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Greater Yam (Dioscorea alata) Varieties Grown by the Ethno-linguistic Groups in Northern Philippines

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ABSTRACT

This study was done to document indigenous greater yam varieties and wild yam species among the *Aeta, Bago, Biga-Kalinga, Bugkalot, Buhid-Mangyan, Ibaloi, Isneg, Ivatan, Iyattuka, Kalanguya, Kankana-ey, Applai-Kankana-ey, Tingguian* and two other major groups, the *Kapampangans* and *Ilocanos.* Economic, environmental and climatic conditions are changing diets and livelihoods such that indigenous greater yam varieties are at risk of disappearing, hence this documentation. Secondary data, interview, workshops and field observations were used to document information. Seventy-seven indigenous greater yam varieties were known, grown and utilized within the farming communities of 169 farmer respondents from selected ethno-linguistic groups in Northern Philippines. Fifty-one were commonly planted, 24 were planted less and five have already been lost.The *Ivatans* named the highest number with 18 varieties while the *Kankana-eys* of Benguet were able to name only one variety. The 18 wild species were gathered from the forest (*bakir/ kabakiran*) only in times of food and feed scarcity. The two major groups - the *Kapampangans* and *Ilocanos* are not familiar with greater yam varieties as these are mostly planted by their Aeta neighbors. Tuber shape and flesh color were the characteristics of the indigenous greater yam varieties that the ethno-lingistic groups could easily mention. Some domesticated wild species served as insurance crop for food security.

Keywords: greater yam, wild yam, ethno-linguistic groups, endangered, food security, swidden farm

INTRODUCTION

In Southeast Asia, yams are mainly produced in the Philippines and Japan (FAO, 2006), and are grown primarily for their underground tubers which vary in shape, size, flesh color and aroma. The yam tuber which is the most important part of the plant, can be stored longer than other root and tuber crops, ensuring food security even in times of food scarcity. It is the third most important tropical root and tuber crop after cassava and sweetpotato (Fu *et al.,* 2005). They are sources of carbohydrates because they can serve as an alternative to rice. They are also important as sources of industrial food products. An important species of yam is the *Dioscorea alata* where purple yams being processed belongs. Yams thrive anywhere in the Philippines and in a wide range of soil type because they can tolerate adverse conditions such as droughts and pest infestation. They thrive best in sandy loam and silt loam, fertile, well-drained soil and at temperatures ranging from 25° to 30° C. They need ample moisture throughout the growing season.

Greater yam (*Dioscorea alata* Linn.), belongs to the family *Dioscoreacea* with approximately 600 species in the world mostly wild and mainly in a tropical environment. It is locally named as *ube, ubi, uvi, guhhudan, ongo* or *ulang* among the ethno-linguistic groups. It is among the root crops that has served as an important alternative staple food in the olden times. Recently, the commercial potential of greater yam has been recognized in the country despite its being a minor commodity (PCARRD Ubi Industry Situationer, 1998). Greater yam is a promising and high value crop because of its growing demand in the industrial food sector in both local and export markets.

There are 110 ethno-linguistic groups in the Philippines with an estimated population of 14-17 million, 33% of who are concentrated in Northern Luzon particularly within the Cordillera Administrative Region. 61% are in Mindanao,

with some groups in the Visayas (UNDP Fast Facts Lagom, 2010). There is therefore a need to document greater yam that is known, grown or once grown and utilized by the selected ethno-linguistic groups in Northern Philippines.

METHODOLOGY

This study on greater yam is part of the project, Role of Roots and Tubers in Household Food Security and Income of Indigenous Peoples in Northern Philippines. It aimed to document the diversity and adaptation of roots and tubers grown, gathered and utilized by indigenous peoples.

Selection of site and ethno-linguistic group was based on secondary data and the willingness of collaborating agencies and partner researchers. Key informants were selected based on their experiences in root crop farming. Secondary data were gathered from the respective Municipal Agricultural Offices and Regional Offices covering the communities of the selected ethno-linguistic groups and root crop growing areas. These were on production statistics in root crops, published and unpublished literatures on indigenous groups and yam production. It also gathered utilization studies from records of provincial and municipal units, Bureau of Statistics (BAS) now Philippine Statistics Authority (PSA), and Officers in-charge of the National Commission on Indigenous Peoples (NCIP) of each IP group. There were 13 ethno-linguistic groups namely (Table 1); *Aeta, Bago, Biga-Kalinga, Bugkalot, Buhid-Mangyan, Ibaloi, Isneg, Ivatan, Iyattuka, Kalanguya, Kankana-ey, Applai-Kankana-ey, Tingguian* and two major groups, the *Kapampangans* and *Ilocanos*.

Profile of key informants

A total of 169 rootcrop farmers responded to the invitation for the documentation of their own knowledge and resources on yam. There were 77 males and 92 females with ages ranging from 23 to 85 years old. The respondents belong to different ethno-linguistic groups depending on the barangay, municipality or province they come from. Majority were the *Kalanguyas* with 32 farmers or representing 18.9% of the total respondents.

Table 1. Profile of the selected ethno-linguistic groups and their location.

Ethnolinguistic group	Specific sites (Sitio/Barangay/Municipality/Province)	Male	Female	Age (years)
Aeta	Banga, Sugpon, Ilocos Sur, and	12	3	23-85
Bago	Malikliko, Sudipen, La Union	8	3	38-54
Biga-Kalinga	Tanudan, Kalinga	1	13	23-60
Bugkalot	Tamuyan, Belance, Dupax del Norte, Nueva Viscaya.	9	3	39-78
Buhid-Mangyan	San Jose City, Occidental Mindoro	11	2	24-60
Ibaloi	Taloy Sur, Tuba, Benguet Province	1	2	49-57
Isneg	Talifugo, Conner, Apayao	2	13	49-77
Ivatan	Batanes Province	1	4	55-70
Iyattuka	Amduntog, Asipulo Ifugao	0	4	53-79
Kalanguya	Tiblac, Ambaguio, Nueva Viscaya	8	24	24-80
Benguet-Kankana-ey	Sagpat, Kibungan, Benguet	3	7	38-72
Applai-Kankana-ey	Bauko Municipal Agriculture Office, Mountain province	0	5	52-78
Tingguian	Bucloc, Abra	3	7	47-81
Kapampangan	Porac, Pampanga	10	1	30-80
Ilocano	Paniqui, Tarlac	8	1	44-74

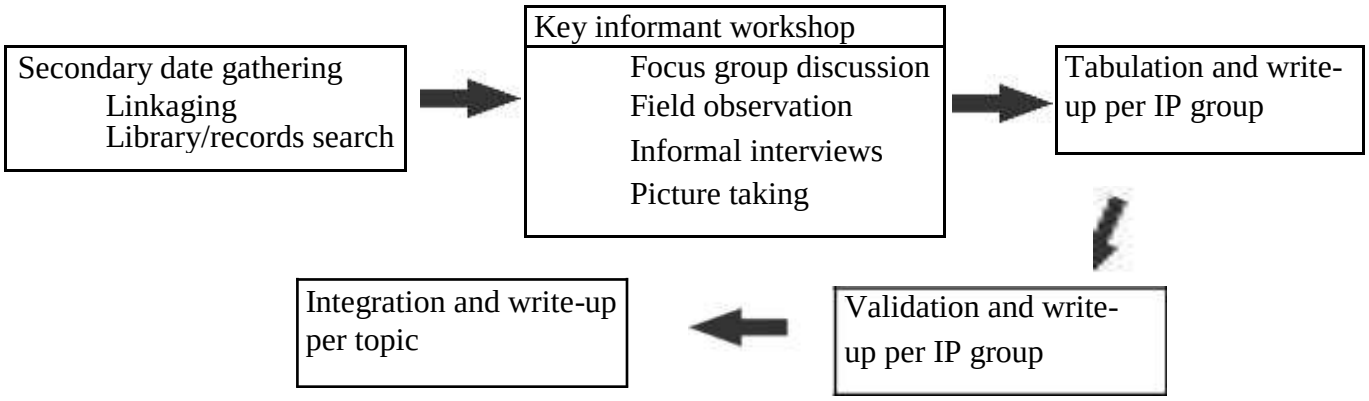

Fig. 1. Steps used in conducting the research

RESULTS AND DISCUSSION

Number of grown varieties

There were 77 (Table 2) indigenous varieties of greater yam named within the farming communities of the different selected ethno-linguistic groups. The *Ivatans* of Batanes named 18 varieties which is more than the 11 varieties documented by *Dayo et al.,* (1988), that were mostly grown in Mahatao, Batanes. Majority of these varieties were described as white-fleshed. Among the *Ibalois* who ranked greater yam as third to sweetpotato and taro as alternate to rice, 17 varieties were named. The *Bagos* identified nine varieties of greater yam which is their number one cash crop displacing banana as source of cash income from swidden farms. The *Aetas, Isnegs* and *Tingguians* named six greater yam varieties each purposely grown for food consumption and for sale. There were only four greater yam varieties cultivated by the *Kalanguyas* probably because of their preference to short maturing cash crops (3-4 months) like pole snap beans. The *Biga-Kalingas, Bugkalots* and *Buhid-Mangyans* named three varieties each. The *Biga-Kalingas* had domesticated the wild yam and these are just re-planted whenever encountered in the swiddens or those that have been left on the ground. The *Applais* and *Iyattukas* named two varieties each. The two major groups, the *Kapampangans* and *Ilocanos* are not familiar with greater yam varieties as these are mostly planted by their *Aeta* neighbors.

Table 2. Number of greater yam varieties cultivated by selected ethno-linguistic groups in Northern Philippines

Ethno-linguistic group	Local name of greater yam	Number of cultivated varieties
Aeta	Ubi	6
Bago	Ubi	9
Biga-Kalinga	Ubi	3
Bugkalot	Ubi	3
Buhid-Mangyan	Ubi	3
Ibaloi	Uve	17
Isneg	Ubi	6
Ivatan	Ubi	18
Iyattuka	Guhhudan	2
Kalanguya	Ongo	4
Kankana-ey	Ulang	1
Applai-Kankana-ey	Ubi	2
Tingguian	Ubi	3

Local names and characteristics of grown greater yam varieties

Grown varieties are those planted for economic benefit either as food or as source of cash income. The *Aetas* in resettlement areas of Tarlac, Pampanga, Zambales and Bataan after the Mount Pinatubo eruption in 1991, grew greater yam varieties, namely; *Ubing-ubi, Ubing-bisaya, Kagunaw, Ubing barak, Ubing anito* and *Ubing kamana*. The *Ubing-ubi* variety has pure violet flesh and is high-yielding. The flesh color of *Ubing Bisaya* is purple with white combination. The other four varieties with white flesh are *Kagunaw*, which has a fibrous tuber; and the *Ubing Barak* with a spiral shape. The *Ubing Anito* and *Ubing Kamana* are favored by the *Aetas* because these are sweet and sticky. The *Applai-Kankana-ey* of Mt. Province had the white- and the purple-fleshed greater yam varieties.

The greater yam varieties grown by the *Bagos* are *Baloktot* or/*Tuwiran, Mindoro, Rapang/ Kamay-kamay, Sablan/Mindoro-Tungkol, Sappido* or Round, *Tebek*-white, *Tebek*-violet and *Mayyas* (Fig. 2). The *Baloktot* or/ *Tuwiran* has purple flesh, is early maturing (6MAP) and can be harvested by `kapon' method. It gives a high yield but is sensitive to bruising and mechanical damage, has tolerance to typhoons, and has the tendency to have black/ hollow heart. It originated from the *Ibalois*, and was introduced in Sugpon in the 1990's and in 2007 in Sudipen, La Union. The *Mindoro* variety is the most preferred in the market. It has violet flesh from head to base, large flat tubers and more roots that are efficient in absorbing nutrients more than the *Sablan* or *Mindoro Tungkol*. It was only in the 1990's in Sugpon and 2007 in Sudipen that new varieties of greater yam were introduced as cash crops. Today, greater yam is their number one cash crop displacing banana as source of income from swidden farms. Varieties *Baloktot*/*Tuwiran* and *Mindoro* are commonly planted by the *Bagos* of Ilocos Sur and Sudipen, La Union because the former is short maturing and the latter is market preferred. *Bago* greater yam farmers plant a few of the following: *Rapang/Kamay-kamay* which is less preferred by buyers; *Sablan/Mindoro-Tungkol* which produces hallow-heart or *aglongog* if over matured; *Sappido* or Round which is susceptible to drought and typhoons; and *Tebek*-white and *Tebek*-violet, which are deep rooted and grown for home consumption only. The *Mayyas* variety has a bland taste.

Fig. 2. Greater yam varieties of the *Bagos* in Sugpon, Ilocos Sur

The *Ibalois* of Benguet particularly in Caukalan, Taloy Sur, Tuba, Benguet have been growing yam for more than 50 years. These indigenous varieties (Fig. 3) are *Biscong, Shihet* white, *Shihet* violet, *Dimdima* white, *Dimdima* violet, *Majas/Madjas, Maube, Padihot, Padinse, Sampero, Tungkol, Tuwiran/Tohiran* and one unnamed. Varieties *Daking, Kinampay-Sampero, Mindoro-Tungkol*, and New *Tuwiran* were considered as new introductions grown for less than 50 years. According to Bayogan and Quindara (1989), variety *Padinse* was grown by a majority of farmers in Tuba and Sablan, Benguet in the 1980's. *Dimdima* white and violet, *Sampero, Kinampay, Tungkol, Mindoro,* and *Daking* varieties of the *Ibalois* are common since many farmers still plant these indigenous varieties. *Sampero* is roundish with deep purple or violet flesh and *Tungkol* is elongated, heavy with light to deep purple flesh. These are the common varieties grown by the *Ibalois*.

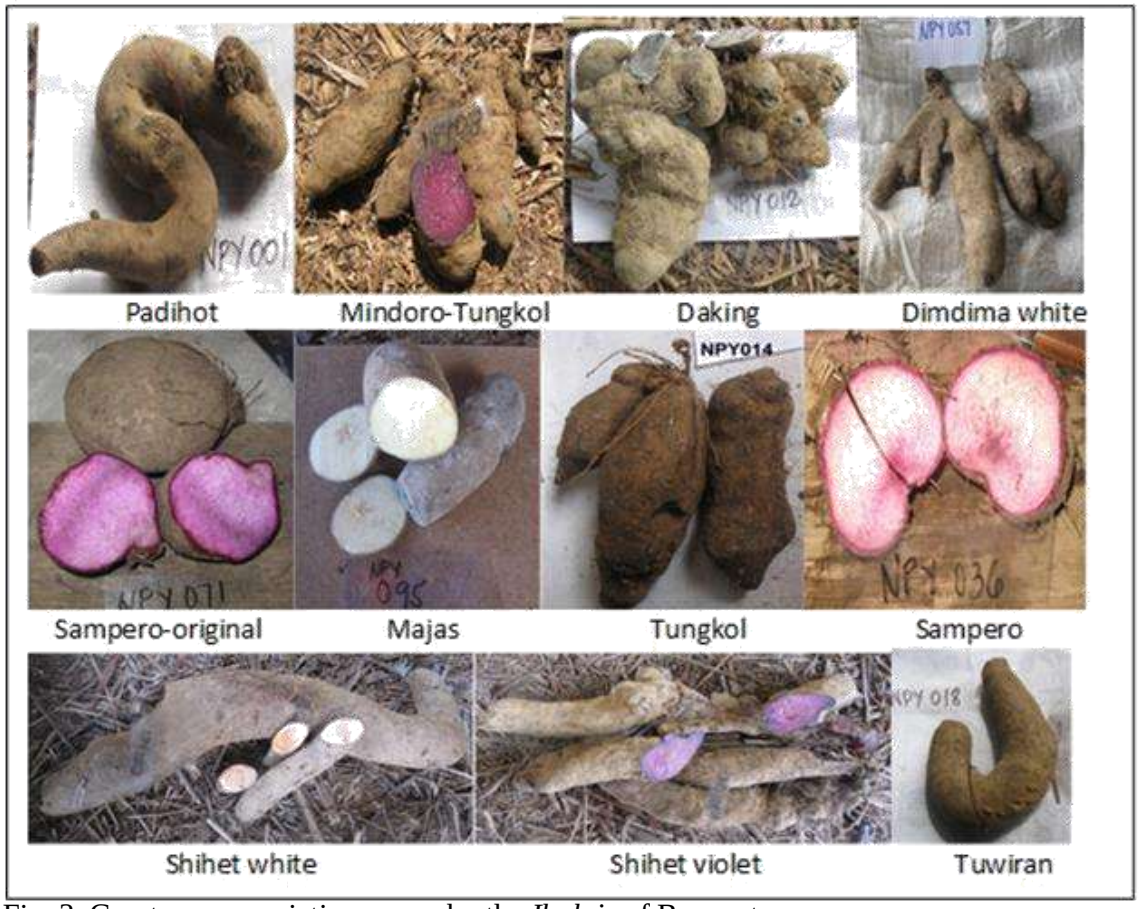

Fig. 3. Greater yam varieties grown by the *Ibalois* of Benguet.

The local greater yam varieties of the *Biga-Kalingas* are the wild yam which have been domesticated. These varieties were named primarily based on the shape of the tubers. The *Uleg* white, *Uleg* violet and *Ima*. Locally, *Uleg* means snake-shaped tubers and differed according to the flesh color. *Ima* means hand with branched tuber (+/-5 fingers) at the middle.

The *Bugkalots* in the mountain ranges of Sierra Madre cultivate short maturing varieties with yellow, white and violet flesh and are harvested six months after planting (MAP) instead of the usual maturity of 7- 9 MAP. The violet variety is still widely planted in designated parts of their *uma* (swidden farm) yielding three shapes of tubers namely; round, *rapang* and elongated. They grow greater yam for food and as source of cash income.

The *Buhid-Mangyans* of Occidental Mindoro have only three greater yam varieties namely; (1) *Abuhay*, which is white-fleshed, elongated in shape and yields at least 4-6 kg/hill/year (2) *Dungon*, which has an average yield of 2.5-3 kg/ hill/year and has a deep violet color that can stain the finger, and (3) an unnamed variety that yield at least 5 kg/hill/year. The *Dungon* variety is similar to the *Dimdima* variety in Benguet. The *Isnegs* of Apayao (Fig. 4) have six long maturing (12MAP) varieties of greater yam namely; *Baha-ong, Tulad* and *Bussaya*, which are white-fleshed, and Violet, Esther *ubi* and *Sanglay* which are violet-fleshed. The *Tulad* variety can be harvested in 8 months.

Fig. 4. Greater yam varieties of the *Isnegs* in Apayao

The *Ivatans* in Batanes cultivate greater yam in their rainfed parcels of land called '*asakatakey*'. They have 17 greater yam varieties, namely; *Bataan, Cabrera/ Kabrera, Nayingles, Nayvisaya, Pagad/ Kalabaw, Palisin/Hawaii, Pagadji,Talapuyo,Galas,Lagan*-white,*Lagan*-violet, *Lacon*-white, *Lacon* violet, *Marianas/Maryanan, Namay, Paranan, Tucod* and one unknown variety. The white-fleshed *Talapuyo* is being claimed as a first class variety because of the shape, taste and texture. Three of these varieties are named after the place of their origin: *Nayingles* and *Nayvisaya* which one key informant claimed existed since 1915 in the Visayas and Bataan, which was introduced in the 1990's in Bataan. The *Ivatans'* 18 greater yam varieties are still commonly planted mostly in Mahatao, Batanes. Each farmer usually plants three varieties. Lim (2000), as cited by Gayao *et al.,* 2014, claimed that some greater yam varieties were lost because of low yield and low utilization. The white and purple varieties of the *Applai-Kankana-eys* have been lost because of the preference for cash crops in the growing areas. On the other hand, the *Bugkalots'* yellow and white varieties were lost due to preferences for the purple varieties.

Fig. 5. Traditional greater yam varieties of the *Ivatans* (L-R: *Lacon, Talapuyo and Nayvisaya)*

The *Iyattukas* of Ifugao have two unnamed varieties of greater yam planted in their locality. Sometime in 2002-2003, greater yam varieties from Quirino and Nueva Vizcaya were distributed by the Asipulo Municipal Government to 30 growers as possible cash income source. These were planted in gardens near *'payoh'* (rice paddies) and in the '*umah'* (swidden farm). All were presumed lost because there was no mention of new variety introductions. Greater yam is a less priority crop among the *Iyattukas* because they are more of a rice eating community.

The *Kalanguya* farmers in Ambaguio, Nueva Vizcaya identified four locally grown varieties of greater yam. These are *Amputi*, a variety planted for home consumption alone and other three varieties *Kinumpay 1, Kinumpay 2* and *Kinumpay 3* that differ in shape or tuber growth or the branching in the upper part with sickle shape tubers, the round shape and the *Rapang*, i.e., branching in the lower parts, like fingers. All have violet-fleshed tubers suitable for ice cream-making.

The southern *Kankana-eys* of Benguet have only one variety of greater yam but less preferred because it is not sweet. The *Masadiit - Tingguians* commonly plant two local varieties (Table 3), the high yielding white-fleshed *ubi* called *Ab-abit* or *Ub-ubing*, and the other variety called Violet long preferred by buyers because of its deep purple flesh.

Wild Species of Yam

There were 18 wild species of yam (Table 4) known to the ethno-linguistic groups. These were the *Labit* or/*Diyan* and *Kabwang* of the *Aetas*; *Kanapan* of the *Applai-Kankana-eys* of Mt. Province; *Lima-lima* of the *Bagos* of Sudipen, La Union and Banga, Ilocos Sur; *Atap-ubi* of the *Biga-Kalingas;Lugiman* of the *Buhid-Mangyans*; *Kasey* and *Durian* of the *Ibalois*; *Amakey* of the

Isnegs; Aerial *ubi* or *batata* of the *Ivatans*; *Ipuy* of the *Iyattukas*; *Ipoy* and *Dalakit* of the *Kalanguyas*; and *Gallod* of the *Kankana-eys* of Benguet; and *Iyog-iyogan, Ilos* or aerial *ubi* and *Kamangeg* of the *Tingguians*. These wild species are gathered from the forest '*bakir/kabakiran*' in times of food and feed scarcity and as additional source of cash income like the *kamangeg* (Fig. 5) of the *Tingguians*. These are still abundantly growing in the forest, usually harvested in October.

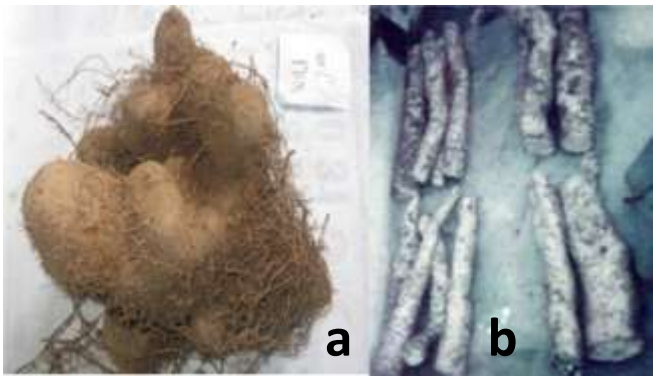

Fig. 5. Some wild yam of the IPs, *Ka-sey* of the *Ibalois* in Tuba, Benguet (a) and *Kamangeg* of the *Tingguians* in Abra (b)

Table 4. Wild yam species known and grown by the selected ethno-linguistic groups.

Ethno-linguistic group	Number	Wild yam species/varieties	Utilization
Aeta	2	Labit/Diyan, Kabwang	For food especially when they go hunting
Applai-Kanakana-ey	1	Kanapan	For food
Bago	1	Lima-lima	For food
Biga-Kalinga	1	Atap ubi	Used an ingredient for *guinataan*
Bugkalot	1	Kalot/karot	For food during the Japanese time
Buhid-Mangyans	1	Lugiman	
Ibaloi	2	Kasey, Durian	For exotic vegetable dishes and pig feed
Isneg	1	Amakey	For food
Ivatan	1	Aerial ubi or batata(2 kinds)	
		1. Violet	1. The violet kind is for food coloring
		2. White-fleshed tuber	2. The white-fleshed aerial tuber is utilized for vegetable and feeds for pigs and chicken
Iyattuka	1	Ipuy	For food
Kalanguya	2	Ipoy, Dalakit	For food
Kankana-ey- Benguet	1	Gallod	For food
Tingguian	3	Iyog-iyogan, Ilos (aerial ubi), Kamangeg	For food and for sale

The *Labit/Diyan* and *Kabwang* of the *Aetas* are gathered from September to December when they go to their swidden farm or to the for-est to hunt. These are gathered by those who want to save money instead of buying rice. The wild yam '*Atap-ubi*' together with wild *canna* '*Bonte-ek*' of the *Biga-Kalingas* are harvested by mothers who would use them in preparing '*guina-taan'* during special occasions (Table 5).

The *Applai-Kankana-eys* gather their wild greater yam from the forest where the *Bagos* likewise gather their *Lima-lima*. The wild greater yam of the *Ibalois* generally named as *Durian* (*Dioscorea spp.*), are of two kinds: the *Durian* whose green heart-shaped leaves/vine is similar to the cultivated greater yam

but with elongated white flesh tuber, and the *Ka-sey* (Fig. 5) with its five-lobed leaves and very long hairy roots on its irregular-ovate shaped tubers.

The *Ivatans* in Batanes have wild yams known as the aerial yam *Batata*, a newly introduced self-supporting root crop planted in the backyards, trees-filled *'kakaykayuan'* and rocky areas and is very adaptable to any type of soil. There are 2 kinds, one utilized as food coloring for *ubi* jam and the other, utilized as vegetable. The wild yam of the *Iyattukas* in Ifugao, locally called *'Ipuy'* has been the survival food of the first *Iyattuka* settlers.

Availability or production scale of greater yam

The availability or production scale of greater yam varieties of the selected ethno-linguistic groups were gathered, categorized either as common, plenty, few and rare, and which may be endangered or lost. Varieties classified as common or plenty are either planted in a large area by a few farmers or planted in a small area by many farmers. Classification under "common" or "plenty" further includes characteristics considered by farmers like the market preference because of flesh color and shape, resistance to physiological disorders and maturity.

There were 77 cultivated greater yam varieties of the ethno-linguistic groups. Fifty are still common or plenty, 22 are few or occasionally available, one is rare or endangered, that is, the *Dungon* variety of the *Buhid-Mangyans*, and four were already lost among the *Applai-Kankana-ey* of Mt. Province and *Bugkalot* of Nueva Vizcaya (Table 5).

Table 5. Availability and utilization of greater yam varieties among the ethnolinguistic groups

Extent of availability	Local names	Ethno-linguistic group	Utilization
Common	Ubing-ubi, Ubing-bisaya, Kagunaw, Ubing barak, Ubing anito, Ubing kamana	Aeta (6)	Food, feed
Common/Plenty	Baloktot/Tuwiran, Mindoro	Bago (2)	Food, for sale
Common/Plenty	Violet	Bugkalot (1)	Food
Common/Plenty	Abuhay, Unnamed	Buhid-Mangyans (2)	Food
Common/Plenty	Dimdima white, Dimdima violet, Sampero, Tungkol, Daking, Kinampay Sampero, Mindoro Tungkol, New Tuwiran	Ibaloi (8)	Food
Common/Plenty	Bahaong, Tulad, Bussaya, Sanglay, Esther ubi, Violet	Isneg (6)	Food, for sale
Common/Plenty	Bataan, Cabrera/Kabrera, Nayingles, Nayvisaya, Pagad/Kalabaw, Palisin/ Hawaii, Pagadji, Talapuyo, Unnamed, Galas, Lagan-white, Lagan-violet, Lacon-white, Lacon-violet, Marianas/ Maryanan, Namay, Paranan, Tucod	Ivatan (18)	Food, feed, for sale
Common	Guhhudan 1, Guhhudan 2	Iyattuka (2)	Food, feed
Common	Ab-abit or ub-ubing, Violet long	Tingguian (2)	
Common	Uleg yellow, Uleg Violet, Ima	Biga-Kalinga (3)	Food
Few	Liken, Rapang/Kamay-kamay, Sablan/ Mindoro-Tungkol, Sappido or Round, Tebek white, Tebek-violet, Mayyas	Bago (7)	Food, for sale
Few	Biscong, Shiket-white, Shiket-violet, Majas/Madjas, Maube, Padihot, Padinse, Tuwiran/Tohiran, Unnamed	Ibaloi (9)	Food, for sale
Few	Amputi, Kinumpay 1, Kinumpay 2, Kinumpay 3	Kalanguya (4)	Food
Few	Ulang	Kankana-ey (1)	
Few	Bekbeklat	Tingguian (1)	
Rare/Endangered	Dungon	Buhid-Mangyan (1)	
Lost	White flesh, purple flesh	Appali-Kankana-ey (2)	
Lost	Yellow, White	Bugkalot (2)	

CONCLUSION AND RECOMMENDATION

There were 77 indigenous varieties of greater yam known, grown and utilized by the *Ivatans, Ibalois, Bagos, Aetas, Isnegs, Tingguians, Kalanguyas, Biga-Kalingas,Bugkalots,Buhid-manyans,Applai-Kankana-eys, Iyattukas* and the *Kankana-eys*. The *Ivatans* and the *Ibalois* had the most diverse varieties with 18 and 17, respectively, planted in their farms. Greater yam is the number one cash crop of the *Bagos* and have 9 varieties at present. The *Aetas, Isnegs* and *Tingguians* cultivate greater yam varieties purposely for food and for sale. The limited number of varieties grown by the *Kalaguyas* is probably because of the preference to short maturing cash crops (3-4 months) like pole snap beans. The two major groups, the *Kapampangans* and *Ilocanos* are not familiar with greater yam as these are mostly planted by their *Aeta* neighbors.

Wild species of yam were likewise utilized by the ethno-linguistic groups. Even if considered wild, these have played a major role in the lives of the IPs even up to the present such as the *kamangeg* of the *Tingguians* who have been using these as additional source of income.

Of the 77 known and grown varieties, 50 were commonly planted, 22 were planted less, one is endangered and four were already lost. The *Bagos* commonly plant the *Baloktot* or *Tuwiran* varieties because of its purple flesh, early maturity (6MAP) that can be harvested early by ‘‘kapon method'', has high yield and has tolerance to typhoons. These are, however, sensitive to bruising and mechanical damage. These varieties are also prone to physiological disorders like hollow heart that turns black in colour when stored. *Baloktot* and *Tuwiran* varieties originated from the *Ibalois* of Benguet and introduced in Sugpon in 1990's and 2007 in Sudipen, La Union. The round, *rapang* and elongated varieties of the *Bugkalots* and the Bataan variety of the *Ivatans* are early maturing and can be harvested six months after planting.

Theexistenceofgreateryamvarietiesgrownbythe ethno-linguistic group means availability of varieties that may answer the demand for the different yam processing industry needs. However, there is a need to fasttract activities that could identify suitable processing varieties and mass produce quality planting materials of said identified varieties. This can be done through strengthened participation of farmers from different ethno-linguistic groups; strengthened traditional seed system to sustain productivity and availability of tubers needed by the processing industry, and continuous government support for R and D to explore the potentials of the wild species either for nutraceuticals or for the food industry.

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3. Original photos should be submitted in PNG or JPEG format with corresponding captions.

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