

Wild Yam Assessment: Demographic Characteristics, Cultural Management, Processes and Preferences

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Abstract – This research focuses on the assessment of wild yam in terms of its demographic characteristics, cultural management practices, processes and preferences. The study made use of qualitative and quantitative method of research. Fifty-five respondents were purposively identified and selected based on those who are planting, harvesting and selling yam from six upland municipalities of Ilocos Sur. Frequency count, percentage and mean were the statistical tools used. This was conducted in the five upland municipalities in the 2nd district of Ilocos Sur. Frequency count, percentage and mean were used as statistical tool in treating the data gathered. Based on the result of the study, it is concluded that majority of the yam gatherers/producer are males, aged ranges from 56-60 years old, having 4-6 family members, elementary graduate, a farmer and having a monthly average income of 5,001 to 10,000. Gathering/harvesting of wild yam only requires a simple hand tools due to its inadequate sources, marketing is limited with unstable price in the market. Most of the wild yam processing are easy to prepare except for “karrot”, cooking is done mostly by boiling and usually served as snack food. “Kamangeg” and “ube” are excellently accepted as food and for production purposes. It is then recommended that wild yam could be planted in lowlands areas to increase production thereby turning these wild yams into processed products and awareness of people in the community on the importance of wild yam should be implemented.

Keywords – cultural management, food preference, marketing, wild yam

INTRODUCTION

Root crops are alternatives to cereals as starchy staples in the diet of many people. It is easy to cultivate being adaptable to tropical climates all year round. They have become a primary source of sustenance for many people in developing countries. They are considered as industrial products raw materials for the production of starches, sweeteners and alcohol. In the Philippines, there are four distinct root crops, these are cassava, sweet potato, taro, and yam.

Yam is staple food in many mountainous communities where rice is more difficult. There are over 600 species of wild yam. Some varieties of wild yam contain poisonous substances identifies as diosgenin. These are water soluble alkaloids which in ingestion produce severe and distressing symptoms. These species are grown for laboratories to use in making steroids. Most of the cultivated yams do not have toxin. Only about 12 of the 600 species are considered edible.

Many ‘domesticators’ put forward that they are still attached to domesticating yams by tradition, as knowledge bequeathed by their ancestors, or to nourish their curiosity. Economic reasons also are given. Many

poor farmers lack sufficient tubers for planting, and justify continued domestication as compensation for seed tubers of cultivar i.e., domestication is a creative source of cheap planting materials and helps farmers to cope with hunger [1].

Usually, yam is locally called as “ubi” which is only used as foods for pigs, ducks and chicken when cooked specially in the upland municipalities. Some are eating them boiled dipped with sugar or molasses and rarely that one can see these in the market.

Today, these root crops are also gaining popularity as flavoring and ingredient to a wide array of food products such as ice cream, dried chips/flakes and peels, puree, yam paste, yam preserve, candies, bread and cookies, just to name a few [2]. One native delicacy, a Filipino dessert, that uses “kakanin” like “halaya” as component of halo-halo and flavoring for ice cream and some baked product substances.

Yams are rich in carbohydrates, excellent source of B-complex group of vitamin and minerals. Besides being used as foods, they are symbolically associated with culture and ritualism in some part of Asia. They also possess health benefits like reducing

constipation, decreasing bad cholesterol level, lowering colon cancer risk, and regulating steady rise in blood sugar.

Wild yam is also used for treating a disorder of the intestines called diverticulosis, gall bladder pain, rheumatoid arthritis, improving mental function, and for increasing energy. Some women apply wild yam creams to the skin to reduce menopausal symptoms such as hot flashes [3].

The Philippines though an agricultural country is still importing flour needed for baked products, hence some of these baked products are not affordable by some people. Since yams are valuable source of starches, the researchers thought of producing products out of it. In addition, since there are yam growing communities in the Ilocos province, this study will also cover about the socio-demographic characteristics of the farmers such as age, sex, educational qualification, monthly income and occupation. Yam plays an important socio-cultural role in some upland municipalities, where it becomes their One-Town-One Product (OTOP) gaining its popularity not only in the province but also in the neighboring provinces. Since yams are valuable source of starches, the researchers thought of producing products out of it.

The importance of considering the socio-cultural background of the consumers Zannou, [4] indicated that yam is the basic food of the consumers interviewed in the central part of Benin. Various products and dishes are made from yam like pounded yam, fried yam, boiled yam, and 'cossettes'. From the 'cossettes', Té-libo (paste) and wassa-wassa ('African couscous') are prepared. Pounded yam is the most frequently eaten dish of the consumers interviewed and to them yam is basic food for consumers in the central part of Benin.

The researchers believe that the results of this study will make the community aware on the varied uses of wild yam. They will be encouraged to plant more even in their backyards and later serves as an additional income. It will augment the income of the family through the development of different yam products.

OBJECTIVES OF THE STUDY

The study tried to assess the yam practices in terms of production, marketing and food preferences. Specifically, it sought to determine: the demographic characteristics of wild yam gatherers/producers; to assess wild yam practices in terms of production and marketing; to determine the yam food preferences

particularly in the upland and lowland areas and to determine the level of acceptance on the above-mentioned preferences

MATERIALS AND METHODS

This study made use of the qualitative and quantitative method of research. Identification of the species was determined through survey from those people who are planting, harvesting and selling yam. Documentation of the different kinds of wild yam were taken in places where this root crops are seen and grown. Questionnaire aided interview, observations and photographs to document the existing wild yam were utilized in the study. The questionnaire composed of three parts; Part 1 consists of the respondent's demographic characteristics; Part 2 is the production and marketing and Part 3 is the wild yam preferences and the last part is the level of wild yam acceptance. Fifty-five respondents were purposively identified and they were those who have plants who are really gathering or harvesting in the wild and selling yams from six upland municipalities namely; Banayoyo, Lidlidda, Quirino, San Emilio, Cervantes and Sigay. Frequency count, percentage and mean were the statistical tools used. This was evaluated by five faculty members of the College of Agriculture of the Ilocos Sur Polytechnic State College who were knowledgeable on yam production and management. Cromback Alpha Test was used to measure the reliability of the instrument.

Ethical principles such as confidentiality of information, prevention of risk or harm, voluntary participation and other humane treatments of the participants were considered in the conduct of this research.

RESULTS AND DISCUSSION

The table below shows the demographic characteristics of the wild yam respondents. This illustrates that there are 32 males and 23 females indicating that more males are incline in digging and collecting yam in the mountainous areas.

In terms of age, majority of the respondents belong to the age bracket of 56-60 years old, followed by 51- 55 years and the lowest is 66 years and above. This implies that older generations are more familiar about wild yam: specific locations; variety and time of harvesting. With regards to family members, majority of the respondents belong to the range of 4-6 members which implies that the wild yam respondents have an ideal number of family members

Table 1.
Demographic characteristics of the respondents

Characteristics	Frequency	Percentage
Sex		
Male	32	58.18
Female	23	41.82
Age		
35 below	8	14.55
36-40	8	14.55
41-45	3	5.45
46-50	4	7.27
51-55	11	20
56-60	15	27.27
61-65	4	7.27
66 above	2	3.64
Family member		
1-3	22	40
4-6	27	49.09
7 above	6	10.91
Educational attainment		
Elementary level	15	27.27
Elementary graduate	20	36.36
High school level	8	14.55
High school graduate	8	14.55
College level	2	3.64
College graduate	2	3.64
Occupation		
Farmer	36	65.45
Housekeeper	11	20
Construction worker	6	10.91
Carinderia owner	1	1.82
Teacher	1	1.82
Monthly Income		
1,000-5,000	20	65.45
5,001-10,000	31	20
10,001- 15,000	2	10.91
15,001 -above	2	1.82

Most of the respondents are elementary graduate and least are those who attained college level or degree respectively and earning a monthly income ranging from 5,001 to 10,000. Since the respondents are living in the upland areas, the possibility of attaining higher education is harder probably because of the location and living condition. In terms of occupation, most of them are farmers and the least are those who owns a *carinderia* and a teacher.

This implies that older generations are more familiar about wild yam: specific locations; variety and time of harvesting. With regards to family members, majority of the respondents belong to the range of 4-6 members which implies that the wild yam respondents have an ideal number of family members. As to the educational attainment of the wild yam respondents, most of them are elementary graduate and least are those who attained college level or degree respectively. Since the respondents are living in the upland areas, the possibility of attaining higher education is harder

probably because of the location and living condition. In terms of occupation, most of them are farmers and the least are those who owns a *carinderia* and a teacher. Lastly, majority of them are only earning a monthly income ranging from 5,001 to 10,000.

The table 2 shows the respondents' cultural practices of wild yam. There are five species of yam available in the upland municipalities of Ilocos Sur. These are "Kamangeg", "Boga", "Karot", "Uwang/Ubi" and "Ube".

Based on the interview with the wild yam gatherers in terms of cultural management practices, all the five species of wild yam were replanted and harvested for almost one year. The production of "kamangeg" only have an average of 1-2 kgs, 3-4 kgs. for "buga" and 7 kgs. or more for "uwang" and "ube". This was attested by Dumont and Vernier, 1997, 2000; Vernier et al., 2004, that farmers today continue to gather wild yams during hunger periods, and often carefully re-plant the plants from which part of the tuber has been removed. Some farmers also continue the practice of bringing in planting material from the wild to solve problems of decrease in yield and vigour of cultivated varieties, or the loss or lack of planting materials. Maintaining this indigenous knowledge might serve some useful purposes.

When also asked regarding the type of soil the yam found and gathered, they claim that "kamangeg", "boga" and "karot" are mostly located in clay soil, "uwang" and "ube" in loam soil areas. These yams are all located in the mountain ranges of the upland areas. As to the wild yam harvesting particularly the "boga", this was gathered on the month of April to June while the rest of the wild yam usually collected on the month of July to September respectively. It is also noted that after harvesting, the tuber was usually replanted in order to grow again ready for the next cropping season.

Gathering of wild yams were done through digging using mostly digging bar for "kamangeg" and spading pork for the rest of the yam species. As soon as the yam was gathered, the tuber left was dug at around 1-5 inches deep to allow to grow again ready for the next cropping season.

In terms of the price of the wild yam, the "kamangeg" when sold ranges from P81.00 and above depending on the market supply. The price ranges P20.00 and below "for buga" and "karot", P21.00 - 40.00 for "uwang" and P61.00 - 80.00 for "ube". It is also stressed out that marketing the gathered wild yam "kamangeg" was bought and sold house to house while "ubi and ube" were brought to market.

Table 2.
Wild Yam Cultural Management, Production and Marketing Practices

Cultural management Practices	Kamangeg/Kallay		Buga		Karrot		Ubi/Uwang(white)		Ube (violet)	
	F	%	F	%	F	%	F	%	F	%
Type of soil										
Loamy (Napukray)	-	-	-	-	-	-	53	96.36	53	96.36
Clay (napigket)	55	100	55	100	55	100	2	3.64	2	3.64
Sandy (pannaraten)	-	-	-	-	-	-	-	-	-	-
Stony (nabato)	-	-	-	-	-	-	-	-	-	-
Total	55	100	55	100	55	100	55	100	55	100
Place										
Mountain/Upland	55	100	55	100	55	100	53	96.36	53	96.36
Lowland	-	-	-	-	-	-	2	3.64	2	3.64
Total	55	100	55	100	55	100	55	100	55	100
Part to be planted										
Stem	-	-	-	-	-	-	-	-	-	-
Tuber	50	90.91	55	100	-	-	50	90.91	50	90.91
Stem with tuber	5	9.09	-	-	-	-	5	9.09	5	9.09
Total	55	100	55	100	-	-	55	100	55	100
Depth of Planting										
1-5 inches	55	100	55	100	55	100	53	96.36	53	96.36
6-10 inches	-	-	-	-	-	-	2	3.64	2	3.64
Total	55	100	55	100	55	100	55	100	55	100
Manner of harvesting										
Kalien/Dig	55	100	55	100	55	100	55	100	55	100
Total	55	100	55	100	55	100	55	100	55	100
Tools to use										
Spading pork	-	-	55	100	55	100	50	90.91	50	90.91
Digging Bar	55	100	-	-	-	-	-	-	-	-
Bolo	-	-	-	-	-	-	5	9.09	5	9.09
Total	55	100	55	100	55	100	55	100	55	100
Month of Harvesting										
April-June										
July-September	-	-	55	100	-	-	5	9.09	5	9.09
Oct.-December	50	90.91	5	9.09	50	90.91	45	81.82	45	81.02
Total	55	100	55	100	55	100	55	100	55	100
Year before harvesting										
1 year										
2 years	50	90.91	53	96.30	53	96.36	55	100	55	100
Total	55	100	55	100	55	100	55	100	55	100
Production (Kg)/yr.										
1-2 kgs	55	100	2	3.64	-	-	-	-	-	-
3-4 kgs	-	-	53	96.36	-	-	53	96.36	53	96.36
5-6 kgs	-	-	-	-	-	-	2	3.94	2	3.94
7- kgs and above	-	-	-	-	55	100	-	-	-	-
Total	55	100	55	100	55	100	55	100	55	100
Price/kg										
20-below	-	-	55	100	55	100	-	-	-	-
21-40	-	-	-	-	-	-	55	100	-	-
41-60	-	-	-	-	-	-	-	-	5	9.09
61-80	-	-	-	-	-	-	-	-	50	9.09
81-above	55	100	-	-	-	-	-	-	-	90.91
Total	55	100	55	100	55	100	55	100	55	100
Selling Process										
House to house	40	72.73	-	-	5	9.09	5	9.09	-	-
Market	15	27.27	-	-	50	90.91	50	90.91	55	100
Total	55	100	-	-	55	100	55	100	55	100

Food and Cooking Preferences of Wild Yam

From the table below, it describes the food and cooking preferences of the different species of wild yam. When asked from the gatherers regarding yam processing, most of them responded that the preparation of the different yam species is very easy except for “karot” which demand a complex process of processing. This species of yam requires a careful preparation prior for cooking. Improper and not accustomed with the procedure can cause dizziness and vomiting after eating.

On the cooking process, most of the species of yam are prepared by boiling except for “karot” that can be done or cooked through steaming and frying. This was also practiced in West Africa that yam tuber may be eaten boiled, fried, baked or roasted in combination

with tomato stew, sauces and in some cases, typically in poor rural communities, with traditional palm oil. The tuber may also be pounded into moldable dough which is consumed with traditional African soups [5].

Another study on the colour and taste of amala, a paste made from yam chip flour, Mestres et al. [6] discovered that Florido gave the sweetest amala. Using a hedonic method, they suggested that the ideal product was obtained from a Kokoro-type, evaluating attributes based on colour, sweetness, bitterness, acid taste, fermented taste, and roasted taste. Likewise, Egesi et al. [7]; Akissoe et al [8] show that mealiness, colour and taste, for boiled yam, and consistency, colour and stickiness, for pounded yam, are crucial in determining consumer acceptance.

Table 3.
Wild Yam Food and Cooking Preferences

Food and Cooking Preferences	Kamangeg/Kallay		Boga		Karot		Ubi/Uwang (white)		Ube (violet)	
	F	%	F	%	F	%	F	%	F	%
Preparation of wild yam processing										
Easy										
complex	55	100	55	100	-	-	55	100	55	100
	-	-	-	-	55	100	-	-	-	-
Cooking Process										
Boiling										
Roasting/grilling	55	100	55	100	-	-	50	90.91	50	90.91
Frying	-	-	-	-	-	-	5	9.09	5	9.09
Steaming	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	55	100	-	-	-	-
Total	55	100	55	100	55	100	55	100	55	100
Other food uses										
Pig	-	-	55	100	-	-	-	-	-	-
Chicken	-	-	-	-	-	-	5	9.09	5	9.09
Ducks	-	-	-	-	-	-	5	9.09	5	9.09
People	55	100	-	-	55	100	45	81.82	45	81.82
Total	55	100	55	100	55	100	55	100	55	100
Food Menu										
Ginataan	55	100	-	-	-	-	-	-	35	63.64
Lubi-lubi	-	-	-	-	-	-	55	10	-	-
Cake	-	-	-	-	-	-	-	-	5	9.09
Spread/Halaya	-	-	-	-	-	-	-	0	15	27.27
Salapusop					55	100				
Total	55	100			55	100	55	100	55	100

Aside from the previously mentioned food preparation, the “kamangeg” and “Ube” can be made into ginataan. The “uwang/ ubi” can be utilized as one ingredient for lubi-lubi while “karot” and can be cooked into “salapusop” and the “ube” is being use for halaya and ingredients for cake.

Respondents’ Level of Acceptance as Food

When the gatherers were asked regarding how wild yam are accepted to them as to culture management and food, they replied and agreed to rate “kamangeg” and “ube” as excellently acceptable, “uwang” as very acceptable and “karot” and boga only rated as fairly acceptable.

Results show that “ube “have more uses compared to the other wild yams. They do not give importance to” boga “which could be due to the thorny characteristics that resulted to the difficulty in harvesting and “Karot” needs a complicated process before it could be eaten which contributed to the low scoring preference. This is similar to the statement taken from Wikipedia, that karot known to be poisonous when fresh and careful process should be made to make this root crops edible.

Table 4.

Respondents’ Level of Acceptance on Wild Yam as food and for commercial purposes

Yam Species	Rating	Description
Kamangeg	4.95	Excellent Acceptable
Boga	2.09	Fairly Acceptable
Karot	2.09	Fairly Acceptable
Uwang	4.05	Very Acceptable
Ube	5.0	Excellent Acceptable
Overall Mean	3.63	

Studies on yam also highlights and confirms the fact that successful variety improvement in crop research requires good knowledge of local preferences. It comes out from the present study on yam diversity that consumer preferences are the driving forces determining the kinds of varieties brought to market. Yam variety has distinctive trait, and prices reflect with some accuracy consumer concerns despite seasonal variations across the year in aggregate supply [4].

CONCLUSION AND RECOMMENDATION

Based from the findings, the following are concluded: The gatherers/producers socio-demographic and economic characteristics dictates the yam diversity relative to the cultural management practices and preferences and economic values of the wild yam varieties; Gathering/harvesting of wild yam requires simple hand tools; marketing is limited due to its inadequate sources and unstable prices in the market; Boiling is the most common cooking method for the wild yams except for “karot”; and they are usually served as snack foods and “Kamangeg” and “ube” are excellently accepted as food and for commercial purposes

The researchers recommend the following: Strengthen the awareness of people on the production and importance of wild yam through the production of IEC materials, information drive using different media platforms and product development trainings; Follow

up study will be conducted on wild yam cultivation and processing to determine the consumers’ preferences and the socio-economic and cultural management preferences of yam gatherers and producers need to be deeply documented. It is a national public interest to learn the traditional/cultural yam management as this will influence the conservation of wild yam biodiversity.

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