1

Vine Stem and Leaf Characterization

1	14	15	16	17	18	19	20	21	22	23	24	25	26
NPY#	WgYS	WCYS	PT	PV	TD	EYL	#YL	PoL	LD	LT	YLC	MLC	VCYL
001	1	2	3	3	2	2	12	2	5	1	3	3	2
002	1	2	3	2	2	1	13	3	5	1	3	3	4
003	1	3	3	2	2	1	16	3	4	1	4	3	5
004	1	2	3	1	2	1	14	1	3	1	4	2	2
005	1	3	3	1	2	1	15	1	3	1	3	2	4
006	1	3	3	2	2	1	19	2	3	1	3	3	3
007	1	2	3	3	2	1	9	3	4	1	2	3	3
008	1	2	3	2	2	1	25	2	5	1	3	1	2
009	1	3	3	3	2	1	14	3	5	1	3	3	4
010	1	2	3	2	2	2	12	3	4	1	2	2	2
011	1	3	3	3	2	1	20	3	3	1	3	3	4
012	1	3	3	2	2	1	18	3	5	1	2	3	4
013	1	2	3	2	2	1	13	3	4	1	4	3	2
014	1	3	3	2	2	1	22	2	4	1	2	2	2
015	1	3	3	2	2	1	11	1	5	1	3	3	2
016	1	3	3	2	2	1	10	3	6	1	2	3	3
017	1	3	3	3	2	1	10	3	6	1	3	3	4
018	1	3	3	2	2	1	9	3	5	1	2	3	4
019	1	2	3	2	2	1	18	2	5	1	2	3	3
020	1	1	3	2	2	1	75	2	5	1	3	3	2
021	1	3	3	2	2	1	12	3	4	1	2	3	4
022	1	3	3	2	2	1	16	2	4	1	2	3	3
023	1	3	3	3	2	1	15	2	6	1	2	3	3
024	1	3	3	2	2	1	14	2	4	1	2	2	3
025	1	3	3	3	2	1	25	3	7	1	2	2	2
026	1	3	3	3	2	1	35	3	7	1	1	3	4
027	1	3	3	1	2	1	11	3	3	1	3	2	2
028	1	3	3	3	2	1	26	3	7	1	3	3	2
029	1	3	3	3	2	1	21	3	5	1	2	3	2
030	1	3	3	2	2	1	15	3	5	1	3	3	3
031	1	2	3	3	2	1	15	3	7	1	2	3	4
032	1	3	3	3	2	1	25	3	2	1	2	2	2
033	1	3	3	2	2	1	20	2	5	1	2	3	3
034	1	2	3	2	2	1	15	3	4	1	1	2	3
035	1	1	3	1	2	1	20	1	3	1	3	2	2
036	1	2	3	1	2	1	10	1	3	1	2	2	4
037	1	2	3	2	2	1	14	3	5	1	2	3	3
038	1	3	3	1	2	2	11	2	3	1	3	2	1
039	1	3	3	2	2	1	16	3	4	1	3	3	4
040	1	3	3	2	2	1	15	2	3	1	2	3	3

Appendix Table 1

Vine Stem and Leaf Characterization

1	14	15	16	17	18	19	20	21	22	23	24	25	26
NPY#	WgYS	WCYS	PT	PV	TD	EYL	#YL	PoL	LD	LT	YLC	MLC	VCYL
041	1	2	3	1	2	1	8	2	3	1	3	2	4
042	1	2	3	1	2	1	21	3	3	1	3	2	2
043	1	3	3	2	2	1	13	5	4	1	2	2	4
044	1	3	3	1	2	1	32	1	3	1	3	3	1
045	1	3	3	3	2	1	15	1	5	1	2	3	4
046	1	3	3	2	2	1	15	3	4	1	3	3	3
047	1	3	3	2	2	1	10	3	5	1	2	3	3
048	1	3	3	1	2	1	18	1	4	1	2	2	3
049		3	3	2	2	1	9	2	3	1	3	3	4
050	1	3	3	2	2	1	18	3	4	1	3	3	3
051	1	3	3	2	2	1	25	2	5	1	3	1	3
052	1	3	3	3	2	1	16	2	6	1	3	3	3
053	1	3	3	2	2	1	12	3	3	1	1	2	3
054	1	3	3	2	2	2	50	2	4	1	2	2	2
055	1	3	3	1	2	1	25	3	3	1	3	3	3
056	1	3	3	2	2	1	14	3	3	1	4	3	3
057	1	3	3	2	2	1	16	3	5	1	4	3	4
058	1	3	3	1	2	1	14	2	4	1	2	2	3
059	1	2	3	3	2	1	14	3	6	1	3	3	2
060	1	3	3	2	2	1	24	2	4	1	3	2	4
061	1	3	3	3	2	1	27	3	5	1	4	2	2
062	1	3	3	2	2	1	13	2	4	1	3	3	3
063	1	3	3	2	2	1	15	1	3	1	3	3	3
064	1	3	3	2	2	1	16	2	4	1	3	2	3
065	1	3	3	2	2	2	2		2	4	1	3	2
066	1	2	3	1	2	1	23	2	4	1	3	3	3
067	1	2	3	3	2	1	7	1	5	1	2	3	2
068	1	2	3	3	2	1	27	1	7	1	2	2	2
069	1	2	3	3	2	1	14	3	5	1	2	3	2
070	1	3	3	2	2	1	13	2	5	1	2	3	4
071	1	3	3	1	2	1	17	3	3	1	2	3	4
072	1	3	3	1	2	1	19	3	3	1	2	3	2
073	1	3	3	2	2	1	10	3	5	1	3	3	3
074	1	3	3	1	2	1	19	3	3	1	3	3	4
075	1	3	3	1	2	1	13	1	3	1	2	3	2
076	1	3	3	2	2	1	18	2	3	1	3	3	2
077	1	3	3	2	2	1	15	3	5	1	2	2	4

Appendix Table 1

Vine Stem and Leaf Characterization

1	14	15	16	17	18	19	20	21	22	23	24	25	26
NPY#	WgYS	WCYS	PT	PV	TD	EYL	#YL	PoL	LD	LT	YLC	MLC	VCYL
078	1	3	3	2	2	1	20	3	5	1	3	2	4
079	1	3	3	2	2	1	14	3	3	1	2	2	4
080	1	3	3	3	2	1	16	3	4	1	2	3	3
081	1	3	3	1	2	1	24	1	5	1	3	2	4
082	1	3	3	1	2	1	2	1	5	1	3	1	3
083	1	3	3	2	2	1	20	3	5	1	3	3	2
084	1	3	3	2	2	2	13	2	4	1	3	3	3
085	1	3	3	2	2	1	10	1	3	1	2	2	2
086	1	3	3	1	2	1	10	3	3	1	2	2	4
087	1	2	3	2	2	2	14	3	5	1	2	1	4
088	1	3	3	1	2	1	8	3	3	1	2	3	4
089	1	3	3	2	2	1	20	3	3	1	3	3	3
090	1	3	3	1	2	1	6	1	3	1	5	1	4
091	1	3	3	2	2	1	1	3	5	1	1	2	2
092	1	2	3	3	2	1	13	2	7	1	3	3	3
093	1	3	3	1	2	1	14	3	3	1	1	1	4
094	1	2	3	2	2	1	13	2	5	1	3	3	3
095	1	1	3	2	2	1	8	3	5	1	2	3	2
096	1	3	3	2	2	1	12	1	3	1	3	3	4
097	1	3	3	3	2	2	17	3	5	1	4	2	2
098	1	3	3	2	2	1	12	1	3	1	3	2	4
099													
100													
101													

Appendix Table 1

Vine Stem and Leaf Characterization

1	27	28	29	30	31	32	33	34	35	36	37
NPY#	VCMLu	VCMLb	PCYL	PWCYL	MLS	LAS	DL	UFT	DAT	MLW	MLL
001	2	2	5	1	3	2	3	3	1	11	18
002	2	3	1	2	5	2	5	3	1	7	13
003	2	3	3	3	3	2	4	3	1	8	14
004	2	2	1	2	3	2	5	3	0	6	12
005	2	2	1	3	3	2	5	3	1	10	20
006	2	2	2	3	6	2	5	3	1	8	14
007	2	2	6	3	4	2	3	3	1	10	20
008	2	2	1	1	3	2	5	3	1	8	16
009	2	2	1	3	3	2	5	3	1	10	20
010	3	3	2	2	4	2	5	3	1	10	15
011	2	2	1	3	3	2	5	5	1	10	20
012	2	3	3	3	6	2	7	4	1	9	16
013	2	3	5	2	5	2	6	4	1	8	16
014	2	2	3	3	5	2	8	4	1	7	12
015	2	2	1	2	2	2	5	3	0	9	13
016	2	2	5	3	6	2	5	3	1	8	15
017	2	3	7	3	3	2	1	3	1	9	15
018	2	1	5	2	5	2	5	5	1	9	15
019	2	1	2	2	2	5	3	1	0	18	15
020	2	3	1	3	3	2	3	1	1	10	20
021	2	3	2	3	4	2	3	3	1	8	14
022	2	2	3	3	2	2	6	3	1	9	14
023	2	2	1	3	3	2	5	4	1	8	15
024	2	2	2	3	3	2	4	4	1	10	14
025	2	2	1	2	6	2	5	3	1	10	18
026	2	2	1	3	3	2	5	7	0	7	13
027	2	1	4	2	6	2	5	5	1	11	18
028	2	2	1	1	3	2	1	3	1	9	16
029	2	3	3	2	3	2	5	3	1	8	15
030	2	2	2	2	3	2	5	3	1	8	15
031	2	2	1	2	3	2	1	3	1	8	17
032	2	2	1	1	3	2	5	3	1	8	15
033	2	3	2	2	3	2	3	3	1	9	16
034	2	2	6	3	3	2	1	3	1	8	12
035	4	2	3	2	3	2	5	3	1	5	9
036	2	2	8	3	3	2	3	3	1	8	14
037	2	2	3	2	3	2	1	3	1	9	14
038	2	2	3	3	3	2	3	5	1	11	19
039	2	3	6	3	5	2	7	3	1	9	17

Appendix Table 1

Vine Stem and Leaf Characterization

1	27	28	29	30	31	32	33	34	35	36	37
NPY#	VCMLu	VCMLb	PCYL	PWCYL	MLS	LAS	DL	UFT	DAT	MLW	MLL
040	2	3	6	3	5	2	7	3	1	14	22
041	4	4	6	3	6	2	5	3	1	6	12
042	2	3	3	3	5	2	5	3	1	8	13
043	2	2	8	3	3	2	5	3	1	5	11
044	1	2	3	1	4	2	5	3	1	6	11
045	2	2	6	3	4	2	5	4	1	9	16
046	2	2	3	3	6	2	5	3	1	8	15
047	2	2	5	3	2	2	7	4	1	11	16
048	2	2	2	3	2	2	5	3	1	8	13
049	3	3	3	3	2	2	5	3	1	11	18
050	2	2	3	2	2	2	5	4	1	7	12
051	2	2	5	3	3	1	2	5	1	8	16
052	2	2	6	2	2	2	2	4	1	11	17
053	2	2	6	2	3	2	5	3	1	8	13
054	2	2	3	3	6	2	5	3	1	8	15
055	2	1	5	3	6	2	9	3	1	8	13
056	2	1	2	3	3	2	5	3	1	8	16
057	2	3	4	3	3	2	7	4	1	10	15
058	2	2	3	3	3	2	6	3	1	8	14
059	2	2	4	3	3	2	4	3	1	10	18
060	2	2	5	3	5	2	5	4	1	7	14
061	3	3	1	3	6	2	1	3	1	7	10
062	3	3	2	3	4	2	5	3	1	9	15
063	2	2	2	3	2	2	5	3	1	10	16
064	2	2	4	3	4	2	5	3	1	8	15
065	3	2	2	2	3	4	2	5	3	1	8
066	3	4	2	3	3	2	5	3	1	8	15
067	2	2	3	3	3	2	5	3	1	12	20
068	2	2	1	2	3	2	1	3	1	8	15
069	2	2	4	3	3	2	5	3	1	10	18
070	2	3	5	2	4	2	5	4	1	8	15
071	2	4	3	3	5	2	5	3	1	7	13
072	2	3	3	3	5	2	5	3	1	8	13
073	2	3	4	3	4	2	5	3	1	8	15
074	3	3	3	3	6	2	5	3	1	9	15
075	2	3	3	3	4	2	5	3	1	10	16
076	2	3	3	3	6	2	5	3	1	7	13
077	3	3	8	3	6	2	9	3	1	7	15

Appendix Table 1

Vine Stem and Leaf Characterization

1	27	28	29	30	31	32	33	34	35	36	37
NPY#	VCMLu	VCMLb	PCYL	PWCYL	MLS	LAS	DL	UFT	DAT	MLW	MLL
040	2	3	6	3	5	2	7	3	1	14	22
041	4	4	6	3	6	2	5	3	1	6	12
042	2	3	3	3	5	2	5	3	1	8	13
043	2	2	8	3	3	2	5	3	1	5	11
044	1	2	3	1	4	2	5	3	1	6	11
045	2	2	6	3	4	2	5	4	1	9	16
046	2	2	3	3	6	2	5	3	1	8	15
047	2	2	5	3	2	2	7	4	1	11	16
048	2	2	2	3	2	2	5	3	1	8	13
049	3	3	3	3	2	2	5	3	1	11	18
050	2	2	3	2	2	2	5	4	1	7	12
051	2	2	5	3	3	1	2	5	1	8	16
052	2	2	6	2	2	2	2	4	1	11	17
053	2	2	6	2	3	2	5	3	1	8	13
054	2	2	3	3	6	2	5	3	1	8	15
055	2	1	5	3	6	2	9	3	1	8	13
056	2	1	2	3	3	2	5	3	1	8	16
057	2	3	4	3	3	2	7	4	1	10	15
058	2	2	3	3	3	2	6	3	1	8	14
059	2	2	4	3	3	2	4	3	1	10	18
060	2	2	5	3	5	2	5	4	1	7	14
061	3	3	1	3	6	2	1	3	1	7	10
062	3	3	2	3	4	2	5	3	1	9	15
063	2	2	2	3	2	2	5	3	1	10	16
064	2	2	4	3	4	2	5	3	1	8	15
065	3	2	2	2	3	4	2	5	3	1	8
066	3	4	2	3	3	2	5	3	1	8	15
067	2	2	3	3	3	2	5	3	1	12	20
068	2	2	1	2	3	2	1	3	1	8	15
069	2	2	4	3	3	2	5	3	1	10	18
070	2	3	5	2	4	2	5	4	1	8	15
071	2	4	3	3	5	2	5	3	1	7	13
072	2	3	3	3	5	2	5	3	1	8	13
073	2	3	4	3	4	2	5	3	1	8	15
074	3	3	3	3	6	2	5	3	1	9	15
075	2	3	3	3	4	2	5	3	1	10	16
076	2	3	3	3	6	2	5	3	1	7	13
077	3	3	8	3	6	2	9	3	1	7	15

Appendix Table 1

Vine Stem and Leaf Characterization

1	27	28	29	30	31	32	33	34	35	36	37
NPY#	VCMLu	VCMLb	PCYL	PWCYL	MLS	LAS	DL	UFT	DAT	MLW	MLL
078	2	3	2	5	5	2	5	3	1	8	16
079	2	2	3	3	2	2	5	3	1	7	11
080	3	2	5	3	6	2	3	4	1	8	14
081	2	2	3	3	5	2	5	3	0	8	14
082	2	3	2	3	4	2	5	3	1	6	13
083	2	2	3	3	5	2	9	3	1	8	14
084	2	3	6	3	6	2	7	4	1	8	15
085	2	3	3	1	4	2	5	3	1	8	16
086	2	3	3	3	3	2	9	3	1	8	15
087	3	1	6	3	3	2	9	3	1	8	13
088	2	2	8	3	4	2	1	3	1	9	17
089	2	2	4	3	4	2	1	3	1	8	12
090	2	2	8	3	4	2	5	3	1	8	16
091	2	2	3	3	3	2	5	3	1	6	12
092	2	2	6	3	3	1	9	3	1	8	15
093	3	3	3	3	5	2	9	3	1	6	12
094	2	3	6	3	5	2	5	3	1	7	15
095	2	2	7	1	2	2	5	3	1	8	15
096	2	1	8	3	4	2	5	3	1	10	15
097	2	3	1	3	4	2	9	3	1	13	18
098	2	1	5	3	4	2	5	4	1	10	18
099					4						
100					4						
101					2						

Legend/Encoding Guide (Appendix Table 1)

1 NPY# = Northern Philippines Yam Number

2 DTE = Days to Emergence (Number of days between planting and emergence)

3 YSL = Young Stem Length (cm)

4 INT# = Number of Internodes in Young Stem

5 MSH = Mature Stem Height
- 1 = <2m
- 2 = 2-10m
- 3 = >10m

6 #ST = Number of stems per plant from stem base

7 InI = Internode Length in Mature Stem (cm)

8 YSC = Young Stem Color
- 1= green
- 2= purplish green
- 3= brownish green
- 4= dark brown
- 5= purple

9 MSC = Mature Stem Color
- 1= green
- 2= purplish green
- 3= brownish green
- 4= dark brown
- 5= purple

10 MSD = Mature Stem Diameter (15 cm from base of the plant)

11 #IB = Number of internodes to first branching

12 #BG = Number of Branches Above Ground

13 WaYS = Presence of Waxiness in Young Stem
- 0= absent
- 1= present

14 WgYS = Presence of Wings in Young Stem
- 0= absent
- 1= present

15 WCYS = Wings Color in Young Stem
- 1= green
- 2= green with purple edge
- 3= purple

16 PT = Plant Type
- 1= dwarf
- 2= shrub-like
- 3= climbing

17 PV = Plant Vigour
- 1= low
- 2= intermediate
- 3= high

18 TD = Twining Direction
- 1= left
- 2= right

19 EYL = Emergence of Young Leaf assessed at 20 days after emergence

20 YL# = Number of young leaves at approximately 60-90 cm stem length

21 PoL = Position of Leaves
- 1= alternate
- 2= opposite
- 3= alternate at base/ opposite above

22 LD = Leaf density
- 3= low
- 5= intermediate
- 7= high

23 LT = Leaf Type
- 1= simple
- 2= compound

24 YLC = Young Leaf Color
- 1= yellowish
- 2= pale green
- 3= dark green
- 4= purplish green
- 5= purple

Legend/Encoding Guide (Appendix Table 1)

25 MLC = Mature Leaf Color
- 1= yellowish
- 2= pale green
- 3= dark green
- 4= purplish green
- 5= purple

26 VCYL = Vein Color at bottom surface of Young Leaf
- 1= pale green
- 2= green
- 3= pale purple
- 4= purple

27 VCMLu = Vein Color at Upper Surface of Mature Leaf
- 1= yellowish
- 2= green
- 3= pale purple
- 4= purple

28 VCMLb = Vein Color at Bottom Surface of Mature Leaf
- 1= yellowish
- 2= green
- 3= pale purple
- 4= purple

29 PCYL = Petiole Color in Young Leaf
- 1= all green with purple base
- 2= all green with purple leaf junction
- 3= all green with purple at both end
- 4= all purplish green with purple at base
- 5= all purplish green with purple at leaf junction
- 6= all purplish green with purple at both end
- 7= green
- 8= purple
- 9= brown green
- 10= brown
- 11= dark brown

30 PWCYL = Petiole Wing Color in Young Leaf
- 1= green
- 2= green with purple edges
- 3= purple

31 MLS = Mature Leaf Shape
- 1= ovate
- 2= cordate
- 3= cordate long
- 4= cordate broad
- 5= sagitate long
- 6= sagitate broad
- 7= hastate
- 9= others

32 LAS = Leaf Apex
- 1= obtuse
- 2= acute
- 3= emerginate
- 9= others

33 DL = Distance Between Lobes
- 1= no measurable distance
- 5= intermediate
- 9= very distance

34 UFT = Upward Folding Tendency of Leaf
- 1= Weak
- 7= Strong

35 DAT = Downward Arching Tendency of Leaf
- 0= no
- 1= yes

36 MLW = Mature Leaf Width (cm)

37 MLL = Mature Leaf Length (cm)

Appendix Table 2

Tuber Characterization

1	38	39	40	41	42	43	44	45	46	47	48
NPY#	UnTu	TuType	MAE	TuGr	ReTu	Corm	CormSz	CoTu	Rhiz	Spine Ro	AnchRo
001	1	1	2	1	2	0	0	0	0	0	0
002	1	1	2	1	2	1	1	1	0	0	0
003	1	1	2	1	2	0	0	0	0	0	0
004	1	1	2	1	2	0	0	0	0	0	0
005	1	1	2	1	2	1	1	1	0	0	0
006	1	1	2	1	2	0	0	0	0	0	1
007	1	1	2	1	2	1	1	1	0	0	0
008	1	1	2	1	2	0	0	0	0	0	1
009	1	1	2	1	3	1	1	1	0	0	0
010	1	1	2	1	2	1	1	1	0	0	0
011	1	1	2	1	2	1	1	1	1	0	1
012	1	1	2	1	2	1	2	0	0	1	0
013	1	1	2	1	2	0	0	0	0	0	0
014	1	1	2	1	2	1	1	1	0	0	0
015	1	1	2	1	3	1	1	1	0	0	0
016	1	1	2	1	2	1	1	1	0	0	1
017	1	1	2	1	2	0	0	0	0	0	1
018	1	1	2	1	2	0	0	0	0	0	0
019	1	1	2	1	2	1	1	1	0	0	1
020	1	1	2	1	2	0	0	0	0	0	1
021	1	1	2	1	2	0	0	0	0	0	1
022	1	1	2	1	3	0	0	0	0	0	1
023	1	1	2	1	2	0	0	0	0	0	0
024	1	1	2	1	2	0	0	0	0	0	0
025	1	1	2	1	2	0	0	0	0	0	0
026	1	1	2	1	2	1	1	1	0	0	0
027	1	1	2	1	2	0	0	0	0	0	0
028	1	1	2	1	2	1	2	1	0	0	0
029	1	1	2	1	2	1	1	1	0	0	0
030	1	1	2	1	2	1	1	1	0	0	0
031	1	1	2	1	2	1	1	1	0	0	1
032	1	1	2	1	2	0	0	0	0	0	1
033	1	1	2	1	2	0	0	0	0	0	1

Appendix Table 2

Tuber Characterization

1	38	39	40	41	42	43	44	45	46	47	48
NPY#	UnTu	TuType	MAE	TuGr	ReTu	Corm	CormSz	CoTu	Rhiz	SpineRo	AnchRo
034	1	1	2	1	2	0	0	0	0	0	1
035	1	1	2	1	2	0	0	0	0	0	1
036	1	1	2	1	2	0	0	0	0	0	1
037	1	1	2	1	2	1	1	1	0	0	0
038	1	1	2	1	2	0	0	0	0	0	1
039	1	1	2	1	2	1	6	1	0	0	0
040	1	1	2	1	2	1	1	1	0	0	0
041	1	1	2	1	1	1	0	0	0	0	1
042	1	1	2	1	1	1	0	1	0	1	1
043	1	1	2	1	3	0	0	0	0	0	0
044	1	1	2	1	2	1	1	1	0	0	0
045	1	1	2	1	3	1	2	1	0	0	1
046	1	1	2	1	1	1	1	1	0	0	1
047	1	1	2	1	3	1	1	1	0	0	1
048	1	1	2	1	3	1	11	1	0	0	1
049	1	1	2	1	2	1	1	1	0	0	1
050	1	1	2	1	2	0	0	0	0	0	1
051	1	1	2	1	2	1	1	1	0	0	1
052	1	1	2	1	3	1	1	1	0	0	1
053	1	1	2	1	2	1	1	1	0	0	1
054	1	1	2	1	3	1	1	1	0	1	1
055	1	1	2	1	3	0	0	0	0	0	1
056	1	1	2	1	1	0	0	0	0	0	0
057	1	1	2	1	3	1	1	1	0	0	1
058	1	1	2	1	1	1	1	1	0	0	1
059	1	1	2	1	3	1	1	0	0	0	1
060	1	1	2	1	1	1	1	1	0	0	1
061	1	1	2	1	2	1	1	1	0	0	1
062	1	1	2	1	1	0	0	0	0	0	0
063	1	1	2	1	1	0	0	0	0	0	0
064	1	1	2	1	1	0	0	0	0	0	0
065	15	1	2	1	1	0	0	0	0	1	0
066	1	1	2	1	1	0	0	0	0	0	0
067	1	1	2	1	1	0	0	0	0	0	0
068	1	1	2	1	1	0	0	0	0	1	0
069	1	1	2	1	1	1	1	1	0	0	1
070	1	1	2	1	1	1	1	0	0	0	0

Appendix Table 2

Tuber Characterization

1	38	39	40	41	42	43	44	45	46	47	48
NPY#	UnTu	TuType	MAE	TuGr	ReTu	Corm	CormSz	CoTu	Rhiz	SpineRo	AnchRo
071	1	1	2	1	2	1	1	1	0	0	1
072	1	1	2	1	2	1	1	1	0	0	1
073	1	1	2	1	2	1	1	1	0	0	1
074	1	1	2	1	2	1	1	1	0	0	1
075	1	1	2	1	1	1	1	1	0	0	1
076	1	1	2	1	3	0	0	0	0	0	1
077	1	1	2	1	2	1	1	1	0	0	1
078	1	1	2	1	2	0	0	0	0	0	1
079	1	1	2	1	1	0	0	0	0	0	1
080	1	1	2	1	1	1	2	1	0	0	1
081	1	1	2	1	1	1	0	0	0	0	1
082	1	1	2	1	2	1	1	1	0	1	0
083	1	1	2	1	1	0	0	0	0	0	1
084	1	1	2	1	2	0	0	0	0	0	0
085	1	1	2	1	2	0	0	0	0	0	0
086	1	1	2	1	2	1	1	1	0	0	1
087	1	1	2	1	2	1	1	1	0	0	0
088	1	1	2	1	2	1	1	1	0	0	1
089	1	1	2	1	2	0	0	0	0	0	1
090	1	1	2	1	2	0	0	0	0	0	1
091	1	1	2	1	3	0	0	0	1	0	1
092	1	1	2	1	3	1	1	1	1	0	1
093	1	1	2	1	1	0	0	0	0	0	1
094	1	1	2	1	3	0	0	0	0	1	1
095	1	1	2	1	1	0	0	0	0	0	0
096	1	1	2	1	2	0	0	0	0	0	1
097	1	1	2	1	2	0	0	0	0	0	1
098	1	1	2	1	2	0	0	0	0	0	1
099											
100											
101											

Appendix Table 2

Tuber Characterization

1	49	50	51	52	53	54	55	56	57	58	59
NPY#	Sprout H	TuSha	TuBrnch	PBrnch	TuLg	TuWd	RoTuS	SpinyTuSu	PlRoTu	PrickAp	WrklTu
001	0	7.2	0	4	3	3	2	0	0	0	1
002	0	7.1	3	2	2	8	3	0	4	0	1
003	0	1	0	0	1	11	3	0	0	0	0
004	0	7	0	0	1	3	3	0	4	0	0
005	0	3	0	3	1	17.5	3	0	4	0	0
006	0	4	3	0	1	6.5	3	0	4	0	0
007	0	5	5	3	1	17.5	3	0	4	0	0
008	0	4	0	0	1	6.5	3	0	4	0	0
009	0	3	5	3	1	7.5	3	0	2	0	0
010	0	6.1	5	2	1	7.5	3	0	2	0	0
011	0	6.1	3	2	1	6	3	0	2	0	0
012	0	6.2	5	2	1	7	3	0	4	0	1
013	0	7.1	0	0	3	3.5	3	0	4	0	0
014	0	4	3	0	1	6.5	3	0	4	0	0
015	0	4	0	0	1	6.5	3	3	3	0	0
016	0	4	3	0	1	6	3	0	4	0	0
017	0	6.2	7	2	3	18.5	3	0	4	0	1
018	0	7.1	0	0	2	3.5	3	0	1	0	0
019	0	7.3	0	0	2	3	3	0	4	0	1
020	0	7.3	0	0	3	4	3	0	3	0	0
021	0	7.1	3	2	3	5	3	0	3	0	1
022	0	7	3	3	3	10	3	0	4	0	0
023	0	7	0	0	3	10	3	0	4	0	0
024	0	7	0	0	2	5	3	0	0	0	0
025	0	7	3	1	1	6	3	3	3	0	0
026	0	5	3	3	1	22	3	0	4	0	0
027	0	3	0	1	1	8	3	0	1	0	0
028	0	7.1	0	0	2	7	0	0	0	0	0
029	0	7.2	0	0	2	3.5	3	0	4	0	0
030	0	7.2	0	0	3	4.5	3	0	2	0	0
031	0	6.1	3	3	1	7.5	3	0	2	0	0
032	0	6.1	0	0	1	7	3	0	2	0	1
033	0	6.2	3	2	2	8.5	3	3	2	0	1
034	1	0	0	1	11	3	0	3	0	0	0
035	1	0	0	1	12	3	0	3	0	0	0
036	1	0	0	1	7	3	0	3	0	0	0
037	3	0	0	2	5	3	0	4	0	0	0
038	4	3	2	2	6	7	0	4	0	0	0

Appendix Table 2

Tuber Characterization

1	49	50	51	52	53	54	55	56	57	58	59
NPY#	Sprout H	TuSha	TuBrnch	PBrnch	TuLg	TuWd	RoTuS	SpinyTuSu	PlRoTu	PrickAp	WrklTu
039	3	0	0	1	6	3	0	4	0	0	0
040	3	3	0	1	12	3	0	4	0	0	0
041	4	0	0	1	8.5	3	0	3	0	0	0
042	4	3	0	1	3.5	3	3	4	0	0	0
043	6.2	3	1	1	5	3	0	4	0	0	0
044	7.1	0	0	2	4	3	0	4	0	0	0
045	4	0	0	2	6	3	0	3	0	0	0
046	7	0	0	1	5	3	3	3	0	0	0
047	7	0	0	2	4.5	3	0	3	0	0	0
048	4	3	0	1	5	3	0	1	0	0	0
049	4	0	0	1	7	3	0	4	0	0	0
050	4	0	0	1	6	3	0	3	0	0	1
051	4	3	3	1	6	7	0	4	0	0	0
052	4	5	1	1	4.5	3	0	3	0	0	0
053	4	3	1	2	5	3	0	4	0	1	0
054	4	3	0	2	6	3	3	4	0	0	0
055	3	0	0	1	6	7	0	4	0	0	0
056	4	0	0	3	5.5	3	0	4	0	0	0
057	3	5	1	3	4	3	0	4	0	0	0
058	4	0	0	2	11	3	0	4	0	0	0
059	4	3	0	1	4	3	3	4	0	0	0
060	4	3	3	1	6	3	3	4	0	0	0
061	7	0	1	3	5.5	7	3	4	0	0	0
062	6.1	7	1	2	14	3	3	3	0	1	0
063	7	0	0	3	8	7	0	4	0	0	0
064	7.1	0	0	2	5	3	0	4	0	0	0
065	7.1	0	0	2	4.5	3	0	4	0	0	0
066	4	0	0	2	7	3	0	3	0	0	0
067	0	3	3	0	1	6.5	3	0	4	0	0
068	0	4	0	0	3	10	3	0	0	0	0
069	0	3	3	0	1	5	3	0	0	0	0
070	0	3	3	3	1	5.5	3	0	4	0	0
071	0	1	0	0	1	9.5	3	0	3	0	0
072	0	1	0	0	1	5.5	3	0	3	0	1
073	0	3	3	3	1	5.5	3	0	3	0	0
074	0	1	0	0	1	5.5	3	0	3	0	0
075	0	3	0	0	1	7	3	0	3	0	0
076	0	2	0	0	1	10	3	0	4	0	0

Appendix Table 2

Tuber Characterization

1	49	50	51	52	53	54	55	56	57	58	59
NPY#	Sprout H	TuSha	TuBrnch	PBrnch	TuLg	TuWd	RoTuS	SpinyTuSu	PlRoTu	PrickAp	WrklTu
077	0	4	3	3	2	9	3	0	4	0	0
078	0	4	3	2	2	7	3	0	4	0	0
079	0	4	5	3	3	11	7	3	4	0	0
080	0	4	3	1	1	15	3	0	4	0	0
081	0	4	3	3	1	13.5	3	0	4	0	0
082	0	7	3	0	3	8.5	3	0	3	0	0
083	0	6.2	5	3	1	7	7	0	4	0	1
084	0	6.1	7	3	1	13	3	3	3	3	1
085	0	6.2	5	3	1	7.5	3	0	3	1	1
086	0	6.1	5	1	1	6.5	3	0	3	1	1
087	0	6.1	5	3	1	6.5	3	0	3	0	1
088	0	6.2	3	2	2	7	3	0	3	0	1
089	0	6.2	3	2	1	10.5	3	0	4	0	0
090	0	6	7	2	1	2	3	0	4	0	0
091	0	6.1	7	3	1	4.5	3	0	3	0	0
092	0	6.2	7	1	2	7	3	0	4	0	1
093	0	6.2	5	2	3	6	3	0	3	1	1
094	0	6.2	7	2	3	7.5	3	3	4	0	1
095	0	4	0	0	1	6.5	3	3	4	0	0
096	0	7	0	0	1	1	3	0	3	0	0
097	0	7	0	0	3	1	3	0	4	0	0
098	0	7	0	0	3	1	3	3	4	0	0
099		7.2									
100		7.2									
101		7.1									

Appendix Table 2

Tuber Characterization

1	60	61	62	63	64	65	66	67	68	69	70	71
NPY#	Non-prick	CrckTu	TuSkCo	Hard Cut	SkCoHd	FlCoCS	LlCoLP	UniFC	FlTex	FlOxi	Gum	IrriHuman
001	1	0	3	2	10	1	1	1	1	3	1	1
002	0	1	3	2	10	5	3	1	3	3	1	1
003	0	1	4	2	6	6	6	1	1	0	1	1
004	0	1	3	2	10	8	7	1	3	3	1	1
005	0	1	3	2	10	8	7	1	1	2	1	1
006	0	0	3	2	10	6	6	1	3	0	1	0
007	0	1	3	2	10	7	7	1	1	2	1	0
008	0	0	3	2	10	6	6	1	2	0	1	0
009	0	0	3	2	7	5	7	1	2	3	1	0
010	0	0	3	2	10	7	7	1	3	3	1	0
011	0	1	3	2	10	8	8	1	3	3	1	0
012	0	1	2	2	6	6	6	1	2	0	1	0
013	0	0	3	2	6	6	6	1	3	0	1	0
014	0	0	2	2	6	6	6	1	3	0	1	0
015	0	0	1	2	10	8	8	1	3	3	1	0
016	0	0	2	2	6	6	6	1	3	1	0	0
017	0	1	3	2	10	2	1	1	3	3	0	0
018	0	0	1	2	7	5	7	1	3	3	0	0
019	0	1	1	2	10	1	1	1	3	3	1	0
020	0	1	3	2	10	1	2	0	3	3	1	0
021	0	1	3	2	10	2	2	1	3	3	1	0
022	0	0	2	2	6	6	6	1	1	3	1	1
023	0	0	1	2	1	1	1	1	3	3	1	1
024	0	0	2	2	6	5	5	1	3	3	1	1
025	0	0	3	2	10	6	1	0	1	3	1	0
026	0	0	1	2	10	8	8	1	3	3	1	0
027	0	0	3	2	1	2	1	1	1	3	1	1
028	0	0	3	2	2	1	2	1	1	3	1	0
029	0	1	3	2	10	8	8	1	3	3	1	0
030	0	1	2	2	10	1	1	1	3	3	1	0
031	0	1	3	2	10	8	8	1	3	3	1	1
032	0	1	3	2	10	1	1	1	3	3	1	1
033	0	1	2	2	10	8	2	1	3	3	1	0
034	0	1	2	2	5	5	5	1	3	0	0	0
035	0	1	2	2	5	6	6	1	1	0	0	0
036	0	1	2	2	8	5	8	0	1	0	0	0
037	0	1	3	2	10	5	5	1	1	0	1	1
038	0	1	3	2	10	1	1	1	1	3	1	1

Appendix Table 2

Tuber Characterization

1	60	61	62	63	64	65	66	67	68	69	70	71
NPY#	Non-prick	CrckTu	TuSkCo	Hard Cut	SkCoHd	FlCoCS	LlCoLP	UniFC	FlTex	FlOxi	Gum	IrriHuman
039	0	0	3	2	8	8	8	0	3	0	0	0
040	0	0	3	2	1	1	1	1	1	0	1	1
041	0	1	4	2	6	6	6	1	3	0	1	1
042	0	0	3	2	5	5	5	1	1	3	1	1
043	0	0	3	2	8	7	8	1	1	3	1	1
044	0	0	2	2	5	8	5	1	3	3	1	1
045	0	0	3	2	8	8	8	1	3	3	1	1
046	0	1	3	2	8	8	8	1	3	3	1	0
047	0	0	3	2	7	7	7	1	3	3	0	0
048	0	1	2	2	6	6	6	1	1	0	1	1
049	0	1	3	2	1	1	1	1	3	0	3	1
050	1	1	2	2	8	8	8	1	3	3	1	1
051	0	0	2	2	6	6	7	0	3	0	1	1
052	0	0	1	2	10	8	8	0	3	0	1	1
053	0	1	2	2	6	6	6	1	3	3	1	1
054	0	0	2	2	6	6	6	1	3	3	1	1
055	0	0	2	2	8	7	8	1	3	3	1	1
056	0	1	1	2	1	8	1	1	3	3	1	1
057	0	0	5	2	1	8	1	1	3	3	1	1
058	0	0	1	2	10	5	5	1	3	3	1	1
059	0	0	1	2	1	1	1	1	3	3	1	1
060	0	1	4	2	6	6	6	1	3	0	1	1
061	0	0	2	2	5	5	5	1	3	3	1	1
062	0	1	2	2	7	8	7	1	1	3	1	1
063	0	0	1	2	6	6	6	1	3	0	3	1
064	0	0	3	2	5	6	5	1	3	3	1	1
065	0	0	3	2	5	5	5	1	3	3	1	1
066	0	1	3	2	5	5	5	1	3	3	1	1
067	0	0	3	2	1	1	1	1	3	3	1	1
068	0	0	1	2	1	7	8	1	1	3	1	1
069	0	0	2	2	6	1	1	0	1	3	1	1
070	0	0	2	2	7	7	7	0	3	3	1	1
071	0	0	2	2	7	6	7	1	3	0	1	1
072	0	1	2	2	6	6	6	0	1	0	1	1
073	0	1	2	2	6	6	6	1	3	0	1	1
074	0	1	2	2	1	1	1	1	3	3	1	1
075	0	0	1	2	1	1	1	1	1	3	1	1
076	0	0	2	2	8	8	1	1	3	3	1	1

Appendix Table 2

Tuber Characterization

1	60	61	62	63	64	65	66	67	68	69	70	71
NPY#	Non-prick	CrckTu	TuSkCo	HardCut	SkCoHd	FlCoCS	LlCoLP	UniFC	FlTex	FlOxi	Gum	IrriHuman
077	0	0	2	2	5	5	8	0	3	0	1	1
078	0	0	2	2	7	7	6	1	3	3	1	1
079	0	1	2	1	6	8	8	1	3	3	1	1
080	0	0	2	2	6	6	6	1	3	3	1	1
081	0	1	1	2	8	7	7	1	3	3	1	1
082	0	0	2	1	7	7	7	0	3	3	1	1
083	0	1	1	2	10	7	8	1	1	3	1	1
084	1	1	1	2	10	8	8	0	1	3	1	1
085	1	1	1	2	8	8	8	0	0	3	1	1
086	1	1	2	2	6	6	6	1	3	2	2	1
087	0	0	1	2	1	8	8	0	3	3	1	1
088	1	1	2	2	10	6	6	1	1	3	1	1
089	0	1	2	2	6	6	7	1	3	3	2	1
090	0	1	2	2	6	6	6	0	1	2	2	1
091	0	1	2	2	6	6	6	1	1	3	1	1
092	0	1	1	2	7	7	7	1	2	3	1	1
093	0	1	1	1	8	7	8	1	1	3	1	1
094	0	1	3	1	8	8	8	1	1	3	1	1
095	0	0	3	2	2	2	2	1	1	3	1	1
096	0	0	1	2	10	8	8	0	1	2	1	1
097	0	0	2	2	6	8	8	0	1	3	1	1
098	0	0	1	1	1	8	1	1	1	3	1	1
099						8						
100						8						
101						8						

Legend/Encoding Guide (Appendix Table 2)

38 UnTu = Presence of Underground Tuber
0= absent
1= present

39 TuType = Tuber Type
1= tuber
2= rhizome

40 MAE = Maturity After Emergence (months)
1= up to 6 months
2= 7-8 months
3= 9-10 months

41 TuGr = Tuber Growth
1= annual
2= perennial (increase in size every year)

42 ReTu = Relationship of Tubers
1= separate and distant
2= separate and close
3= separate but fused at neck

43 Corm = Presence or Absence of Corm
0= absent
1= present

44 CormS = Corm Size
0= no corm
1= small
2= medium
3= large

45 CoTu = Corm Ability to Separate From Tuber
0= no
1= yes

46 Rhiz = Presence or Absence of Rhizome
0= absent
1= present

47 SpineRo = Spineness of Tuber
0= absent
1= present

48 AnchRo = Presence or Absence of Anchor Roots
0= absent
1= present

49 SproutH = Sprouting at Harvest
0= no
1= yes

50 TuSha = Tuber Shape
1= round
2= oval
3= oval oblong
4= cylindrical
5= flattened
6= irregular
7= others
a-cylindrical with tendency to curl
b-elongated
c-elongated with tendency to curl

51 TuBrnch = Tuber Tendency to Branch
0= no branching
1= slight branching
2= branched
3= highly branched

52 Pbrnch = Place of Branching in the Tuber
0= no branching
1= upper
2= middle
3= lower

53 TuLg = Tuber Length (cm)

54 TuWd = Tuber Width (cm)

55 RoTus = Roots on Tuber Surface
3= few
7= many

Legend/Encoding Guide (Appendix Table 2)

56 SpinyTuSu = Spiny Roots on Tuber Surface
0= no spines
3= few
7= many

57 PlRoTu = Place of Roots on Tuber
0= no visible roots on tuber
1= lower
2= middle
3= upper
4= entire tuber

58 PrickAp = Prickly Appearance
0= no
1= yes

59 WrklTu = Wrinkles on Tuber Surface
0= no
1= yes

60 Non-prick = Non-Prickly Appearance on Tuber Surface
0= no
1= yes

61 CrckTu = Cracks on Tuber Surface
0= no
1= yes

62 TuSkCo = Tuber Skin Color
1= light maroon
2= dark maroon
3= grayish
4= others

63 HardCut = Hardness When Cut
1= hard
2= easy

64 SkCoHd = Skin Color at Head
1= white
2= yellow to white
3= yellow
4= orange
5= light purple
6= purple
7= purple with white
8= outer purple/ inner white
9= others

66 LlCoLP = Flesh Color at Lower Part
1= white
2= yellow to white
3= yellow
4= orange
5= light purple
6= purple
7= purple with white
8= white with purple
9= others

67 UniFc = Uniformity of Flesh Color in Cross Section
0= no
1= yes

68 FlTex = Texture of Flesh
1= smooth
2= grainy
3= very Grainy

69 FlOxi = Flesh Oxidation
0= no oxidation
1= grey
2= purple
3= orange

70 Gum = Amount of Gum Released by Cut Tuber
0= no gum released
1= low
2= intermediate
3= high

71 IrriHuman = Ability of Cut Tuber To Irritate Human Skin
0= none
1= low
2= high

Appendix Table 3

Quality Characterization of Cooked Tubers

1	2	3	4	5	6	7	8	9	10	11	12
NPY#	Pound	Appear	Colour	Attract	Texture	Stick	Flavour	Moisture	Bitter	Sweet	Aroma
1	2	5	1.57	4	2.43	0.29	1.14	0	0	0.29	0
2	2	5.8	5.4	5.4	2.4	0.25	1	0.4	0	0	0
3	2	5.67	6.17	6.33	2.5	0.4	1.67	0.17	0	0.92	0.17
4	1.67	6.33	9	7	1.67	0.33	1	0.67	0.33	0.33	0
5	2	6.5	6.5	5.5	4	0	1	0	0	0	0
7	1.67	4.33	3.33	4.33	2.11	0	0.33	0	0.67	0.11	0
8	2	7	9	7	2.5	0.25	1.5	0	0	0.50	0
10	1.67	3	3	3	1.33	0.33	0.33	0.67	0	0	0
12	2	6.6	9	7	2.4	0.4	1.4	0.2	0	0.2	0
13	1.67	5	4.5	5.5	2.67	0.2	1.33	0.17	0.17	0.50	0.17
15	1.67	5	1	4.33	2.67	0	0.67	0	0	0	0
16	1.75	6	8.75	6.5	2	0	0.75	0.5	0	0.5	0
18	1.88	6.13	6.63	5.75	2	0.125	1.25	0.375	0	0.38	0
19	2	5.8	1.6	5.8	2.33	0	1.2	0.6	0.2	0	0
20	2	3.67	2.33	3.67	1.67	0	0.67	0.33	0	0	0
21	1.78	4.88	2.56	3.56	2.39	0.11	0.72	0.22	0.11	0.17	0
23	2	5	1	3.67	1.33	0.33	1	0	0	0	0
24	2	7	5	7	4	0	2	0	0	1	0
29	2	5.33	1	3.67	2.75	0	1	0	0.33	0	0
32	1.75	4	1	4	1.75	0	0.75	0.5	0	0.50	0
33	1.67	3.33	1.83	3	2.17	0	0.33	0.67	0.5	0	0
34	1.42	3.92	5.75	4.92	3	0.25	0.42	0.58	0.17	0	0
35	1.75	7	8.75	7	1.8	0	1.5	0.75	0	0.63	0.25
39	2	6.67	4.83	6	1.67	0.67	1.17	0.17	0.2	0.33	0
42	1.93	4.43	3.08	4.14	1.86	0.19	1	0.46	0.07	0.14	0
47	1.67	3	1.33	3	1.67	0	0.33	0.33	0.33	0	0
48	2	5.67	4.67	5	1.33	0.33	1.33	0	0	0	0
49	1.92	4.92	3.25	3.92	2.00	0	1.08	0.33	0.18	0.25	0
50	2	5.83	4.17	5	2.17	0.17	1.5	0.17	0	0.83	0
51	1.67	7	8.33	6.67	2.33	0	1.33	0.67	0.33	0.33	0
52	1.73	5.42	4.17	4.83	2.08	0.08	0.83	0.17	0	0.5	0
53	2	7	9	7	2.8	0	1	0.2	0	0.2	0

Appendix Table 3

Quality Characterization of Cooked Tubers

1	2	3	4	5	6	7	8	9	10	11	12
NPY#	Pound	Appear	Colour	Attract	Texture	Stick	Flavour	Moisture	Bitter	Sweet	Aroma
55	2	6.67	6.5	6	2.71	0	1.17	0	0	0.5	0
56	1.92	5	2.85	4.46	1.92	0.08	1	0.23	0.27	0	0
57	1.91	5.18	2.9	3.73	2.08	0.18	0.91	0.27	0.14	0.36	0
58	1.47	4.82	5.27	4.53	2.55	0.15	0.53	0.47	0.21	0.09	0
60	2	4.33	4.67	5	1.67	0.33	0.67	0.67	0	0	0
65	2	6.71	7.43	6.43	2.38	0.14	1.43	0	0	0.29	0
67	2	5	4.75	4.6	1	1	1	0.2	0	0.4	0
68	1.57	5.57	6.92	5.36	2.40	0.14	0.86	0	0	0.25	0
71	2	5.6	9	5.4	2.2	0	1.8	0.2	0	0.8	0.2
74	2	7	9	7	1	0	2	0	0	0	0
75	2	6.33	1.33	6	2.5	0	1.33	0	0.33	0.33	0
77	2	6.08	6.67	6.17	2.31	0.08	1.58	0	0.17	0.45	0
78	2	5.67	5.17	5.33	2.33	0	1.17	0.17	0	0	0
79	1.68	5.59	6.62	5.14	1.75	0.19	0.91	0.36	0.14	0.18	0
80	2	6.67	9	7	2.17	0	1.67	0.17	0	0.17	0
81	1.6	5.8	6.4	5.8	2.2	0	1	0.8	0	0.4	0
83	2	6.25	6	5	2.25	0	1	0.25	0	0.63	0
84	2	4	1.5	3.2	2.5	0.2	0.8	0	0	0.6	0
85	1.67	5.22	6	5.25	2.5	0.11	1	0	0	0.33	0
86	2	7	9	6.71	2.14	0	0.57	0.43	0.36	0	0
87	1.83	5.83	7.09	6	2.25	0.36	1.25	0.08	0.08	0.42	0
88	1.25	4	9	4.5	2.8	0	0	1	0.25	0.25	0
90	1.29	4.71	4.14	4.57	2.14	0	0.86	0	0.14	0	0
91	2	7	9	7	3.25	0	1.33	0.33	0	0.33	0
93	1.71	5.14	7.86	5.57	3	0.14	1.29	0	0	0.36	0
94	1.75	5.5	5.75	5.75	2.75	0	1	0	0	0.25	0
95	1.67	4.67	1	3.67	2	0.33	1	0.67	0	0.33	0
98	1.78	6.22	5.33	5.44	1.67	0.33	0.78	0.89	0	0.125	0
99	1.9	4.9	2.89	5.4	2.58	0.1	0.9	0.2	0.1	0.4	0
100	1.4	3	3.4	3	2.6	0.4	0.2	0.6	0	0	0
101	2	5.67	2.67	5	3	0	1.67	0	0	1.17	0

Legend/Encoding Guide (Appendix Table 3)

1 NPY # = Northern Philippine Yam

2 Pound = Poundability of Boiled Tuber
- 1= poor
- 2= good

3 Appear = Appearance of Tuber After Cooking
- 3= poor
- 5= fair
- 7= good

4 Colour = Colour of Tuber After Cooking
- 1= white, not coloured
- 2= highly coloured

5 Attract = Attractiveness of Cooked Tuber (with respect to colour alone)
- 3= low
- 5= intermediate
- 7= high

6 Texture = Texture of Cooked Tuber
- 1= smooth
- 2= grain
- 3= fibrous

7 Stick = Stickiness of Cooked Tuber
- 1= sticky
- 2= very sticky

8 Flavour = Flavour of Cooked Tuber
- 0= not acceptable
- 1= acceptable
- 2= very acceptable

9 Moisture = Absence or Presence of Moisture on Cooked Tuber
- 0= absent
- 1= present

10 Bitter = Bitterness of Cooked Tuber
- 0= not bitter
- 1= bitter
- 2= very bitter

11 Sweet = Sweetness of Cooked Tuber
- 0= not sweet
- 1= sweet
- 2= very sweet

12 Aroma = Absence or Presence of Aroma
- 0= absent
- 1= present

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Institutional Profiles

Northern Philippines Root Crops Research and Training Center of Benguet State University

The Northern Philippines Root Crops Research and Training Center (NPRCRTC) serves as the National Commodity Research Center based at Benguet State University (BSU). It is tasked to provide leadership in planning, implementation, monitoring, and evaluation of root crop RDE program and LGU extension projects; undertake basic and upstream applied research; and provide non-degree training programs, technical assistance, extension cum research activities, and information support services to local government units (LGUs) in Northern Philippines (Sec. 81 and Sec. 90, IRR of RA8435). The programs, projects, and activities of NPRCRTC are concentrated on six commodities-potato, yam, sweetpotato, taro, cassava, and lesser known root crops; provision of relatively clean planting materials of potato, sweetpotato, and taro; and its tissue culture laboratory and disease clinic services.

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