

BIBLIOGRAPHY

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Adviser: Andrew K. Del-ong, BSc

ABSTRACT

This study was conducted in Sabangan, Mountain Province to identify the vegetable farmers, the types of vegetable they are commonly producing, the contribution of vegetable farming to their total household income, and the factors that influenced them to shift from rice farming to vegetable farming. A total of 30 respondents were interviewed. Personal interview with the aid of a questionnaire was used to collect the needed data.

Among the 30 respondents, the majority are totally engaged in vegetable farming while some of the respondents still plant rice for home consumption. Their other source of income includes wages earned from the variety of works as carpenters, masons, etc., laborer or wage earner, sari-sari store, government employment and tricycle driving. Majority of them have a vegetable farm area of 200 to 300 sq.m. The commonly grown crops are beans, tomato, eggplant, bell pepper and celery.

The most problems identified by farmers are plant pest and diseases, some identified weather, lack of transportation and poor soil condition. Their most common problems in terms of financial are insufficient capital and high price of chemical fertilizers, and loan availment for creditors don't extend much loan to them. For

marketing problems, farmers identified lack of storage facilities, and unstable price of vegetables and as well as lack of information about price. The primary factor that influenced the farmers to shift from rice farming to vegetable farming is the higher income they are realizing.



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INTRODUCTION

Rationale of the study

Mountain Province is located in Central Cordillera. It is bounded on the north by Kalinga and Abra, east by Isabela and Ifugao and Benguet and west by Ilocos Sur.

The province has 10 municipalities, subdivided into two districts. District one comprises the municipalities of Sadanga, Natonin, Barlig, Paracelis and Bontoc, and district two comprises Sabangan, Bauko, Tadian, Besao, and Sagada, it has 144 barangays with a total area of about 235,660 hectares based from the records of the approved and on-going cadastral survey of the different municipalities of the province, which has taken from the Department of Environment and Natural Resources (DENR). Of the total land area, 83 percent is mountainous and 17 percent is hilly to level. The area also has 18,853 hectares of alienable and disposable lands, 93,766 hectares forested area and about 123,041 hectares are still unclassified.

The native inhabitants of Mt. Province are mostly Applias, Kankana-eyes, Balangaos, Baliwon, and Bontoks. There are about 141,662 people living in rural areas and about 14,419 lives in the urban or poblaciones.

In terms of socio-economic development, generally the people survive the rice farming, vegetable and root crop gardening, and income from government and private employment.



Statement of the Problem

The research was conducted to find the answer for the question:

1. Who are the vegetable farmers in Sabangan, Mt. Province?
2. What are the vegetables they are commonly producing?
3. How much is the contribution of vegetable farming to their total household income?
4. What are the reasons/factors that influenced them to shift from rice to vegetable farming?

Objective of the Study

1. To know who are vegetable farmers in Sabangan, Mt. Province.
2. To know the types of vegetables they are commonly producing.
3. To determine the contribution of vegetable farming to their total household income.
4. To determine the reason/ factors that influenced them to shift from rice to vegetable farming.

Importance of the Study

The study will evaluate the attitude, practices, perceptions, factors affecting or influencing the performance of the rice farmers in Sabangan, Mt. Province. The result of the study will serve as the basis for the rice farmers to improve or change their attitude on farming.



Scope and Delimitation of the Study

The study concentrated on farmers' attitude, practices, perceptions and the factors affecting the performance of the farmers in Sabangan, Mt. Province. The farmers in the study were those whose productions were both for family consumption and for the market. Those farmers who are just operating in their backyards or whose outputs were for family consumption only were not included.



REVIEW OF LITERATURE

Attitudes of Farmers

Dar (1987) as cited by Ali, farmers believe that fertilizers and pesticides when used in higher dosage lower crop production and hence lower farmers' dependence not only on chemicals but also on multinational corporations. Besides, farmers are also prone to incidents of pesticides poisoning.

Andelson (1979) stated that a successful vegetable farmer not only selects his main products to give him main balance and efficient business value but also to minimize his overhead cost per unit of production. This is also possible if the farm yield is high, so as to have more units over which to spread. The farmers also plan to have his income be increased. In this case the farmer must select a combination of enterprise that will yield him the maximum returns.

Bautista (1979) stated that being an outstanding vegetable farmer does not mean that one is almost knowledgeable. He said that he accepts help and advice from other farmers and also from different government agencies.

Boron (1966) as cited by Dumo (1979) stated that farmers are concerned with the physical science and with the practical economy of their application of each farm holding. It looks at everything from the point of view of business management by the individual farmers of the particular farm they operate with the power and machines they employ, the building they use and the labor they apply with due regard to their financial circumstances. It also considers the relevant factors which are external to the firm, such as market, financial institutions, transportation, storage, and communication it is



concerned with present prices and future prices for the products bought and products sold by the farmers and with the sound handling of family finances.

Cheong (1973) stressed that majority of farmers consider themselves below average and very poor in terms of socio-economic conditions. They are dissatisfied with their livelihood but they continue to farm because they have little or no alternative means of earning. Two thirds of their income is spent for food. The farmers have the low calorie intake but higher calorie expenditure.

Dela Cruz (1979) explained that the farmers must change their traditional farming practices. One way of influencing them to change is to involve them actively in program planning and implementation. This will insure their total cooperation and active participation and consequently the success of the farmers' objectives and condition by which rural people may acquire specific skills and basic knowledge for the propriety. He also observed that limiting factors that may influence the efficiency of operation includes lack of knowledge, lack of competent technology or skills necessary to do the given job.

Gaspar (1979) stated that vegetable farmers as persons behave basically in the same as all other human beings. They have the same inherent capacities and they are motivated by personal drives and social influences by their rural communities and of the larger agricultural development agent.

Farming

Santos (1979) claimed that farming is still on a subsistence level. This means that the farm production is not enough, productivity is low, lack of job during off-farm and there is underutilization of some natural resources unless these farmers get establish in



farming, the socio-economic situation of the country will remain a barrier to the development of the nation.

Kinds of Vegetables

Bacbac (1993) stated that chinese cabbage, popularly known as “wongbok” is one of the major crop grown in highland. In general, production yield is greatly influenced by farmers practices as well the varieties used. Carrot is one of the most profitable crops grown in highland. In Sabangan, Mountain Province, some farmers produce good quality roots such as cabbage and bell pepper while others do not produce good quality.

Cultural Practices

Bautista (1983) stated that seed can earlier be sown directly in field (direct seeding) or planted in a confine area and later transferred to its final site (transplanting). Direct seeding is most common method. However, where the seeds are rather expensive or difficult to obtain, it is easier to proper care and later transplanted. Water management is the integrated process of applying the needed water at the proper time and the removal of the excess water from a field to increase crop production. Efficient utilization of the available irrigation water is essential to economical crop production or adequate profitability. Application of water that is more frequent than necessary, application of too much water, or lack of proper drainage do not only results to wastage of precious water but also leads to uneconomical reduced field.

Farmer Participatory Research (FPR) is an approach that involves encouraging farmers to engage in small-scale experimentation so that they can adapt new technologies and spread them to other farmers. The advantage of small-scale experimentation or



“learning by doing” have been demonstrated in the spread of both traditional and recommended technologies (Encarta, 2006).

Crop Farming

Crop farming is extensive cultivation of plants to yield food, feed, or fiber to provide medicinal or industrial ingredients; or to grow ornamental products. Crop farming developed in ancient times as hunters and gatherers of the stone age turned to the cultivation of favored species. Modern crop were gradually derived from their wild ancestors through continual selection for larger seed size, improved fruit, and other desired traits (Encarta, 2006).

Rice Farming

Adcock et al., (1966) the appearance of the rice is important to the consumer. Thus, grain size and shape are the first criteria of rice quality that breeders consider in developing new varieties for release for commercial production.

Castillo (1975) rice production and consumption are positively associated with low incomes and poverty. Rice is one of the main sources of the cheapest sources of food energy and as a main source of protein. As income increases people are shifted from rice production to other food or non farm goods with high income elasticity of demand. Increasing productivity of rice sector however is important to the poor and alleviates the poverty in low income courtiers.

Rice farmers who retained seeds for planting in the next season used seeds from the second crop as these were judged to be of better quality. Most farmers change seeds every year in order to plant a disease resistance- variety, to improve yield, or try another



varieties. off-types, weedy types and red rice were the contaminants observed in the rice crop. When there are contaminants, farmers either removed them or did nothing. Rice weeds were believed to have come from the from the soil, carried by irrigation water or mixed with rice seeds. Among the weeds considered. To cause production loss, *Echinochloa crusgalli* L. was reported to be the most destructive. Other weeds considered destructive were *Echinochloa colona* (L) Link. *Cynodon dactylon* (L) Pers., *frimbristylis miliacea* (L) Vahl, and *Cyperus iria* L. To reduce weed problems, herbicide application, water management, and hand weeding were the most common measures practiced by farmers. Herbicides were applied by most farmers at seedling and vegetative stages. When using water management to control weeds, the majority either flooded their field a few days after herbicide application or only flooded the rice field. Water management is the main responsibility of the male in the household while hired labor did most of the weeding. In terms of attitudes towards seed management, most farmers believed that seeds from private growers do not require additional cleaning, infection and contaminants in rice seeds for planting decrease yield, and neighbor and friends should exchange seeds among themselves. However, farmers were ambivalent about the value of seed cleaning and the function of winnowing to remove all the infected seeds (Encarta, 2006).

Rice cultivation, a very demanding process, has shaped values and changed history. For example, rice encourage population to crowd together to take advantage of a reliable food supply. The labor-intensive process of growing paddy rice requires large numbers of people to work together to level fields, build and maintain buds, and care for the crop. Where paddy-rice cultivation has been introduced, hard work, organization, persistence, and above all, cooperation, have been encouraged (Encarta, 2006).



Rice, is a plant that produces an edible grain; the name is also used for the grain itself. Rice is the primary food for half the people in the world. In many regions it is eaten with every meal and provides more calories than any other single food. Rice is a nutritious food, providing about 90 percent of calories from carbohydrates and as much as 13 percent of calories from protein (Encarta, 2006).

Rice farmers choose varieties adapted to the region's length of growing season, soil, altitude, and for paddy farmers, the depth of water in the fields. Paddy rice farmers in developing countries usually sow seed in small seedbeds, then hand-transplant the seedling into flooded fields that have been leveled by water buffalo or oxen-drawn plows. Depending on the rice variety and the climate, rice grains are ready for harvest in three to six months. In developing countries, farmers harvest rice with sickles and knives, tie in bundles, and let it dry in the field (Encarta , 2006).

Pest Management Practices of Rice Farmers

Comparative Analysis of Pest management Practices of Rice farmers in Asia. Farmers survey in 10 Asian countries were used to examine trends in rice pest management practices. Pesticides remain the dominant control tactic of farmers and insecticides were used more frequently than herbicides and fungicides. Of the insecticides, many farmers were still using compounds classified as extremely or highly hazardous to human health (WHO 1), namely, methyl parathion, monocrotophos and methamidophos. Herbicides were commonly used in Indonesia, Malaysia, Sri Lanka, China, Vietnam, and the Philippines. Most of these sprays were applied during the seedling, tilling and booting stages of the rice crop. Farmers generally overreacted to leaf-feeding pest, collectively referred to "worms," and tended to apply their first



insecticide sprays during the four weeks after establishing the crop. They strongly believed leaf-feeding insect pest damage the crop and reduce yields. Based on this perception, farmers would choose insecticides to kill the pest to protect their yields. To improve farmers' pest management perceptions and decision making, researchers need to address issues such as the influence of communication media in shaping perceptions and attitudes (Heong and Escalada, 2007).

From the 1950s to 1970s, in an effort to combat world hunger, plant breeders at the International Rice Institute (IRRI) in the Philippines developed new rice varieties that were, when fertilized, higher yielding than traditional varieties. The new were shorter and less likely to fall over, which made them easier to harvest mechanically. They are ripened sooner, reducing the risk of poor weather affecting yield, and enabling farmers to harvest and replant several times during the growing season. While successful in many areas, the new varieties requires more money for fertilizer and chemical pesticide, and in some cases, machines for sowing and harvesting-tools often too costly for peasant farmers. In some areas, a single new rice variety replaced diverse, centuries-old varieties adapted to thrive in a particular climate and soil type and with some resistance to local insects and diseases. The new variety was not able thrive in these areas, and the crop yields were not always greater.

Rice breeders at IRRI and other research facilities are now trying to increase yields through genetic engineering. They hope to create rice varieties that are genetically designed to require less fertilizer, resist insect and disease, tolerate poor soil, require less irrigation, and photosynthesize more efficiently (Encarta , 2006).



Rice is the single most important commodity in the Philippines. It is the staple food of most Filipinos whose majority poor, according to the 2000 Family Income and Expenditures Statistics, spends 60.8 % to 63.6% of their income on total food consumption and 23% to 28.8of their income on cereals alone. Agriculture ststistics also show that rice is the biggest agricultural crops sub-sectors covering four million hectares or about one-third of the total 11.9 million hectares of agricultural lands and contributing more than one-third of the total value of crops production. Rice is also the source of income of about 30% of the 11.2 million Filipino farmers and agricultural workers (Ignacio, 2007).

Farmers urge to plant El Niño-resistant crops. To ensure the sustainability of food security and agricultural production program of the government, upland farmers were urged to shift from producing traditional to high-value crops, including fresh water fish, proven to be more resistant to long drought. This is help farmers mitigate the negative impact of the El Niño phenomenon characterized by a prolonged dry spell. This developed even as the office of the Provincial Agriculturist action officer Genevieve Falag-ey, during the Tontongan radio-tv program said that the Department of agriculture has already channeled to the National Food Authority the distribution of some 500 bags of certified high-yielding rice seeds, procured under the Plant Now, Pay Later Program of the national government. Paracelis town, known as the rice granary of Mt. Province, was given the biggest allocation at 340 bags of certified seeds. Falag-ey said the high-value registered rice seeds are recommended for dry season cropping and could be harvested in shorter time of four months compared to traditional upland rice of six to eight months depending on climatic condition. She also disclosed the conduct of on going research for



the propagation of high-yielding tadlayan gagapased rice variety which is being pilot tested in the barangays of Malengcong, Bontoc and Tambingan, Sabangan in Mt. Province.

The new hybrid is similar to miracle rice but more resistant to a long drought as well as faster to harvest than the traditional crops. As a direct assistance to local farmers, DA-OPAG also establish a total of 46 shallow tube wells in strategic areas in the province that are experiencing water storage during the dry season (Anonymous, 2007).

Farmers Practice in Rice Production

Farmers' practice in rice production is like building a sandcastle too close to the shore. It would be a futile effort since farmers' practices are constantly changing and are widely varied. However, social scientists in technology adaptation and impact research in the Irrigated Rice Research Consortium (IRRC) have to come up with a general understanding of farmers' behaviors in relation to technologies introduces (Anonymous, 2007).

Vegetable Farming

A wide variety of herbaceous plants are cultivated for their edible leaves, stems, roots, fruits, and seeds. Vegetables provide important minerals and vitamins in human nutrition and add variety and interest to our meals. Vegetables are grown in environments ranging from city window boxes and home gardens to large commercial farms. More than 40 types are widely cultivated, including leafy salad crops (such as lettuce, spinach, endive, celery, Chinese cabbage), root crops (beets, carrots, potatoes, sweet potatoes, radishes, turnips, rutabagas), cole crops (cabbage, broccoli, cauliflower), and a variety of



Other types grown for their fruit or seed (peas, beans, sweet corn, squashes, melons, tomatoes)

Many vegetable species, through a careful selection of varieties, can be grown in widely diverse environments. Growers must still be careful, however, to choose varieties adapted to their particular soils and climates. Most of the common vegetable species used for crop farming were developed in temperate regions, but some have been adapted to the Tropics. Tropical vegetables include a variety of root crops (particularly yams and cassava); diverse melons, squashes, and beans; and many kinds of plants grown for their edible leaves and stems.

Vegetable farming, compared with other types, requires substantial skills and luck to be successful. Growers must be adept at producing high-quality, attractive vegetables that the public will want to buy. They must be knowledgeable about soil preparation, planting and growing crops, weed and pest control, and water management. They must harvest and handle their products carefully to maintain quality, and they must develop and follow well-planned sales strategies. Mistakes, oversights, poor weather, or bad luck can render a vegetable crop unsightly and unsalable or reduce yields below profitable levels (Encarta, 2006).

Vegetable, the edible product of a herbaceous plant that is, a plant with a soft stem, as distinguished from the edible nuts and fruits produced by plants with woody stems such as shrubs and trees.

Vegetables can be grouped according to the edible part of each plant: leaves (lettuce), stalks (celery), roots (carrot), tubers (potato), bulbs (onion), and flowers (broccoli). In addition, fruits such as the tomato and seeds such as the pea are commonly



considered vegetables. Most vegetables are valuable sources of vitamins, minerals, and fiber and are low in fat and calories. With cereals and legumes, they are important to a healthy diet (Encarta, 2006)

Vegetable Backyard Gardening in Sabangan

Sabangan, Mt. Province (16 June) – Some 507 households in this town are now benefiting from the Programang Gulayan para sa Masa. The program initially covered the barangays of Pingad, Napua, Gayang, Capinitan, Camatagan, Bun-ayan and Bao-angan. Municipal Agriculturist Evelyn L. Dalog said these beneficiaries were identified based on the malnutrition data of Rural Health Unit. The Galayan Para sa Masa, a project of the national government, aims to reduce raising, program aimed to provide livelihood opportunities and easy access to more affordable vegetables. Each household beneficiary started its backyard garden with seeds like pechay, okra, eggplant, pole sitao, aquash, ampalaya, bush sitao and sweet pepper given for free by the Department of Agriculture. Dapog said another batch of 225 households identified municipal wide will also bebenefiting from this program. The Municipal Agriculturist office(MAO) has scheduled the distribution of same assorted seeds for the beneficiaries to start with their backyard garden. Families that do not have vacant lot can adopt containers gardening technology. To ensure the successful implementation of this project, the MAO provides technical assistance, and trains the beneficiaries in preparing and planting vegetables. It also conducts regular visitation and follow up family backyard gardens to determine the status of the project, Dalog added. Under this program, all harvest will be owned and consumed by the household. In case of production excess, the household can sell the produce or can also share with their neighbors. Some seeds can also be dried for the next



planting. The Gulayan para sa Masa is part of the Department of Agriculture's continuing effort of providing a favorable environment for agriculture with the target to increase farm production to mitigate hunger and create jobs, among others (Saley, 2007).

Problems of the Vegetable Industry

The common production and marketing problems of vegetable industry were plant pest and diseases, lack of adequate marketing facilities (including lack of marketing information, transportation, and buyers), lack of financing institutions, no established grades and standards, and low prices (Balacio, 1981).

The foremost problems of vegetable industry are inadequate transportation facilities, absent of reliable price information, and lack of merchandising techniques where these results to high wastage and to poor quality of farm produce. These problems were also the cause of high marketing cost and low price for farmers but high price for consumers (Meralco, 1992).

Another problem is the lack of local buyers in the production area where the farmers have no basis of pricing their product; hence the price is dictated by middlemen and buyers. Since there are no available facilities to enable them to wait for better price, farmers have no alternative but to sell their produce (Faylon, 1981).



METHODOLOGY

Locale and Time of the Study

The study was conducted in the various rice and vegetable farms in Sabangan, Mt. Province particularly in Barangay Tambingan and Barangay Supang on December 2007 to January 2008.

Respondents of the Study

Thirty (30) vegetable farmers taken at random served as the respondents of the study. They are either farm owners or farmers/ tenants.

Research Instrument

A structured survey questionnaire was used as the research instrument to gather the data.

Data Collection

The researcher personally interviewed the respondents with the aid of a questionnaire in accomplishing the survey.

Data Analysis

The data collected from the respondents were tabulated, analyzed and interpreted using frequency counts and percentages.



RESULTS AND DISCUSSION

Profile of the Respondents

Table 1 shows the profile of the respondents as to age, sex, educational attainment and average annual income.

Age. As shown in Table 1, the youngest is 21 years old and the oldest is 74 years old indicating that farming includes those from young adults up to senior citizens. Results also show that majority (20%) falls within the range of 33 to 38 years old.

Sex. The respondents are 50% males and 50% females. This implies that gender is not a hindrance to be a farmer.

Educational attainment. Educational attainment was classified into four: elementary, high school, college and vocational.

All of the respondents are literate with the majority (40%) having reached high school. A significant 23.34% reached college. Results on their levels of education favors on their vocation for according to studies, literate people more receptive.

Average annual Income. Majority (40%) are P30,000 to 40,000 and some (3.33%) are earning P110,001-120,000.

Table 1. Profile of the respondents

| PARTICULARS | FREQUENCY | PERCENTAGE |
|-------------|-----------|------------|
| Age | | |
| 21-26 | 3 | 10 |
| 27-32 | 4 | 13.34 |
| 33-38 | 6 | 20 |
| 39-44 | 3 | 10 |



Table 1 Continued...

| | | |
|-------------------------------|-------------|------------|
| 45-50 | 5 | 16.67 |
| 51-56 | 4 | 13.33 |
| 57-62 | 3 | 10 |
| 63-68 | 1 | 3.33 |
| 69-74 | 1 | 3.33 |
| TOTAL | 30 | 100 |
| MEAN | 47.5 | |
| Sex | | |
| Male | 15 | 50 |
| Female | 15 | 50 |
| TOTAL | 30 | 100 |
| Educational Attainment | | |
| Elementary | 10 | 33.33 |
| High School | 12 | 40 |
| College | 7 | 23.34 |
| Vocational | 1 | 3.33 |
| TOTAL | 30 | 100 |
| Average Annual Income | | |
| 30,000-40,000 | 12 | 40 |
| 40,001-50,000 | 4 | 13.34 |
| 50,001-60,000 | 3 | 10 |
| 60,001-70,000 | 4 | 13.34 |
| 70,001-80,000 | 1 | 3.33 |
| 80,001-90,000 | 1 | 3.33 |
| 90,001-100,000 | 3 | 10 |
| 100,001-110,000 | 1 | 3.33 |
| 110,001-120,000 | 1 | 3.33 |
| TOTAL | 30 | 100 |



Table 2 shows the barangay producing vegetables. Majority of the respondents are living in Barangay Supang with 60% and 40% of the respondents living in Barangay Tambingan.

Table 3 shows the contribution of agriculture to the farmers' annual income. Majority (40%) of them have a contribution of P14, 000-17, 000 and some (3.33%) P46,000-49,000 as the highest contribution from farming. According to the respondents 40%-50% of their total annual income comes from farming

Table 2. Areas that are into commercial vegetables farming

| BARANGAY | FREQUENCY | PERCENTAGE |
|-----------|-----------|------------|
| Supang | 18 | 60 |
| Tambingan | 12 | 40 |
| TOTAL | 30 | 100 |

Table 3. Contribution of agriculture to their total household income

| PARTICULARS | FREQUENCY | PERCENTAGE |
|--|-----------|------------|
| Average Annual income from Agriculture | | |
| 14,000-17,000 | 12 | 40 |
| 18,000-21,000 | 4 | 13.34 |
| 22,000-25,000 | 3 | 10 |
| 26,000-29,000 | 4 | 13.34 |
| 30,000-33,000 | 1 | 3.33 |
| 34,000-37,000 | 1 | 3.33 |



Table 3 Continued...

| | | |
|---------------|-----------|------------|
| 38,000-41,000 | 3 | 10 |
| 42,000-45,000 | 1 | 3.33 |
| 46,000-49,000 | 1 | 3.33 |
| TOTAL | 30 | 100 |

Table 4 shows the area planted by vegetables, the number of planted area and the number of farmers. Majority (40%) of the respondents own small production area (200-300m²) although a significant 10% is operating at least one hectare.

Table 4. Area planted by vegetables

| AREA | FREQUENCY | PERCENTAGE |
|--------------|-----------|------------|
| 200-300 sq.m | 12 | 40 |
| 301-400 sq.m | 2 | 6.67 |
| 401-500 sq.m | 4 | 13.34 |
| 601-700 sq.m | 3 | 10 |
| 1000 sq.m | 1 | 3.33 |
| 7,500 sq.m | 1 | 3.33 |
| 1ha | 3 | 10 |
| TOTAL | 30 | 100 |



Since majority of the farmers had formal education, vegetable farming is not their only source of income or livelihood. Table 5 shows other sources of income of the farmers include wages from being a tricycle driver, government employee, laborer or wage earner, and having a sari-sari store.

Results show that aside from farming, majority (66.66%) are also working as laborers (carpenters, masons, etc.); 10%, tricycle driver and sari-sari store owner; 6.67%, government employee and teachers.

Table 6 shows the different types of vegetables being produce by the farmers. Results shows that a greater number (26.67%0 are producing beans, followed by tomato (20%), eggplant (13.34%), bell pepper and celery (both 10%).

Table 5. Other sources of income aside from agriculture

| PARTICULARS | FREQUENCY | PERCENTAGE |
|--|-----------|------------|
| Sources of income aside from agriculture | | |
| Government Employee | 2 | 6.67 |
| Sari-sari Store | 3 | 10 |
| Teacher | 2 | 6.67 |
| Tricycle Driver | 3 | 10 |
| Laborer | 20 | 66.66 |
| TOTAL | 30 | 100 |



Table 6. Crops being produced

| CROPS PRODUCED | FREQUENCY | PERCENTAGE |
|-----------------|-----------|------------|
| Beans | 8 | 26.67 |
| Tomato | 6 | 20 |
| Eggplant | 4 | 13.34 |
| Petchay | 1 | 3.33 |
| Potato | 1 | 3.33 |
| Bell Pepper | 3 | 10 |
| Celery | 3 | 10 |
| Chinese Cabbage | 2 | 6.67 |
| Garden Peas | 1 | 3.33 |
| Carrots | 1 | 3.33 |
| TOATAL | 30 | 100 |

In terms of production, table 7 presents the volume of production for vegetables. Majority of the respondents produces beans and few produces carrots, garden pea, potato and petchay. Various vegetable crops are grown in the Cordillera by farmers who have limited knowledge on the varieties to be grown in a specific cropping season. The choice of variety is more critical in tomato productivity because the farmers should consider not only the viability and yield of the crops but also size, weight, smoothness, shape and color of the vegetable (Bacbac, 1993).



Table 7. Volume of production

| CROPS | VOLUME | FREQUENCY | PERCENTAGE |
|-----------------|-------------|-----------|------------|
| Beans | 250-500 kg | 5 | 16.66 |
| | 501-700 kg | 2 | 6.66 |
| | 701 above | 1 | 3.33 |
| Tomato | 1,500-5,000 | 4 | 13.33 |
| | 5,001-8,500 | 1 | 3.34 |
| | 8,501 above | 1 | 3.34 |
| Eggplant | 100-150 kg | 3 | 10 |
| | 151-200 kg | 1 | 3.34 |
| Petchay | 500 bundles | 1 | 3.34 |
| Potato | 8 tons | 1 | 3.34 |
| Bell Pepper | 1,500-3,000 | 1 | 3.34 |
| | 3,001-4,500 | 2 | 6.66 |
| Celery | 1,200-1,500 | 3 | 10 |
| | 1,000-2,000 | 1 | 3.33 |
| Chinese cabbage | 2,001-3,000 | 1 | 3.33 |
| | 15,000 kg | 1 | 3.33 |
| Garden Pea | 10,000 | 1 | 3.33 |
| Carrots | | 1 | 3.33 |
| TOTAL | | 30 | 100 |



Table 8, shows the quantity sold for vegetables. The quantity sold is almost equal to the quantity harvested which implied that most of the farmers' productions were sold.

Table 8. Quantity sold

| CROPS | VOLUME | FREQUENCY | PERCENTAGE |
|-----------------|-------------|-----------|------------|
| Beans | 250-500 kg | 5 | 16.66 |
| | 501-700 kg | 2 | 6.66 |
| | 701 above | 1 | 3.33 |
| Tomato | 1,500-5,000 | 4 | 13.33 |
| | 5,001-8,500 | 1 | 3.34 |
| | 8,501 above | 1 | 3.34 |
| Eggplant | 100-150 kg | 3 | 10 |
| | 151-200 kg | 1 | 3.34 |
| Petchay | 500 bundles | 1 | 3.34 |
| Potato | 8 tons | 1 | 3.34 |
| Bell Pepper | 1,500-3,000 | 1 | 3.34 |
| | 3,001-4,500 | 2 | 6.66 |
| Celery | 1,200-1,500 | 3 | 10 |
| Chinese cabbage | 1,000-2,000 | 1 | 3.33 |
| | 2,001-3,000 | 1 | 3.33 |
| Garden Pea | 15,000 kg | 1 | 3.33 |
| Carrots | 10,000 | 1 | 3.33 |
| TOTAL | | 30 | 100 |



Table 9, shows the sales of the vegetables. Almost half of the number of the respondents has a sale ranging from 3,000 – 10,000 with 43.33%. on the other hand, there were only 2 respondents who has a sale ranging from 61,000 above.

Table 9. Sales for vegetable

| SALES | FREQUENCY | PERCENTAGE |
|---------------|-----------|------------|
| 3,000- 10,000 | 13 | 43.33 |
| 11,000-20,000 | 7 | 23.33 |
| 21,000-30,000 | 3 | 10 |
| 31,000-40,000 | 2 | 6.67 |
| 41,000-50,000 | 2 | 6.67 |
| 51,000-60,000 | 1 | 3.33 |
| 61,000 above | 2 | 6.67 |
| TOTAL | 30 | 100 |

Table 10, shows the chemicals used by the farmers. Majority of the farmer's uses complete fertilizer (14-14-14) and urea; 66.67% uses pesticide; 26.67% uses fungicide; 10% uses herbicide; 23.33% uses manure(chicken dung); and 13.33% or the respondents uses insecticide. (Balacio, 1981) stated that the cultural practices by most of the farmers employed the use of chemical fertilizers. The farmers have not adopted the use of hand tractors but they used working animals for land preparation.



Table 10. Chemicals used

| CHEMICALS | FREQUENCY | PERCENTAGE |
|---|-----------|------------|
| Commercial Fertilizer (14-14-14 and urea) | 28 | 93.33 |
| Pesticides | 20 | 66.67 |
| Fungicides | 8 | 26.67 |
| Herbicides | 3 | 10 |
| Manure | 7 | 23.33 |
| insecticide | 4 | 13.33 |

* Multiple response

Table 11, shows the problems encountered by the rice farmers while shifting to vegetable farming. Their most common problem were lack of capital with 76.67% and only one respondent identified soil condition. The foremost problems of vegetable industry are inadequate transportation facilities, absent of reliable price information, and lack of merchandising techniques where these results to high wastage and to poor quality of farm produce. These problems were also the cause of high marketing cost and low price for farmers but high price for consumers.

Table 11. Problems encountered by farmers

| PROBLEMS | FREQUENCY | PERCENTAGE |
|---------------|-----------|------------|
| Plant Disease | 11 | 36.67 |
| Insect Pest | 9 | 30 |



Table 11 Continued...

| | | |
|---|----|-------|
| lack of capital | 23 | 76.67 |
| High Price of fertilizers | 15 | 50 |
| Unstable Price of vegetable | 26 | 86.67 |
| Transportation | 3 | 10 |
| Soil Condition | 1 | 3.33 |
| Weather | 5 | 16.67 |
| Lack of storage facilities | 12 | 40 |
| Control of middlemen in price decisions | 18 | 60 |
| Rugged road | 18 | 60 |

*Multiple response

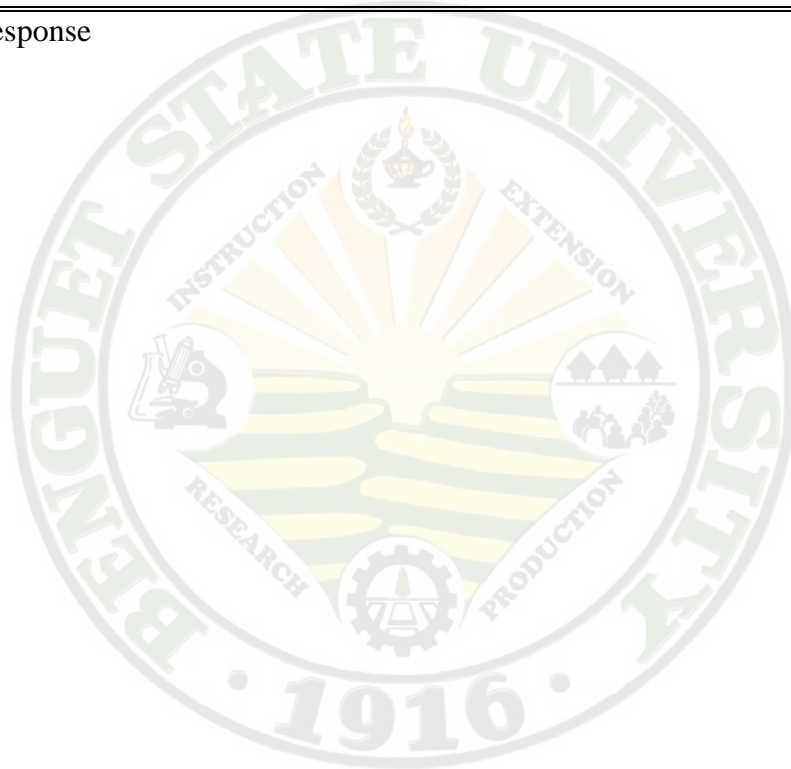
Table 12, shows the factors that affected or influenced the rice farmers to shift in vegetable farming. 100% of the respondents identified fast harvest and half of the respondents answered more market outlet than rice. Some of the farmers are still planting rice but only for home consumption.



Table 12. Factors affecting rice farmers to shift in vegetable farming

| FACTORS | FREQUENCY | PERCENTAGE |
|---------------------------|-----------|------------|
| Shorter production period | 30 | 100 |
| Higher income than rice | 28 | 93.33 |
| Lesser planting time | 18 | 60 |
| More outlet than rice | 15 | 50 |

*Multiple response



SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The study was conducted in Sabangan, Mountain Province. The study was focused mainly on the factors that affect farmers to shift from rice to vegetable farming in Sabangan, Mt. Province.

The respondents were actual farmers and land owners. Most of them had ages ranging from 21 to 26 years and 69 to 74 years and their average age was 47.5 years. 50% of the respondents are male and the other half are female. All the farmers had formal schooling and which most of them reached or finished high school.

Among the 30 respondents, the majority were totally engaged in vegetable farming while some of the respondents still plant rice for home consumption. Their other source of income includes laborer or wage earner, sari-sari store owner, government employee and tricycle driver. Most of them had an average annual income of income Php.30,000 to 40,000 and few of them had an income higher than the average. Majority of them had a vegetable farm area of 200 to 300 sq.m. The commonly grown crops are beans, tomato, eggplant, bell pepper and celery.

The most problems identified by farmers were plant pest and diseases and few of them identified weather, transportation and soil condition. Their most financial problems were insufficient capital and high price of chemical fertilizers and some identified the lack of trust of the creditors. For marketing problems, farmers identified lack of storage facilities and unstable price of vegetables and some mentioned lack of information about price.



Most of the factors that influenced the farmers to shift were vegetables have higher production than rice, higher income from vegetables and can harvest three to four times a year and can re-plant again.

Conclusions

Based on the findings of the study, the following conclusions were drawn:

1. Vegetable farmers of Sabangan, Mt. Province are characterized by old peoples and are mostly residents of Barangay Tambingan and Supang. All of them are literate with a significant 23.34% having reached college. Their farms are varied in terms of land area although more (40%) falls under the 200-300m² range. However, a significant 10% have as much as one hectare.
2. In terms of their annual income, although more (40%) are only earning around P30, 000-40,000 per year, the rest are earning more than P40, 000 to as high as P 120,000. From these incomes, around 40-50% are realized from their farming.
3. The vegetables commonly produced are beans, tomato and eggplant.
4. The common factors that influenced them to shift from rice farming to vegetable farming are lack of capital, unstable price of vegetables, and rugged road.
5. The common problems encountered by the farmers are plant pest and diseases, insufficient capital, lack of appropriate storage facilities and low price of vegetable produced.



Recommendations

Based on the findings and conclusions, the following recommendations are offered.

1. Farmers should cooperate in setting a standard price of the vegetables and the farmers should stand firm on the standard price so that middlemen will not be able to control the price of the commodities.
2. The local government should help farmers through the improvement of farm to market roads and highways.
3. Establishment of cooperatives in the area to support the farmers in marketing their products and help them avail loans with low interest to finance the needs of their vegetable farm.
4. Government should provide the farmers seminars on how prevent plant pest and diseases.



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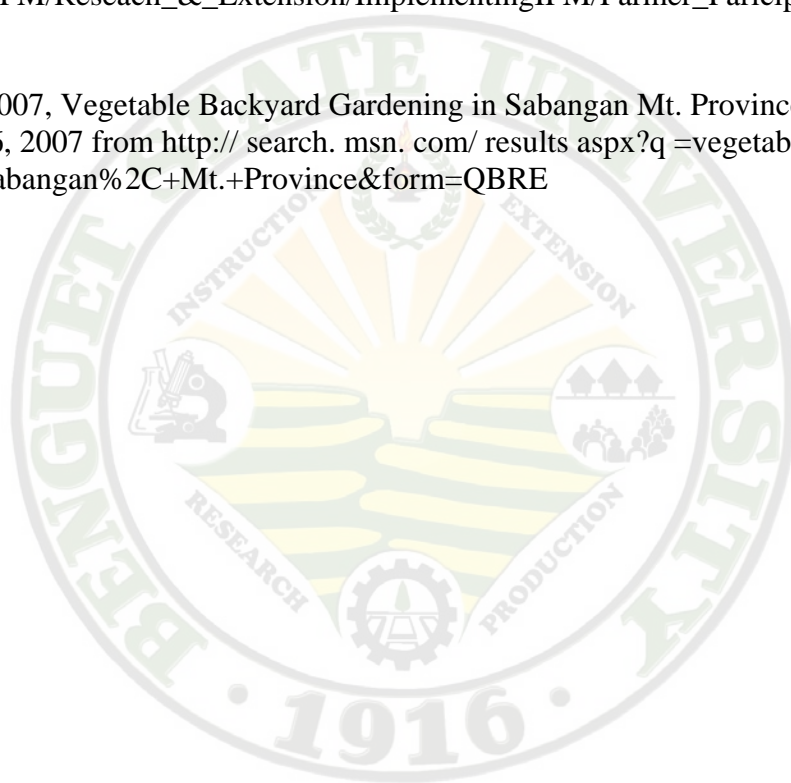
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APPENDIX

Appendix . Survey Questionnaire

A. General Information

1. Name of Respondents: _____

2. Sex: ___Male ___Female

3. Age: _____

4. Barangay: _____

5. Highest Educational Attainment

___Elementary

___High School

___College

___Vocational

B. Please answer the following questions honestly.

1. No. of household members?

___ 4 ___ 6

___ 5 ___ 7

Others (specify) _____

2. No. of full time Agricultural labor?

___ 4 ___ 6

___ 5 ___ 7

Others (specify) _____

3. Source of income for the whole family?

Source of income

Total earnings per year

Farming

Non-farming



4. Land utilization and crop production

| Crops | Area | Duration | Production (kg) | Quantity sold | Sales |
|-------|------|----------|-----------------|---------------|-------|
|-------|------|----------|-----------------|---------------|-------|

5. Input use and cost

| Inputs | Amount Used | Cost |
|--------|-------------|------|
|--------|-------------|------|

Seed

Chemical Fertilizer

Pesticides

Herbicides

Compost

Manure

Use of Trenching

Use of Plastic Mulch

Fertigation

Others

6. What methods of watering do you use in farming?

| Irrigation Type | Frequency of use(per time) | Cost(per time) |
|-----------------|----------------------------|----------------|
|-----------------|----------------------------|----------------|

Sprinkler

Drip Irrigation

Surface (Irrigation canal)

Underground Water

Others

7. Do you sell your crops?

 Yes No

8. If you answered yes in no. 7 is it enough to compensate your family needs?

 Yes No

9. If you answered no in no. 8, then what are other alternative you do to support your family needs?

10. During planting rice do you sell your products?

 Yes No

11. Now you're planting vegetables, do you sell your grown vegetables?

 Yes No


12. If you answered yes both in numbers 10 and 11, please compare your earnings from rice to vegetables?

13. Please describe the important problems you encountered from shifting rice to vegetables?

Problems: _____

14. What factors influenced your decision to shift rice farming to vegetable farming?

Factors: _____

