BIBLIOGRAPHY

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ABSTRACT

The study intended to identify gender roles in the productive, reproductive and community managing activities among white potato farmers; identify problems and to forward recommendations based on the results of the study.

Results indicate that in general, both genders share the different productive and reproductive roles, with men dominating productive roles. On the other hand, women dominate reproductive roles. Men have limited time for these tasks, considering that their time is devoted to farm work.

Men are expected to perform many functions in white potato production, partly because of their having hardier physiques, enabling them to carry heavier loads and to perform tasks that require stronger efforts.

Access and control of resources such as land, agricultural inputs and tools rests mainly on the males who are the main users. However, credit availment and utilization of credit are partly the responsibility of women, because they bear the responsibility of either paying back the loan or regulating spending of men.

The leading problems identified are that the land areas for white potato production are small. Another problem is the existence of gender bias in both productive, reproductive and community politics roles.

It is recommended that the contributions of both genders in the production be recognized. It is also recommended that gender research continue in the production of other commodities and other gender concerns. Finally, it is recommended that there be intervention to correct the gender bias in potato production.

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INTRODUCTION

Background of the Study

Benguet province is endowed with a climate favorable to the growing of semi-temperate vegetables because of its high elevation. The relatively high elevation of many parts of Benguet is the reason why the temperatures are lower than in the tropical lowlands; thus, semi-temperate crops may be grown in the province. Farmers in the province use this comparative advantage, so that Benguet is now the primary source of semi-temperate vegetables in the country. Its proximity to the major market transit point in Baguio City has also contributed to this reputation. The favorable climate has also maintained an economy that is predominantly agricultural.

Atok, one of the municipalities of Benguet, is one prime producer of these semi-temperate crops. The municipality is traversed by the Halsema Highway, which serves as the channel by which products are transported to La Trinidad, Baguio City and beyond. Compared to the other areas growing semi-temperate crops, Atok has a colder clime, making it suitable for white potato. Many farmers in the municipality therefore plant the crop. Many farmers of Paoay, a barangay in the municipality, plant white potato.

However, the farmers have not yet attained the optimum production of white potato because of some challenges and constraints that include high cost of inputs and presence of pests and diseases, and challenges related to the implementation of the GATT-WTO and the importation of vegetables.

It helps that several agencies are involved in sustainable and profitable white potato production. One of their strategies is to mainstream gender issues into development initiatives, strategies, goals and targets that require a comprehensive understanding of contextualized gender dynamics.

However, no studies on gender roles of white potato farmers in Atok have been undertaken to identify who does what activity. This is needed to properly and effectively address gender issues and concerns, thus this study.

The determination or documentation of the gender roles among white potato farmers is consistent with the growing international, national and local concern over gender in development issues. This study seeks to contribute to the overall effort.

Statement of the Problem

The study sought to answer the following questions.

1. What is the demographic profile of men and women involved in white potato production?

2. What are the productive roles and reproductive roles of men and women in white potato production?

3. What are the perceptions of men and women on gender roles?

4. What are the problems encountered by men and women with respect to their roles in white potato production?

5. What are the recommendations based on the findings of the study?

Objectives of the Study

The objectives of the study are the following:

1. To determine the demographic profile of men and women involved in white potato production;

2. To identify the productive roles (division of labor, access to and control of resources, access to and control of benefits of white potato production); and the reproductive roles of men and women in white potato production;

3. To determine the perception of men and women on gender roles;

4. To identify problems encountered by men and women involved in white potato production; and

5. To suggest recommendations based on the findings of the study.

Importance of the Study

Despite the many policies in the international, national and local levels regarding empowerment of women, women in development, and gender equality, there remains a dearth of available information on the subject. Because of this situation, strategies and programs addressing gender concerns are either non-existent or inappropriate. This study shall attempt to provide information and recommend actions on the matter.

For researchers. The study of gender roles and their development has evolved with the evolution of concepts with respect to women, development and equality. Gender research has therefore likewise adopted the different perspectives and approaches consistent with the different concepts. The findings of the study can guide them in the development of research processes with regard to gender, the development of research methods and the identification of best practices.

Aside from methods, the results of the study shall contribute to the information databank on gender, and may serve as a reference for other researchers.

For policy makers and planners. As previously mentioned, gender policies remain inadequately translated into concrete programs or activities. The results of this study may be used for the crafting of responsive strategies and programs that effectively address gender concerns. Based on the findings of the study, recommendations can be drawn by planners and policy makers.

REVIEW OF LITERATURE

Vegetable Industry in Atok and the Province of Benguet

At least 54 percent of the labor population of Atok is dependent on agriculture and agriculture-related activities and two-thirds of the province's population live in rural areas that are directly and indirectly dependent on agriculture and agricultural activities as source of income and livelihood (CHARM Follow-up Project for the CAR, 2003). In the main, there are 43,951 total farm households out of 65,854 households where an average of 2-3 members assist in farming activities.

Benguet is a major producer and supplier of semi-temperate vegetables. The major vegetables produced are cabbage, Chinese cabbage, snap beans, carrots, white potatoes, chayote, garden peas, cauliflower, and broccoli. The major market destinations of these vegetables are Metro Manila, Pangasinan, and Pampanga. Other market destinations include Laguna, Quezon, Bicol, Bulacan, La Union, Tarlac, Batangas, Nueva Ecija, Ilocos, Cavite, Cagayan, Abra, Lucena and Tagaytay (Pekas et al., 2002).

Atok is one of the municipalities of Benguet engaged in vegetable production. It has eight barangays with a total area of 12,450.33 hectares (DA-CAR, 2003). It is strategically located, as it is relatively near Baguio City and the La Trinidad Trading Center. Among the vegetables produced

in Atok are white potatoes as shown in Table 1. The average farm size is 0.2 - 5 hectares, which is either owned or leased. The average landholding of a household is 0.133 hectares.

The widest agricultural area in Atok is planted with white potato. Data from the Benguet Vegetable Commission (2003) study "Updating Highland Vegetable Data Bank" indicate that a total area of 305 hectares is planted to white potato.

The average yield per hectare for potato is 7 tons (Benguet Vegetable Commission, 2003). A survey of the Baguio City Hangar market and the La Trinidad Trading post in 2002 showed that the average wholesale price per kilo is P13.29 and the average retail price per kilo is P25.60 (Pekas et al., 2000) White potatoes can however be retailed at higher prices, as expensive as P30 per kilo during the month of February and as low as P15 per kilo in December. The wholesale price is highest in May at P17 per kilo and lowest in November at P10 per kilo.

Production of white potato has not yet attained optimum levels because of some challenges and constraints experienced by the farmers. The white potato industry is not only affected by problems such as high cost of inputs, and presence of pests and diseases, among others but is also faced with the challenge of the harmful effects of the implementation of the General Agreement on Tariffs and Trade-World Trade Organization (GATT-WTO) as well as the entry of imported vegetables.

Table 1. Total area (ha) and production (ton) of white potato in Atok, 2003

Commodity	No. of Farmers	Area planted (ha.)	Production (ton)
1. White potato	843	305	2134
2. Cabbage	508	185	2,300
3. Chayote	548	169.8	7,597
4. Carrots	285	94.6	658
5. Garden pea	158	29	41
6. Snap beans	233	23	88
7. Chinese cabbage	21	4	33
8. Broccoli	1	.05	.2
9. Cauliflower	2	.13	.35
10. Lettuce	4	.14	1
11. Celery	89	17	214
12. Green onions	4	.09	.67
13. Pechay	46	.64	4
14. Sweet pepper	61	6.5	39
15. Cucumber	95	7.3	107
16. Tomato	68	5.2	84
17. Radish	69	17.94	98.51

Concepts on Gender

Sadie and Loots (1998), in a work entitled “RDP Projects in South Africa - A Gender Perspective Analysis,” presented a comprehensive discussion of gender. This work analyzed the South African experience in the main, but it also extensively discussed developments in the international scene, especially as to how the present prevailing concepts on gender have evolved from the women’s rights movement in the past century.

Development approach. Gender and development is the most appropriate approach as far as the study is concerned. Sadie and Loots

(1998) stressed that gender equality means that women and men have equal opportunities to realize their individual potential, to contribute to their country's economic and social development and to benefit equally from their participation in society.

Sustainable development is achieved by having an understanding of both men's and women's roles and responsibilities within the community and their relations to each other. This approach, known as the gender and development approach, recognizes that gender equality is not just a women's issue, but also a goal that requires the participation of both men and women (Sadie and Loots, 1998). The approach is alternatively referred to as the gender approach.

Gender approach. The gender approach to development involves not only an integration of women into development, but looks for the potential in development initiatives to transform unequal gender/social relations and to empower women (Sadie, 1998). The gender-based approach is distinct in that it focuses on women and men, rather than considering women in isolation.

Moser (1993) distinguished between three categories of work: reproductive, productive and community work. Within these categories, men and women generally fulfill different roles. These are the gender roles of men and women. Moser (1993) suggested that women have triple

roles (reproductive, productive and community managing), whereas men fulfill double roles (the productive and community politics).

Problems in the GRF Approach

Critics noted two main problems in the GRF approach. First, the assumption, that economic development has been generally beneficial except for its negative impact on women, ignores the wealth of evidence documenting the polarizing outcomes of development interventions for men.

Linked to this first pitfall is the tendency of this framework to overlook the complex ways in which gender and class hierarchies crosscut each other. GRF often assumes that women constitute a homogenous category with shared interests that planners can easily identify and act upon. While there are a large number of issues on which women's interests may converge (e.g., child custody; sexual harassment), there are enough points of divergence to make the task of the planner using GRF a difficult one.

International, National and Local Policies on Gender

In the national and international scene, concern for gender-sensitivity has taken more and more importance. For instance, the Millennium Development Goals include women empowerment among its

many goals. Among the most important international commitments are those formulated in the 4th United Nations Conference on Women in Beijing in 1995 and the United Nations Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). CEDAW was crafted to ensure that women enjoy equality, including social and economic equality, in society.

The Philippine government is also bound to various other national and international commitments and obligations compelling it to promote gender equality in all its programs. The most notable national commitments are included in the provisions of the Philippine Constitution of 1987. These provisions recognize the fundamental equality of women and men. The New Family Code of 1987 affirms women's' rights to own property and to contract employment and credit without the need of their husbands' consent. The Philippine government also created the National Commission on the Role of Filipino Women, empowering it as the primary government agency responsible for the protection and promotion of the rights of women.

The Philippines also ratified the Convention on the Elimination of All Forms of Discrimination Against Women. As a consequence of the ratification, the Philippines is required to make periodic reports to the United Nations regarding its implementation of its obligations as stipulated in the treaty. Further, in November 18, 1992, Republic Act 7192 entitled

"An Act Promoting the Integration of Women as Full And equal Partners of Men in Development and Nation Building and For Other Purposes", otherwise known as the Women in Development and Nation Building Act, was passed into law. In its declared policies, the State recognizes the role in nation building and shall ensure the fundamental equality before the law of men and women. The State is also expected to provide women rights and opportunities equal to that of men. It must also provide equal access of resources, including credit and training and it is also this act that requires that a substantial portion of Official Development Assistance funds support programs and activities for women.

In Atok, a resolution was passed by the Sangguniang Bayan for the mainstreaming of gender in all programs. This concern of the local government is a reflection of the growing awareness of and responsiveness towards gender issues.

These treaties, laws and ordinances, however, have yet to be fully implemented. Mechanisms, strategies and systems also have yet to be developed and established for equal access of women to resources. Particular to the white potato industry and other agricultural industries in Atok and elsewhere in the Cordillera, empowering programs for women concentrate on gender sensitivity trainings. Added to disparities in responding to gender issues is the lack of available data on the gender roles of potato farmers. If information is not collected in a way that

enables the differences between men and women to be clearly stated, it is likely that the gender specific needs and interests of women will be given less attention-if not completely ignored.

Gender disparities are a major hindrance to sustainable economic development. By mainstreaming gender issues in development initiatives, strategies, goals and targets, these disparities could be adequately responded to. However, mainstreaming requires a comprehensive understanding of contextualized gender dynamics. The need for this understanding also highlights the fact that there is a lack of sex dis-aggregated data in many cases.

Economic development can be sustained with gender equality. The Asian Development Bank's gender and development policy affirms that public policies and investments that promote the development of women have economic payoffs in terms of higher economic growth rates, improved productivity, reduced health and welfare costs, lower fertility, reduced infant and maternal mortality, and increased life expectancy (ADB.1998). Finally, gender inequalities exacerbate poverty (Bridge Institute of Development Studies, 2001)

The second challenge, which is a major one, is the lack of sex dis-aggregated data at the household level. This makes it impossible to identify intra-household resource allocation by household member.

Poverty data at the household level may well mask the true extent of poverty among women.

Gender Roles Among Potato Farmers in Buguias

Perception of gender roles. Women farmers in Buguias view gender roles as culturally established, and as fate or necessity, As Batani (2004) said:

> fate in the sense that being a woman justifies everything. Necessity in the sense that multiple roles are adaptive mechanisms for survival. Either way, the bottom line is that resignation and faith (not fear) in their husband's authority.

Batani further observed that the relationship between male and female is a partnership that capitalizes on the strength of each, grounded on mutual respect, with sensitivity to each other's weaknesses.

Accessing resources and credit. Both husband and wife initially share in deciding whether or not to contact "suppliers." However, the one who does the negotiating makes the final decision. Batani noted that it is common for the wife to do the negotiating, as women have "the facility of talking and haggling in matters like this."

In cases where banks are the sources of credit, it is implied that the decision-making involves both male and female, since banks require

husband and wife to sign the loan agreement. This holds true also with loans from credit cooperatives, which follow bank requirements.

Marketing. Batani et al. (2004) found that the marketing of produce is based on who is able compute total sales; bring the produce to the destination; who is familiar with a disposer or wholesale buyer; who is able to market; and who can buy farm and household needs when they go home.

Conceptual Framework

This study adopted the Gender Roles Framework (GRF). It is an adaptation of Cloud's (1985) analytical framework for agricultural projects. It involves developing an activity profile for the individuals performing different productive activities by asking an open-ended series of questions about the division of labor within the household. The second step overlaps with the first but places more focus on access to and control over resources (land, technology, labor, capital, etc.) and benefits (income, assets, etc.). In each phase, planners are encouraged to ask questions about the impact of activities on women's available time as well as on their access to and control over productive resources and benefits.

The independent variable is the sex of the respondents. The intervening variables include age, marital status, educational attainment, membership in organizations, and access to research, development and

extension services. The dependent variables are the gender roles that the males and females fulfill or perform in the productive, reproductive and community managing areas. These roles and the perception of both genders of their roles may lead to better understanding of gender issues and in the structuring of gender-responsive strategies, policies, and development plans or agenda.

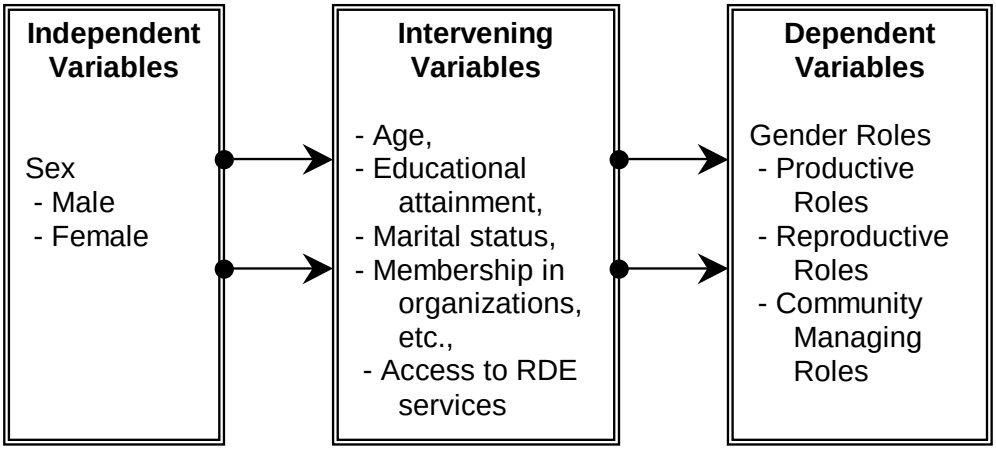

Figure 1. The paradigm showing the relationship among the variables

Operational Definition of Terms

The terms in this paper are defined as follows.

1. Gender – is the difference between women and men within the same household and within and between cultures that are socially and culturally constructed and change over time. These differences are

reflected in: roles, responsibilities, access to resources, constraints, opportunities, needs, perceptions, views, etc. held by both women and men and their interdependent relationships

2. Gender roles are functional responsibilities that are given to men and women by society and are influenced by the cultural, political, economical, religious and social situation

3. Gender mainstreaming is the process of assessing the implications for women and men of any planned action, including legislation, policies or programs, in any area and at all levels. It is a strategy for making the concerns and experiences of women as well as men an integral part of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and social spheres, so that women and men benefit equally, and inequality is not perpetuated

4. Productive roles refer to work done by both men and women for payment in cash or kind. It includes both market production with an exchange value, and subsistence/home production with an actual use-value, but also a potential exchange value. For women in agricultural production this includes work as independent farmers, peasant's wives and wage workers (Moser, 1993).

In this study, production refers to the activities that are necessary in the white potato industry, including the following: varietal selection,

sourcing out of planting materials, land preparation, basal fertilizer application, planting, decision-making on planting date, side-dressing and hilling up, pest and disease control, weeding, dehaulming, harvesting, sorting, grading, packing, storing, hauling, transporting, marketing, decision-making on market destination and pricing. These are the activities that are necessary so that the potato crops will be converted to cash, the goal of the potato farmer.

It also includes decision-making and activities on access and control of resources and access and control of benefits from production.

5. Access and control of resources in this study refers to the activities and processes that potato farmers undergo to utilize, procure or augment the their resources. It includes decision-making on the utilization of land; procurement and utilization of agricultural inputs; procurement and utilization of tools/equipment/implements; availment and utilization of credit; and income spending.

6. Reproductive roles as used in this study involves the care and maintenance of the household and its members, including bearing children and caring for them, food preparation, water supply, fuel collection, shopping, housekeeping and family health-care.

7. Community-managing roles refer to activities in the community, such as participation in community rituals and celebrations, and participation in community organizations.

Hypothesis of the Study

The following hypothesis was put forward for testing:

There is no significant relationship in the gender roles of men and women in white potato production in Paoay, Atok, Benguet.

METHODOLOGY

Locale and Time of Study

The study was conducted in Bonglo, Englandad, Olis and Sayangan Paoay, Atok, Benguet, where potato is a major commodity grown by the farmers. It was conducted on August-October, 2006.

The Respondents

The respondents were all farmers in Paoay, Atok, who grow white potato. 35 males and 33 females were interviewed using a structured and open-ended questionnaire to gather primary data. The population of white potato farming households in Paoay, Atok, Benguet number 805.

Instrumentation

A structured and open-ended questionnaire was the main tool in gathering the data. The questionnaire consisted of the following: demographic data of the respondents; productive role; reproductive role; community managing role; perception of roles; problems encountered with the identified roles; and recommendations based on the findings of the study.

The questionnaire was pre-tested in Kapangan before it was revised and finalized to include comments, suggestions not covered in the questionnaire.

Purposive sampling was used to identify the respondents.

Collection, Analysis and Interpretation of Data

Data were gathered through one on one interview with respondents in their fields or in their homes using the prepared questionnaire.

Field observation was also done to validate and support individual interview data.

Arithmetic mean, frequency counts, and percentages were used to interpret the data and information gathered. The chi square test was the statistical tool used in the determination of differences of the variables.

RESULTS AND DISCUSSION

Demographic Profile of the Respondents

Age. For the study, 68 respondents have been interviewed. Table 2 shows that a great majority of the respondents range in age from 38 to 54 years old. The youngest is 21 years old and the oldest is 71 years old. During the interviews, it was learned that the youth, most of whom are going to school, also helped in the farming activities when they could, especially during vacation time.

Table 2. Distribution of respondents according to demographic profile

PROFILE		FREQUENCY	PERCENT
Age (years)	21-37	15	22.1
	38-54	43	63.2
	55-71	9	13.2
Gender	Male	35	51.5
	Female	33	48.5
Civil Status	Married	56	82.5
	Single	6	8.8
	Widowed/Separated	2	3.0
Education	No Formal Education	10	14.70
	Elementary	18	26.5
	High School	23	33.8
	College/Post Graduate	15	22.1
Ethnicity	Kankanaey	49	72.1
	Ibaloi	10	14.7
	Mixed (Kankanaey-Ibaloi)	7	10.3
Religion	Roman Catholic	22	32.4
	Non-Roman Catholic	42	61.8

Sex. There were 35 male and 33 female respondents. While the males readily agreed to being interviewed, the interviewers experienced difficulty in getting female respondents to answer the interview questions. These females reasoned out that they are minimally involved in potato production.

Civil status. Almost all of the respondents are married and very few are single, widows or widowers. The female respondent who is single manages her farm separately from her male siblings who also manage their own farms. She however performs the reproductive roles at their common residence. One of the widowed respondents is known to have no adult male in her household. She performs all the productive and the reproductive roles most of the time. Sometimes, however, these women farm managers hire laborers for farm work, especially for spraying. Their doing so is not by their choice but rather by circumstance.

Ethnicity. Most of the respondents belong to the Kankanaey ethnic group while some are Ibaloi and a few trace genealogies from both ethnic groups.

Educational attainment. The respondents are heterogeneous in terms of educational attainment. Many had secondary level education, though some have not graduated. Some have had college education or graduated college, and a few have had no formal education.

Religious affiliation. It is interesting to note that a great majority of the respondents are not Roman Catholics, and the rest are Roman Catholics.

Productive Roles of Men and Women in White Potato Production in Paoay, Atok

Division of Labor

Table 3 shows that the relationship between men and women's roles in production activities in white potato production markedly differ. Generally, men do varietal selection, land preparation, basal fertilizer application, and deciding on when to plant most of the time. A majority of the male respondents indicated that they are experienced in and knowledgeable of these activities. Another major reason is that it has always been the tradition that the males were the one who do gardening activities. Consequently, since they are the ones who manage the potato farms, they are also the ones who plan the activities of the farm and monitor the growth of the potato plants.

The perception of the existence of a "tradition" that men always managed farms needs to be validated by research. The prevalence of this impression however points to a conventional acceptance of the trend. We must however note that commercial vegetable farming became an economic activity beginning in the 1950s. It became more widespread in

the 1970s and 1980s. If since then the “tradition” was established, then we might infer that the gender bias, i. e. the males are the managers, developed during that time. Research has to be done however to prove or disprove this thesis. Another point that needs to be understood are the gender roles that men and women play in agricultural production prior to commercial vegetable farming. The gender roles in pre-commercial farming times may show the same trend of male management of agriculture, so that the role stereotype may have long existed.

If the trend came with commercial vegetable farming, it would be interesting to see how it came to be.

Sidchogan-Batani et al. (2004) found that in Buguias, a municipality adjacent to Atok, decision-making in the production process, such as varietal selection, used to be the domain of males. However, at the time of their study in 2004, female members of farming households were making varietal selection and other decisions.

The apparent contradiction in findings may actually be complementary. Since decision-making is an extension of the overall role of farm manager, gender may be immaterial. The case that Batani, et al. cited was that of a 63-year old woman who has decided on her own what to plant. However, Batani et al. did not mention if the case reflected the norm or the marital status of the woman mentioned. The phenomenon of

a female taking on the role of farm manager, and thereby deciding on what varieties to plant, is not an aberration. Indeed females may take on the role of management in general, or in varietal selection in particular, whether it is in Buguias or Atok.

Among the 33 female respondents in Paoay, Atok, six also indicate that they are always involved in varietal selection. It should be noted however that white potato production technology in many cases has become routinary. Varietal selection is no longer a difficult decision, since farmers have already identified varieties that are best suited to their locality. Farmers in each sitio in Paoay plant the same variety, or varieties with similar characteristics. Thus the decision on what variety to plant may already have been pre-determined by practice and experience.

The case that Batani et al. referred to may have been of the same nature. In fact they note that the decisions made by the woman were based on experience and her observation of other farms. These findings indicate that the farming process, and the decisions that go with it, are already part of convention. They further note the agreement of the other female respondents, “as one of the best schemes.” They thus inferred that the technology has been so developed that choices like varietal selection are more or les pre-determined.

An interesting question is if the overall role of farm manager is taken over by a female, since male household members, according to Batani et al., “used to dominate the management of commercial farms.” (Batani, et al., 2004)

Similar to the case cited by Batani et al., are two such cases among the female respondents in Paoay, Atok. These women who also take on the role of farm manager and supervisor, and thus make all decisions attendant to potato production. One of these female farm managers in Paoay was widowed, and the other one was single.

There were also seven others who indicated that they always participate in deciding on what varieties to plant, although it may not be inferred whether they make the decision alone.

Overall, however, roles markedly differ, that is, men manage the potato farms and on the whole make the decisions. Results further show that role differentiation in planting is significant. While both men and women do this activity, men are always involved. This is a light activity so that women are deemed physically able to participate, and since the potatoes need to be planted at the same time, the involvement of both genders ensures faster completion of the task.

Table 3. Relationship between men's role and women's role in production activities

PRODUCTION ACTIVITY	GENDER	PERCENT INVOLVEMENT					χ^2 Value	Prob
		Never	25 %	50 %	75 %	100 %		
Varietal Selection	Male	0	0	10	1	23		
	Female	4	5	13	2	9	15.8**	.003
Sourcing out of planting material	Male	10	0	5	1	17		
	Female	8	5	15	2	3	20.4**	.000
Land preparation	Male	0	1	9	3	20		
	Female	3	11	11	6	5	20.5**	.000
Basal Fertilizer application	Male	0	2	7	6	17		
	Female	2	13	10	0	6	21.8**	.000
Planting	Male	0	1	15	4	14		
	Female	1	8	16	1	7	10.6*	.031
Decision on planting date	Male	0	0	11	2	21		
	Female	4	7	13	2	6	19.5**	.001
Irrigation	Male	11	1	3	3	15		
	Female	9	8	5	0	3	17.2**	.004
Side-dressing and hilling up	Male	0	1	10	6	17		
	Female	2	11	15	0	5	23.9**	.000
Pest and disease control	Male	1	2	4	2	24		
	Female	16	8	4	1	4	31.4**	.000
Weeding	Male	1	6	11	4	12		
	Female	0	9	18	1	5	7.9ns	.093
Dehaulming	Male	5	3	11	5	10		
	Female	6	14	9	0	4	14.9**	.005
Harvesting	Male	0	7	9	2	16		
	Female	1	9	15	2	6	7.3ns	.122
Sorting	Male	0	3	10	5	16		
	Female	2	10	11	4	6	10.5*	.033
Grading	Male	0	3	11	5	15		
	Female	4	7	11	4	5	10.6*	.032
Packing	Male	3	3	8	5	14		
	Female	7	10	10	2	3	14.0**	.007
Storing	Male	0	3	6	4	21		
	Female	4	13	8	4	4	22.1**	.000
Hauling	Male	0	6	1	5	22		
	Female	13	9	5	2	4	30.0**	.000
Transporting	Male	0	3	7	3	21		
	Female	7	8	12	1	4	23.1**	.000

** - Highly significant * - significant ns – no significance

The women, on the other hand, indicate in their responses that the men are the ones involved in potato production and that since they stay at home, they rarely participate in these activities. If they do help in basal fertilizer application, it is only to distribute the fertilizer while the men do the plowing in.

For crop management activities, highly significant gender differentiation for application of irrigation, side-dressing and hilling up as well as spraying for the control of pests and diseases. However there is no significant gender differentiation for weeding.

Most men say that they are knowledgeable of and experienced in these activities and expressed that they work faster than women. Irrigation, side-dressing and hilling up as well as spraying are activities that involve carrying and men reason out that carrying heavy loads is quite difficult for women. Women confirm these in their responses, stating that the reason they do not do these activities is that they entail heavy work. In watering, for example, if they do participate in the performance of the task, their involvement is limited to transferring the water hose. In side-dressing and hilling up, they only distribute the fertilizer. If they do help in carrying the fertilizer, they carry lighter loads.

Men mostly do spraying. Carrying a 16-liter knapsack is heavy for women. There is also the recognition that the chemicals they spray are

poisonous and the perception that men are more resistant to these chemicals. It may thus be said that it is also for health reasons that women do not spray. Women do most of food preparation and cooking so there is fear that the chemicals may contaminate food in case they do not wash their hands well.

In some instances, however, women do the spraying. They do it when spraying needs to be done and the males are not available, like during times when husbands attend wakes, weddings and other social functions outside the community.

Both men and women do weeding. Men consider weeding as a light but tedious activity that needs patience and they say that women are more patient when it comes to weeding. There is also the perception that areas cleaned by women are cleaner or more finely done than those cleaned by men. However, in cases where weed is controlled by the use of weedicides, it is the men who do the spray the chemicals. Spraying is a heavy job and it is perceived that the health of women is endangered, they being deemed less resistant to chemicals.

Men are always involved in dehaulming. As shown in Table 3, the chi-square value indicates a highly significant gender differentiation of roles. The respondents claim that men are more experienced in and

knowledgeable of dehaulming aside from being able to do it faster. Women, on the other hand, are not used to doing this activity.

Both however do harvesting since the potatoes need to be harvested at the same time to meet a better price in the market and since they have to be hauled at one time. Both male and female are knowledgeable of and experienced in the harvesting activity. However, when laborers are hired to help, men need to be around to supervise to make sure that harvesting is done right and that wastage or spoilage will be minimized. This underlines the dominant role of the men in managing the potato farm, for even as respondents of both genders agree that harvesting is within both their knowledge and experience, the men are expected to do the supervision. This gender differentiation also implies that the laborers hired expect the men to do the supervision.

Supervision is not necessarily an exclusive male role. However, among the potato farmers in Paoay, Atok, Benguet, it is the men who do the supervision.

The post harvest activities, that include packing, storing, hauling and transporting entail carrying heavy loads. In these activities, the roles of men markedly differ from that of women. Men find that carrying heavy loads is difficult for women. The women respondents state this as the reason why they seldom get involved in these activities. In instances when

women carry a load of potatoes, they carry only what they can bear. For this reason, men do these activities faster than women.

There is also significant gender differentiation of roles in sorting and grading activities, indicating that the men mainly do these activities.

Men always do marketing activities. As Table 4 shows, there is highly significant gender differentiation of roles. The reason stated by the respondents is that men know more how to negotiate or do sales talk than women. Thus, they are not easily swindled. Personal relationships or a friendship with buyers is another factor that is considered.

Another reason is that it is the men who usually transport the potatoes from the farm to the La Trinidad Trading Post or to the market in Baguio City. The respondents say that it is the men who transport the produce to the market because unloading the potatoes is heavy work that is more suited to the hardier male physique. Generally being the farm managers, the men know what supplies to purchase and take back home as back load.

In one case, however, the female is a Kankanaey and the male is an Ibaloi. It is the woman who does the marketing, because she is not "shy". There is the social expectation that the Ibaloi are shy or more withdrawn and the Kankanaey more outgoing, thus this stated reason.

The reasons cited by respondents corroborate the observation of Batani, et al. (2004):

> the decision as to who takes the produce to the market is determined by circumstances that include the ability to compute total sales; bring the produce to the destination; familiarity to a disposer or wholesale buyer; those able to market; and those who can buy farm and household needs when they go home.

Table 4. Relationship between men's role and women's role in marketing activities

MARKETING ACTIVITY	GENDER	PERCENT INVOLVEMENT					χ^2	
		Never	25 %	50 %	75 %	100 %	Value	Prob
Marketing	Male	0	2	6	3	23		
	Female	4	8	12	4	5	21.3**	.000
Market destination	Male	0	2	5	2	25		
	Female	6	7	11	4	4	26.9**	.000
Pricing	Male	0	2	8	2	22		
	Female	7	8	11	3	4	23.7**	.000

** - Highly significant * - significant ns – no significance

Access to and Control of Resources

Decision making on the utilization of land. While husband and wife usually own the land areas for potato production, Table 5 shows that there is a highly significant difference between sexes where decision on the utilization of the land is concerned. Men almost always are the ones who decide on this. This is so since the men are the ones who manage the farm aside from being knowledgeable of and experienced in potato

production activities; thus, the wife entrusts this decision to him. Some women however argue that since both own the land, then they should also decide with the husband. Or in some cases, since the wife is the one more knowledgeable of marketing, she helps in the decision-making.

Rovillos' (1996) data suggested that the decision on the use and disposal and therefore control over the land ultimately rests on these considerations: first, the question of who is the primary user of the resource, and second, who owns the resource. The findings however contradict the findings of Casambre et al. (1992); Jefremovas, 1992) when they stated that there are no socio-cultural constraints against women's control over land.

In Paoay, Atok, while use and disposal of land is a consensual matter, the user of the land, or the male, decides over the utilization of the land.

Table 5. Relationship between men's role and women's role in decision making on the utilization of land area

DECISION MAKING	GENDER	PERCENT INVOLVEMENT					χ^2	
		Never	25%	50%	75%	100%	Value	Prob
Utilization of land area	Male	1	0	10	5	17		
	Female	4	9	12	1	7	17.8**	.001

** - Highly significant * - significant ns – no significance

Agricultural inputs and tools, equipments and implements. Table 6 and Table 7 show that the role of men and women markedly differ on the procurement of agricultural inputs and agricultural tools/equipment and implements, but do not differ in deciding when and where to utilize tools/equipments and implement. Men being in control of the farm also are more knowledgeable of what are needed, more familiar with specifications and the volume of inputs needed as well as the quality.

Another reason is that since they also transport the potatoes, the men buy inputs as well as tools as back load when they go home.

These results corroborate the observation of Rovillos that men had control over inputs and tools since it is the men who are primarily engaged in gardening. The respondents explain that men decide on the use and control of inputs and tools because they primarily do the task of applying the same. Therefore, control over resources-land, tools and inputs-also reflects the existing division of labor. The decision on how to dispose or use, and therefore control a particular resource, hinges on who mainly carries out the specific activity where the said resource is used.

In Paoay, Atok, the men and women do not significantly differ in their involvement in the decision-making on where the tools will be used. This implies common and similar knowledge of how and when the tools are used.

Table 6. Relationship between men's role and women's role in the procurement of agricultural inputs

PROCURE-MENT ACTIVITY	GENDER	PERCENT INVOLVEMENT					χ^2 Value	Prob
		Never	25 %	50 %	75 %	100 %		
Procurement of agricultural Input	Male	0	0	7	1	26		
	Female	4	11	12	2	4	32.8**	.000
Decide time and place of procurement	Male	0	0	5	2	27		
	Female	4	13	10	2	4	55.7**	.000
Decide time and place where to utilize inputs	Male	2	0	4	3	23		
	Female	5	11	7	1	6	24.0**	.000

** - Highly significant * - significant ns – no significance

Table 7. Relationship between men's role and women's role in the procurement of tools/equipment/implements

PROCURE-MENT ACTIVITY	GENDER	PERCENT INVOLVEMENT					χ^2 Value	Prob
		Never	25 %	50 %	75 %	100 %		
Tools/ equipment procurement	Male	1	0	3	0	30		
	Female	9	10	8	1	4	39.5**	.000
Tools/ equipment utilization	Male	0	0	3	1	28		
	Female	3	4	5	1	17	10.1*	.038
Deciding when and where to buy tools/ equipment	Male	0	1	3	1	28		
	Female	7	11	8	2	5	34.0**	.000
Deciding when and where to utilize tools	Male	0	1	3	2	26		
	Female	2	4	6	2	15	7.6ns	.106

** - Highly significant * - significant ns – no significance

Credit availment as well as deciding how much and where to avail of and utilized credit is done by men. They are the managers of the farm, thereby are more knowledgeable of what are needed in the farm and what and when the capital is needed. As shown in Table 8, the gender roles significantly differ. However, women sometimes get involved in the decision, since both will be ultimately responsible for paying back the loan. This shared responsibility is supported further by the reasoning given by some respondents that the women are involved in the decision making to make sure that the loaned amount is spent on capital for potato farming. The female role in credit availment and utilization is therefore regulatory in character.

Table 8. Relationship between men's role and women's role in the decision making on credit

CREDIT CONCERN	GENDER	PERCENT INVOLVEMENT					χ^2	
		Never	25 %	50 %	75 %	100 %	Value	Prob
Availment of credit	Male	0	0	15	0	13		
	Female	2	6	16	0	6	10.6*	.014
Credit amount	Male	0	0	18	0	11		
	Female	2	6	16	0	5	10.4*	.016
Credit utilization	Male	0	0	19	0	11		
	Female	2	6	16	0	5	10.5*	.016

** - Highly significant * - significant ns – no significance

Access and Control of Benefits from Potato Production.

The respondents consider the income from potato production to be the income of both husband and wife. As shown in Table 9, there is no significant difference in the access and control of benefits from white potato production, such that the income could be accessed and spent by either or both husband and wife. There is also the reasoning that traditionally, married couples have an arrangement that the father works and the mother raises the children. The income of the father is a joint income, and among the privileges in the arrangements is a social security benefit that it is as if the mother had earned income. As Rovillos (1996) observed in Bineng, there were no structural conditions that hindered women's access to productive income from paid work.

Table 9. Relationship between men's role and women's role in decision making on income spending

DECISION MAKING	GENDER	PERCENT INVOLVEMENT					χ^2	
		Never	25 %	50 %	75 %	100 %	Value	Prob
Income spending	Male	0	1	21	1	11		
	Female	0	2	23	1	5	2.5^{ns}	.468

** - Highly significant * - significant ns – no significance

There is gender bias in productive roles and in the access to and control of resources. The participation of women in the productive

process is restricted by the “tradition” that men have always been the manager of farms, which gives men the power to decide on many aspects on their own. Women can manage farms, too. In fact, there are examples of women farm managers in Paoay.

There is also the impression that the women are less resistant to chemicals, which is not true. With proper precautions in the handling of the chemicals, the risks are substantially limited or altogether eradicated, both for men as with women. This gender bias is also reflected in the numerous references to the physical weakness of women as compared to men. The solution to this physical weakness should be the development of tools, implements and technology that is better suited to women. Such tools, implements and technology would empower the women and remove their gendered position in the productive process.

Further, the impression that men are more experienced and knowledgeable in certain tasks implies that the women could not learn the knowledge or learn from their experience with the same proficiency.

Reproductive Roles

Table 10 shows the reproductive roles: household maintenance such as house cleaning, doing the laundry, and cooking; child care/rearing to include tasks as feeding and bathing children, helping children with their

homework, attending PTA meetings, bringing children to school, bringing children to the clinic when they get sick, giving children allowance and disciplining children. Reproductive roles also include decision-making on extent of education of children, where the children will go to school, and number of children to have.

The table shows that for household maintenance tasks, the women have the sole responsibility of tasks in household maintenance because women mainly stay at home while men do the heavier activities for potato production. Men therefore do not have time for household chores. Among the reasons cited by the respondents is that women clean better than men. For marketing, since the woman is always at home, she knows better the needs of the home. Laundry however is traditionally not done by men except in rare cases as when women give birth. Both can do cooking as long as men have time; otherwise, women cook so that men can take a rest after a hard day's work in the field.

The result also shows a highly significant difference between male and female roles in child care/rearing tasks such as feeding and bathing the children, giving allowance to the children and deciding how many children to have. Women who are always in the house have the time to feed and bathe the children a well as give allowance to the children. Men may help if they have the time to spare from farming activities. Women are

usually the ones who decide on how many children to have as giving birth is dependent on their health. Men sometimes help in the decision since wife and husband consult each so that they will only have the number of children that they can afford to support and still live comfortably.

There is no significant difference in the roles of men and women in activities such as attending PTA meetings, bringing children to school, deciding where the children will go to school, deciding on the extent of education of children and disciplining of children. These tasks are shared by both male and female genders. Attending PTA meetings is an occasional activity so whoever is free at that time is the one who attends or whoever is more socially active and not “shy” attend PTA meetings. The decision on the extent of the education of children involves money matters so both have to decide so that the children will go to school only if the parents can afford. Both male and female are also involved in disciplining children to insure that nobody is spoiling the children and that the children grow to be well disciplined.

Table 10. Relationship between men's role and women's role in the reproductive activities

REPRODUCTIVE ACTIVITY	GEN-DER	PERCENT INVOLVEMENT					χ^2	
		Ne-ver	25 %	50 %	75 %	100 %	Value	Prob
House cleaning	Male	11	11	9	2	1		
	Female	1	0	5	5	22	40.9**	.000
Marketing	Male	7	8	15	2	2		
	Female	1	1	9	7	15	24.2**	.000
Laundry	Male	13	8	8	1	4		
	Female	1	1	2	9	20	36.4**	.000
Cooking	Male	7	8	10	6	2		
	Female	1	0	7	7	18	25.9**	.000
Child rearing	Male	10	8	10	3	0		
	Female	3	0	9	5	15	27.3**	.000
Feeding children	Male	11	6	11	1	0		
	Female	3	3	6	5	14	22.3**	.000
Bathing children	Male	14	5	10	0	0		
	Female	5	2	4	5	14	27.1**	.000
Helping children with homework	Male	9	4	11	2	3		
	Female	3	2	16	2	8	6.8ns	.146
Attend PTA meeting	Male	7	5	11	3	4		
	Female	5	1	12	3	11	6.2ns	.181
Bring children to school	Male	16	4	6	0	2		
	Female	13	3	6	0	8	3.9ns	.263
Decide where children go to school	Male	3	1	25	2	0		
	Female	3	1	20	2	6	6.5ns	.162
Decide on extent of children's education	Male	3	1	24	2	1		
	Female	1	1	22	2	6	4.6ns	.326
Giving allowance to children	Male	8	2	19	0	1		
	Female	1	1	13	4	13	21.1**	.000
Bringing children to clinic when sick	Male	8	10	10	1	2		
	Female	1	1	12	4	14	23.8**	.000
Decide on how many children to have	Male	5	1	23	0	1		
	Female	2	0	22	0	8	7.7*	.053
Discipline children	Male	3	1	23	0	2		
	Female	0	2	21	2	5	6.7ns	.153
Takes over	Male	2	1	10	0	15		

REPRODUCTIVE ACTIVITY	GEN-DER	PERCENT INVOLVEMENT Ne-ver	25 %	50 %	75 %	100 %	χ^2 Value	Prob
reproductive work	Female	1	0	2	0	0	4.3^{ns}	.230

** - Highly significant * - significant ns – no significance

There is also gender bias in the performance of reproductive roles. Foremost is the impression that men could not perform many of the reproductive roles as well as the women. Of course roles like childbearing are non-transferable, but men could perform many of the other reproductive roles. This makes the women the managers of the household.

Coupled with the gender bias that men are the farm managers, this gender bias effectively assigns the sexes to different roles.

Perception of Gender Roles

Productive roles. Table 11 shows that respondents perceive that their performance of productive roles should not differ significantly except for side-dressing and hilling-up which they perceive should be done more by men. The respondents view that all the activities can be done by both men and women except that traditionally men do work in the garden while women do household chores. Both male and female respondents see that both could do all the activities.

Table 11. Relationship between men- and women-perceived roles in white potato production

ACTIVITY	GENDER	PERCENT INVOLVEMENT					χ^2 Value	Prob
		Female Only	More Female	Both	More Male	Male Only		
Varietal Selection	Male	0	0	23	3	7		
	Female	3	0	24	3	3	4.6^{ns}	.202
Land Preparation	Male	0	0	17	7	9		
	Female	2	0	15	13	3	6.9^{ns}	.074
Basal fertilizer	Male	0	1	19	4	9		
application	Female	1	2	20	7	3	5.2^{ns}	.270
Sourcing out of	Male	0	0	16	2	10		
planting material	Female	1	2	21	5	3	8.7^{ns}	.120
Planting	Male	0	1	28	1	1		
	Female	1	2	23	5	1	4.5^{ns}	.345
Decision on planting	Male	0	0	24	3	6		
date	Female	1	3	21	4	4	4.7^{ns}	.315
Irrigation	Male	0	0	14	7	5		
	Female	1	3	15	6	2	5.4^{ns}	.250
Side-dressing and	Male	0	1	30	0	1		
hilling up	Female	2	0	22	7	2	11.6^{*}	.021
Pest and disease	Male	0	0	7	1	25		
control	Female	0	0	8	7	18	5.7^{ns}	.058
Weeding	Male	0	3	26	1	2		
	Female	0	0	24	4	5	6.2^{ns}	.104
Dehaulming	Male	0	2	23	1	3		
	Female	0	0	19	3	8	6.6^{ns}	.131
Harvesting	Male	0	1	29	1	2		
	Female	0	0	28	2	2	1.3^{ns}	.721
Sorting	Male	0	1	28	1	2		
	Female	0	0	26	3	3	2.3^{ns}	.518
Grading	Male	0	1	28	1	3		
	Female	0	0	27	2	4	1.5^{ns}	.684
Packing	Male	0	1	23	3	5		
	Female	0	0	21	4	8	1.9^{ns}	.591
Storing	Male	0	1	15	5	12		
	Female	0	0	18	5	10	1.4^{ns}	.693
Hauling	Male	0	0	6	5	22		
	Female	0	0	6	4	22	0.1^{ns}	.953
Transporting	Male	0	0	10	4	18		
	Female	0	1	11	3	18	1.2^{ns}	.759
Marketing	Male	0	0	21	2	8		
	Female	2	5	19	3	3	9.6^{*}	.049
Market destination	Male	0	0	25	2	6		
	Female	0	4	23	3	3	5.3^{ns}	.152
Pricing	Male	0	0	20	2	7		
	Female	0	4	22	3	4	4.9^{ns}	.181

** - Highly significant * - significant ns – no significance

This result points to the existence of gender bias. It would seem that the roles are being differentiated although there is perceived equality in the ability of both genders to perform the roles. At present, the belief that there is already "tradition" implies an acceptance of the gender bias.

Reproductive roles. Table 12 shows that men and women share the perception that household maintenance should be done by both genders, except cooking where it is perceived to be women's work. This is so since they are always in the house. They maintain that all these activities can both be done by male and female and that they are activities that are never solely for men only or for women.

Child care/rearing is also perceived to be a shared responsibility of both male and female except in bathing the children where it is perceived should be done more by women. They cited that children prefer their mothers to bathe them for their "tender loving care." Also, bathing is done in the morning when the fathers are working already in the field.

The results show that reproductive tasks should be widely shared by male and female respondents.

Table 12. Relationship between men- and women-perceived involvement in the reproductive activities

REPRODUCTIVE ACTIVITY	GENDER	PERCENT INVOLVEMENT					χ^2	
		Female Only	More Female	Both	More Male	Male Only	Value	Prob
House cleaning	Male	6	7	20	0	0		
	Female	14	7	12	0	0	5.2^{ns}	.074
Marketing	Male	7	6	20	0	0		
	Female	8	8	16	0	1	1.8^{ns}	.616
Laundry	Male	7	9	17	0	0		
	Female	11	9	12	1	0	2.8^{ns}	.432
Cooking	Male	4	5	24	0	0		
	Female	9	10	12	2	0	9.6^{*}	.022
Child rearing	Male	4	7	21	0	0		
	Female	8	11	14	0	0	3.6^{ns}	.165
Feeding children	Male	5	5	20	0	0		
	Female	10	11	11	1	0	7.4^{ns}	.060
Bathing children	Male	4	5	21	0	1		
	Female	10	11	11	1	0	9.9^{*}	.042
Helping children with homework	Male	3	5	24	0	0		
	Female	4	3	25	1	0	1.6^{ns}	.648
Attend PTA meeting	Male	0	3	27	1	1		
	Female	5	2	26	0	0	7.2^{ns}	.125
Bring children to school	Male	3	5	21	0	2		
	Female	4	2	23	1	1	2.8^{ns}	.583
Decide where children go to school	Male	0	2	29	0	1		
	Female	3	1	28	0	1	3.3^{ns}	.343
Decide on the extent of children's education	Male	0	2	30	0	0		
	Female	3	1	28	0	1	4.4^{ns}	.223
Giving allowance to children	Male	1	3	28	0	0		
	Female	6	5	22	0	0	4.8^{ns}	.092
Bringing children to clinic when sick	Male	2	5	25	0	0		
	Female	7	8	18	0	0	4.6^{ns}	.100
Decide on how many children to have	Male	0	3	29	0	0		
	Female	4	1	28	0	0	5.0^{ns}	.082
Discipline	Male	0	2	30	0	0		

REPRODUCTIVE ACTIVITY	GENDER	PERCENT INVOLVEMENT					χ^2	
		Female Only	More Female	Both	More Male	Male Only	Value	Prob
children	Female	3	1	27	2	0	5.5^{ns}	.140

** - Highly significant * - significant ns - no significance

These findings tally with the findings of Rovillos and Casambre, et al. (1992) that in the Cordillera there is no pronounced tendency to divide reproductive functions between male and female.

Community Managing Roles

Participation in Community rituals/ barangay affairs /social affairs. Both male and female respondents participated in community rituals, affairs and religious affairs. As shown in Table 13 there is no significant difference in the participation of men and women in community affairs. The respondents participate in these for socialization and to have a sense of belongingness. There is also no significant difference on who decides on whether or not to participate in rituals, barangay and social affairs.

Table 13. Relationship between men and women involvement in community rituals

ACTIVITY	GEN-DER	PERCENT INVOLVEMENT					χ^2	
		Never	25 %	50 %	75 %	100 %	Value	Prob
Participate in rituals	Male	0	0	13	6	14		
	Female	0	1	14	2	5	5.3^{ns}	.150
Who decides to participate	Male	1	0	6	5	19		
	Female	1	0	11	1	9	6.4^{ns}	.095

** - Highly significant * - significant ns – no significance

Participation in Community Organizations. Table 14 shows that there is no significant difference in the participation of men and women in community organizations such as farmers' cooperatives, farmers' associations, and savings and credit groups. So both male and female can become members to be able to benefit from these. There is however a highly significant difference as to who decides to participate. The respondents say that since there is money involved when one becomes a member, the men therefore decide on participation.

Table 14. Relationship between men and women involvement in community organization

ACTIVITY	GEN-DER	PERCENT INVOLVEMENT Never	25 %	50 %	75 %	100 %	χ^2 Value	Prob
Participate in community organization	Male	0	0	8	6	17		
	Female	2	1	9	3	8	6.2^{ns}	.181
Who decides to participate	Male	0	0	6	4	21		
	Female	2	0	13	2	6	12.7^{**}	.005

** - Highly significant * - significant ns - no significance

Problems Encountered

Two problems of males and females with respect to their gender roles stand out.

Small landholdings. The areas being farmed by respondents have small land areas. The men are enough to work the farm, leaving the females to do household chores and child rearing activities and to help in garden activities during their free time. This leaves the women with some free time to engage in other productive activities. However, there are limited opportunities available to women.

It must however be noted that limited economic opportunities is a problem that also affects men. It is a problem that does not trouble only white potato farmers, either. Economic problems such as this are national in character. Still, it has been noted many times that economic woes affect women differently, and in many cases affect them more.

Existence of gender bias. The results of the study point to gender bias in the performance of productive and reproductive roles. Gender bias has limited the participation of women in farm activities and the participation of men in household activities. The women respondents expressed that they want the men to more involved in reproductive work and the men expressed that they want the women to be more involved in productive work.

A related problem is that males are the ones involved in community political affairs which males find time-consuming and a disturbance of work in the garden. Females rarely participate in these community

political roles. This reflects gender bias in the classic sense. Moser (1993) said:

> Community work involves the collective organization of social events and services, including local political activities. Again, both men and women engage in community activities, but a gender division of labor also prevails here. A distinction is made between community managing activities and community politics. The former entails activities such as organizing the collective provision of food, basic services, education or health-care. It is regarded as an extension of women's reproductive role and is thus often done voluntarily. Community politics is the public role of organizing and decision-making at community level. While women may participate in this, men usually have the decision-making power.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The study aimed to determine the demographic profile of men and women involved in white potato production; to identify the productive roles (division of labor, access to and control of resources, access to and control of benefits of white potato production); and the reproductive roles of men and women in white potato production; to determine the perception of men and women on gender roles; to identify problems encountered by men and women involved in white potato production; and to suggest recommendations based upon the findings of the study.

The respondents were the white potato farmers in Paoay, Atok, Benguet. The sample size is composed of 35 males and 33 females.

A survey questionnaire was the tool used in gathering data.

The salient findings of the study include the following:

1. Majority of the respondents range in age from 38 to 54 years old. Almost all of the respondents are married and very few are single, widows or widowers. Most of them belong to the Kankanaey ethnic group while some are Ibaloi and a few trace genealogy from both ethnic groups. Many had secondary level education, though some have not graduated,

some with college education or graduated college, and a few have had no formal education.

2. Men perform most productive roles in potato production, and the women perform reproductive roles. The men act as farm managers and thereby make the decisions in the farm operations and are involved in all activities. This managerial role extends to access to and control over resources. On the other hand, the women are the homemakers, and so are involved in all reproductive activities. However, there are some productive roles like weeding and harvesting that women also perform; and some reproductive roles like child rearing and discipline that the men also perform.

3. The respondents perceive that their performance of productive roles should not differ except for side-dressing and hilling-up. which they say should be done more by men. Household maintenance should also be done by both genders, except for cooking where it is perceived to be women's work. Child care/rearing is also perceived as should be performed by both men and women, except in the bathing of children which should be done more by women.

4. Problems identified include the small landholdings of the farming households and the dominance by men of community political roles.

5. The recognition of the contribution of both genders in the performance of different productive and reproductive roles in potato farming households is recommended. Additional research on gender roles is also recommended.

Conclusions

The following conclusions are drawn from the findings of the study:

1. Majority of the respondents range in age from 38 to 54 years old and are married. They engage in potato farming due to the lack of economic opportunities available.

2. Men perform most productive roles in potato production, and the women perform most reproductive roles. There is gender bias in the assignation and performance of both productive and reproductive roles.

3. The respondents perceive that productive and reproductive roles could and should be done by both sexes. These perceptions underline the existence of gender bias. Women should be more involved in farm management and men should be more involved in household management.

4. Problems identified include the small landholdings of the farming households and the dominance by men of community political roles.

Recommendations

Based on the results and conclusions, the following are recommended:

1. Recognition of the participation of both genders in white potato production. As men and women farmers' knowledge, skills and practices contribute to production of white potato and thereby to sustainable agriculture, their different contributions must be recognized and respected. An analysis and understanding of men and women farmers' differential roles and responsibilities in white potato production, as well as the intrinsic value of their knowledge, is crucial to the solution of situation specific problems and to the provision of appropriate and targeted support.

It should be noted that productive, reproductive and community managing roles of the household are not exclusive of each other, but rather complement each other.

2. Continuing gender research. There is a need to pursue additional research on gender. Gender roles in the production of other vegetables such as carrots, cabbages, and other commodities should be studied. Gender roles in traditional agriculture have also to be studied, as it serves as the bases of the development of current gender roles and gender bias. It could be informative if other research methods recognizing the uniqueness of gender research were used. Of particular interest is the

need to determine the absence or presence and magnitude of gender oppression.

There is also a need to evaluate the impact of gender policies and intervention, as well as the appropriateness of intervention strategies.

3. Intervention to correct gender bias. The gender bias that exists in the performance of productive, reproductive and community politics roles needs to be corrected, so that the women would participate more in farm work and management, and the men would participate more in household work and management.

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APPENDIX A.

QUESTIONNAIRE

PART I. DEMOGRAPHIC PROFILE

1. Household interview number#:_____
2. Name of respondent (optional)_____
3. Age:_____
4. Address:_____
   _____
5. Sex: __Male___Female
6. Marital status: married___ single___ widowed____ separated_____
7. Educational Attainment: No formal education___ Elementary__ Highschool____ College_____ Post graduate____ Others (pls specify)
8. Ethnicity: Kankanaey____ Ibaloi___ Others (pls specify)_____
9. Religion:__Anglican___Roman catholic___Others (pls specify)_____
10. Please indicate the frequency of your participation/exposure to the following Research, Development and Extension Services using scale 5-always, 4-often, 3-sometimes, 2-rarely, 1-never. And indicate your reason

Trainings____ techno demo,_____ inputs_____ technologies_____ IEC materials_____ tours/educational tours)____School on the air_____ others(pls specify_____

REASON:_____

PART II PRODUCTIVE ROLE

A. Division of Labor

1. Pre production , production and marketing activities
For the following items, please indicate your level/degree of involvement using the scale:1-100% (always/most of the time), 2-75% 3-50% 2-25% and 1-0% (Never). Indicate also your reason under WHY..

ACTIVITY	% INVOLVEMENT/HOW OFTEN YOU DO	WHY
Decide which variety to plant		
Source out planting materials		_
Land Preparation		
Basal fertilizer application		
planting		
Decide when to plant		

Irrigation		
Side-dressing &hilling up		
spraying for control of pests and diseases		
Weeding		
Dehaulming		
Harvesting		
. Sorting		
Grading		
Packing		
Storing		
Hauling		
Transporting		
Marketing		
Destination(who decides)		
Pricing		

B. Access and control of resources

a. Land

1. Total farm area:_____
2. Mode of acquisition of farm area:
3. inheritance
4. ____purchase:
5. _____rent_____
6. Who owns the farm area?

___wife
___husband
___parents-in-law
___both
___others (pls specify)_____

3.1.Decision making on utilization of land area scale:5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never))

ACTIVITY	%INVOLVEMENT	WHY
Decide how the land is to be utilized		

b. Agricultural inputs

1 Please check what agricultural inputs do you buy?

___chicken manure ____fungicide
____insecticide ____inorganic fertilizer
____foliar fertilizer ____fertilizer
____seeds/planting materials
____Others (pls specify)_____

2. Please indicate where you usually procure/buy your agricultural inputs.

___Within locality ___Baguio City
___Sayangan ___La Trinidad
___Supplier
___Others (pls specify)_____

REASONS:scale:

____cheaper ____sure of quality
____part of labor payment ____No capital
____when go to sell produce, buy also inputs
____Others (pls specify)_____

3 Procurement of inputs scale:5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never))

ACTIVITY	DEGREE OF INVOLVEMENT	WHY
Procurement of inputs		

4. Decision making scale:5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never))

ACTIVITY	DEGREE OF INVOLVEMENT	WHY
Decide when and where to procure agricultural inputs		
Decide when and where the inputs will be utilized		

c. Agricultural tools/equipments/implements
1 Please indicate what agricultural tools/equipments/implements do you buy?

2. Please indicate where you usually procure/buy your agricultural tools/equipments/implements
___Within locality ___Baguio City
___Sayangan ___La Trinidad
___Supplier
___Others (pls specify)_____

REASONS: scale:
____cheaper ____sure of quality
____part of labor payment ____No capital
____when go to sell produce, buy also inputs
____Others (pls specify)_____

3 Procurement of tools/equipments/implements scale:5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never)

ACTIVITY	DEGREE OF INVOLVEMENT	WHY
Procurement of tools/equipments/implement		

4. Decision making scale:5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never))

ACTIVITY	DEGREE OF INVOLVEMENT	WHY
Decide when and where to procure agricultural tools/equipments/implements ts		
Decide when and where the tools/equipments/implements will be utilized		

c. Credit
1. Do you avail of credit? ___Yes___No_____
If yes):Please indicate how often you avail of credit from the following lending institutions using scale 5-always, 4-often, 3-sometimes, 2 _rarely, 1- never.
___Private lending agency ___Relatives
___Supplier ___Cooperative Bank of Benguet
___Businessman ___Farm Supply in Baguio
___Cooperative ___Others (pls specify)_____
REASON:_____

2. Decision-making.please indicate your involvement/participation in decision making using the scale:5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never))

ACTIVITY	DEGREE OF INVOLVEMENT	WHY
Decide to avail of credit		
Decide how much and where to avail of credit		
Decide where the loaned amount is used		

C. ACCESS AND CONTROL OF BENEFITS

1. Please rank where you spend the income from potato production with 1-highest amount?

___ Food
___Household expenditures
___Loan
___Canao
___Allowance for children
___Others (pls specify)_____
___Education of children
___Capital for farming
___Farm Inputs
___Clothes/shoes
___Medicine

2. Please indicate the level/degree of your involvement/participation in decision making on where the income on white potato is to be spent usingscale:5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never))

ACTIVITY	DEGREE OF INVOLVEMENT	WHY
Decide where the income from potato is spent		

PART IV. REPRODUCTIVE ROLES

1. Please indicate your degree/level of involvement/participation in the reproductive activities using the scale:5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never).Indicate also your reason under WHY.

Reproductive activities	% of involvement	Why?
1. Cleaning the house		
2. marketing		
3. Laundry		
4. Cooking		
5. Child care/rearing		
6.Feeding children		
7.Bathing children		

Reproductive activities	% of involvement	Why?
8.Helping children with homework		
9.Attend PTA meeting		
10.Bring children to school		
11.Decide where children go to school		
12.Decide extent of childrens' education		
13.Give allowance to children		
14.Take children to clinic when they get sick		
15.Decide how many children to have		
16.Discipline children		
17.Takes over reproductive work when other sex is involved in productive work		
18.Others (pls specify)_____ _____		

PART. PERCEPTION OF PRODUCTIVE ROLES

In your personal knowledge, please indicate your perception of the degree of involvement of male and female (or in your opinion, who should be doing the following activities) in the PRODUCTIVE activities in white potato production using the scale 5-100% (male only), 4 (more male), 3 (both), 2(more female), 1(female only). Kindly indicate also your reason under WHY

ACTIVITY	% INVOLVEMENT	5	4	3	2	1	WHY
1. Varietal selection							
2. Land preparation							
3. Basal fertilizer application							
4. Sourcing of planting materials							
5. planting							
6. Decide when to plant							

ACTIVITY	% INVOLVEMENT	5	4	3	2	1	WHY
7.Irrigation							
8. Side-dressing and hilling up							
9.Control of pests and disease							
10. weeding							
11. dehaulming							
12. harvesting							
13. sorting							
14. grading							
15. packing							
16. storing							
17. hauling							
18. transporting							
19. marketing							
20. Decide market destination							
21. pricing							

PART VI. PERCEPTION OF REPRODUCTIVE ROLES

In your personal knowledge, please indicate your perception of the degree/level of involvement/participation (who do you think should do the activity) of male and female in the REPRODUCTIVE activities using the scale 5-100% (male only), 4(more male) 3 (both), 2(more female), 1 (female only).Kindly indicate also your reason under WHY

Reproductive activities	%	5	4	3	2	1	why
1. Cleaning the house							
2. marketing							
3. Laundry							
4.Cooking							
5.Child care/ rearing							
6.Feeding children							
7.Bathing children							
8.Helping children with							

Reproductive activities	%	5	4	3	2	1	why
homework							
9.Attend PTA meeting							
10.Bring children to school							
11.Decide where children go to school							
12.Decide extent of childrens' education							
13.Give allowance to children							
14.Take children to clinic when they get sick							
15.Decide how many children to have							
16Discipline children							
17. Other (pls specify__ _____							

PART V. COMMUNITY MANAGING ROLES

1. Do you participate in community rituals/rites/festivities/? Yes__No__

1.1 no, why? _____

1.2 yes, what community rites/ritual/festivity/?

__Canao ___Barangay affairs___Religious Affairs

___Others (pls specify_ _____
1.3cribe your role in such rite/ritual/festivity/?
____Participant ____Workforce
____Decision maker ____planner
____Others (pls specify) _____

1.4 Please indicate your level/degree of participation/involvement in community rite/rituals/festivities using the scale 5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never).Indicate also your reason under WHY.

Activity	Degree /level of participation/involvement	WHY
Participation/involvement in community organization		

1.5please indicate your level/degree of participation/involvement in decision to participate/be involved in community rites/rituals/festivities using the scale 5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never).Indicate also your reason under WHY.

Activity	Degree of involvement	WHY	
Decide to participate		Interest Can understand better Others (pls specify)____	

2. Do you participate in community organization (coop/farmers group, savings and credit groups/village social organization/religious organization)Yes____No_____
2.1 If no, why? _____
a. If yes, what group do you participate in?

__Farmers Cooperative __Farmers association
__Savings and credit group __Religious organization
__Village social organization
__Others (pls specify_ _____
2.3If yes, describe your role?
___Participant ___Workforce
___decision maker ___planner
__Others (pls specify) _

2.4 Please indicate your level/degree of participation/involvement in community organization using the scale 5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never).Indicate also your reason under WHY.

Activity	Degree /level of participation/involvement	WHY
Participation/involvement in community organization		

2.5 Please indicate your level/degree of participation/involvement in decision to participate/be involved in community organization using the scale 5-100%(always), 4-75%(often), 3-50%(sometimes), 2-25%(rarely), 1-0(never).Indicate also your reason under WHY.

_____

Activity	Degree of involvement	WHY
Decide to participate		

3. Do you hold a political position? _____
4. If yes, up to what level? _____
5. If no, why? _____

PART VII. PROBLEMS ENCOUNTERED IN ROLES

1. What problems have you encountered in your roles in potato production?
2. What roles would you want the opposite sex to take on and why?
3. What roles of the opposite sex would you want to do and why?_____

PART VIII. RECOMMENDATION

1. For the problems on roles identified, what recommendations do you suggest?

THANK YOU VERY MUCH!

APPENDIX B.

PROTOCOL FOR ON-FARM TRIAL OF POTATO

PRE-PRODUCTION

Varietal Selection

Procurement of Seed tubers

Land Preparation

Select an area with a well- drained sandy loam to clay loam soils with Ph ranging from 5.6-6.5

Clean the area through hand weeding, or by the use of sickle/trowel and grab hoe. Weeds removed are either buried in between plots or composed in the corner of paddies

Preparation of plots is done by hill method in single or double row. Single row measures 75 cm apart while a width of 1.2 cm composes a double row. Plots should be elevated during wet season whereas a slight depression in the middle of the plot is done during dry season. This accumulates and retains water in the bed

Basal fertilizer Application

Get soil samples for analysis

Fertilizer applied should be based on the soil analysis

Fertilizer rate. The general NPK recommendation for table potatoes is 140-140-140 kg nutrient/ha. Respectively. Thus, for basal application, follow the rates listed below:

-table production-20 bags complete fertilizer (14-14-14) + 4 tons (834 big kerosene cans) chicken dung/hectare.

Place the fertilizers near the root zones so that plants can easily absorb the nutrients. Apply the recommended amount of inorganic fertilizer in the furrow or 20 g (2 level tbsp) per hill at planting time. Cover fertilizer with a thin layer of soil before planting using cultivator or Japanese hoe.

PRODUCTION

Planting

a. plant the seed pieces when the soil is neither too wet nor too dry. Too wet soil causes seed rotting especially before emergence due to excessive moisture and lack of oxygen. On the other hand, seed pieces dehydrate easily if sown on dry soil. The planting distance should be 30 cm between rows and 30 cm between hills for bigger tubers while a distance of 25 cm between rows and 30 cm between hills is plied for medium to small tubers.

b. Plant depth ranges from between 8-10 cm for light soils and 507 cm for heavy soils. If planting in heavy soils is followed by heavy rain, loosen the spaces between the seeds with a hoe to allow aeration.

c. For the position of tuber, the apical portion should be towards the centre or sides.

Crop Management

Irrigation.

The moisture requirement of potato varies at different growth stages. If the soil is dry, the field should be irrigated 3-5 days before planting. After planting, potato requires relatively low moisture level to harden the plants and lessen the incidence of tuber rotting. After emergence, the amount of water needed increases as the crop grows. The crop should have adequate moisture at stolon formation, tuber set and tuber growth. Water is applied by overhead irrigation with the use of watering cans, rainbird or by means of furrow irrigation. However, to avoid occurrence of fungal disease, furrow irrigation is recommended. Overhead irrigation is done every 2-3 days.

Weed Control.

Weeds compete for light, space, water and plant nutrients. Their roots absorb more water and nutrient than the shallow rooted potato, as well as the spread of insect pest and diseases. Control weeds by hand-pulling, hoeing the field and hilling-up or by mulching (2-5cm thick).Hill-up when the plants are 15-25cm high or at 30 days after planting, after which additional cultivation should be avoided.

Side-dressing and hilling –up.

-cultivate first if soil is compact

-side dress and hill-up when the plants are 15-25 cm tall or approximately 25-35 days after planting

-side dress with the remaining half of the T-14 that was not applied during basal fertilization, fertilizer is either applied around the plant (2cm away) or done between rows.

Insect pests, diseases and their control

1. leaf miner-Adult looks like a housefly. It is of a pinhead size. Head is yellow with reddish eyes. The rest of the body is black with a yellow mark on its back.

They cause tunnels and injure the upper surface of the leaves with its sharp abdomen.

Flooding the soil followed by hoeing could release mulch of buried pupae. Collect and destroy the pupae or expose to sunlight for desiccation and enhance other mortality factors. Maintain general agricultural hygiene conditions by cleaning all weeds and treating soils where practical to destroy the pupae. Bury infested weeds and waste plant materials in the ground.

2. Thrips-These are small soft bodied insects about 1-1.2mm long. The larvae are dark yellow and slow moving while the adults are brown and fast moving. The pest damages the leaves by piercing the surfaces and sucking the plant juices, causing the bronzing and drying up of leaves

Plowing and harrowing of the field after harvest reduce thrips population in the soil. Overhead and surface irrigation have similar effects.

3. Aphids- Aphids or plant lice are minute, sluggish, soft bodied insects. They congregate in large numbers on the plant. They pierce potato leaves and succulent stems and suck off the plant juices. This causes wilting, severe curling and yellowing of leaves and stunting of infected plants. Rogue out all the infected plants to prevent aphids from spreading viruses in the field.

4. Late blight-It is the most destructive disease of potato. The disease affects leaves, stems and tubers. It appears on the leaves as pale green, irregular spots, stems and petioles turn brown when infected.

To control, destroy or eliminate all potato cull piles, plant resistant varieties and start spraying when the plants are 10-15 cm in height. Add stickers such as ordinary detergent to the fungicide solution during the rainy season to prevent washing away of chemical.

Virus diseases- Potato leaf roll virus and rogues mosaic. The plants grow upright, become stunted and are light green. In some potato varieties the underside or base of the leaves turns reddish or purplish. Eliminate volunteer [plants and remove diseased plants.

Suggested insecticides and fungicides to control pests and diseases.

Insecticides	Mode of action	Rate of application/ha
Lannate L	contact	1.0 L or 3-6 tbsp
Sherpa	contact	2-3 tbsp
Karate	contact	2-3tbsp
Demo	contact	2-3 tbsp

Fungicides	Rate of Application	Spray interval Wet season	Dry season
Dithane M-45	2-3 kg	5-7 days	7-10 days
Manzate 200	2-3 kg	5-7 days	7-10 days
Curzate -M	2-3 kg	5-7 days	7-10 days
Daconil	2-3 kg	5-7 days	7-10 days
Manager	3-4 tbsp/16 li	5-7 days	7-10 days
Pilarich	3-4 tbsp/16 li	5-7 days	7-10 days

HARVESTING

Dehaulming. Dehaulming is a method of firming up the tubers. It minimizes the risk of skinning during harvesting and subsequent handling. This practice is done when vegetative parts are 80-85% senescent, haulms are cut. This is recommended for 5-7 days before digging to allow the skin to harden.

Harvesting. Harvesting is done at 70-120 days depending on the variety, season, price and cash needs of the farmer. Potatoes are harvested with the use of spading forks, sharpened stick or a three-pronged hoe. In loose or friable soils, digging tubers by the use of hands is a common practice.

Sorting and grading. Potatoes are classified according to size and grade. The exact size range within any grade varies from farmer to farmer; if supply is low the farmer lowers the base limit to each size. Sorting and grading may either be done in the farm or at the trading post. Physical grading depends to the general appearance, quality and conditions of the tubers.

Classification of tubers is as follows:

Jumbo	26 gms and above with 9.1 cm diameter and above
Super	06-125 gms with 8.1-9.0 cm diameter
Extra large	99-105 gms with 7.1-8.0cm diameter
Large	85-98 gms with 6.1-7.0cm diameter
Big	78-84 gms with 5.1-6.0cm diameter
Medium	51-77gms with 4.1-5.0cm diameter
Small	50 gms below with 3.0-4.0cm diameter

Injured tubers and marbles are considered rejects, therefore non-marketable

The practice of “buhos system” (bulk) where marketable and non-marketable tubers are classified by the trader and the farmer at the trading post.

Hauling/Packing. Hauling is done to transport harvest from farm to market roads. Baskets, feed sacks, thick laced plastic trays and bamboo crates are used.

Packing is done right in the field using feed sacks, thick laced plastic trays and bamboo crates. The “buhos system” is also applied.

BIOGRAPHICAL SKETCH

The author is the third child of Mr. and Mrs. Arnold Tudlong of Bontoc, Mountain Province, a full-blooded Igorot. She was born on May 31, 1963.

Her elementary years were spent at All Saints' Mission School, Bontoc, Mountain Province where she graduated valedictorian. Two examinations brought her to the Philippine Science High School in Diliman, Quezon City where she graduated high school. She then proceeded to the University of the Philippines at Los Baños to finish B.S. Agricultural Engineering.

After graduation, she joined the Montañosa Research and Development Center, an NGO, for a short period of time. She then applied at the Department of Agriculture-CAR where she works until the present. She is currently assigned at the Cordillera Regional Integrated Agricultural Research Center. She had the opportunity to be detailed with the foreign-assisted Cordillera Highland Agriculture Resources Management Project as the Adaptive Research Services coordinator.

She is married to Gary A. Pekas, with whom she has four children. The eldest is now taking up public administration at the University of the Philippines in Diliman, Quezon City. The second is enrolled at Philippine

Science High School, Bayombong Campus. The two younger children are in elementary at Easter School.