

BIBLIOGRAPHY

SAYAP JR., EUGENE C. MARCH 2006. Cost and Return Analysis of Strawberry Production in La Trinidad, Benguet, Benguet State University, La Trinidad, Benguet.

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ABSTRACT

This study was conducted to determine the technologies used by farmers in strawberry production and from whom was the technology learned, to determine the varieties of strawberry grown, determine their volume of production, the cost and return from production, and to find out the problems encountered by strawberry farmers in cultivating strawberry.

There were 30 respondents interviewed from 5 selected barangays of La Trinidad, Namely: Pico, Buyagan, Balili, Puguis, and Wangal, and including the Swamp area. A prepared survey questionnaire was used as a guide.

The technologies used by the farmers were mostly adopted or learned from other farmers. Majority of the farmers planted the Sweet Charlie variety which most of them bought from other farmers. The average volume produced per farm was very low due to the small area cultivated. One limiting factor why the farmers cannot expand their area cultivated was the lack of capital. There were other problems pointed out by the farmers that lead to a low net income and a negative return to operator's labor and management

like low price of the product, high cost of farm inputs, and pest and diseases are difficult to control.



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INTRODUCTION

Rationale of the Study

The history of strawberry cultivation in the Philippines may be traced back to the early 20th century when the Americans, in their effort to modernize the country's agriculture after taking over from the Spaniards, may have introduced the plant in Mountain Province, Baguio and Benguet. Later, they started growing the crop in the newly established Trinidad Farm School now Benguet State University (BSU) after it has been observed to be adapted to this locality. At present, strawberry is the number one and the most popular fruit produced in Baguio City and Benguet Province. It is estimated to rank no. 6 in money value among the crops grown in the area, surpassed by potatoes, cabbage, carrots, Chinese cabbage, beans, brocolli, and lettuce (Benguet Strawberry techno guide, 1996).

The demand for strawberry is high among tourist and processing factories such as Magnolia Dairy Products, Inc., Ladys Choice Consolidated Food Company and including local jam and wine processors.

Strawberry shortage occurs during the typhoon months of July to October. The same is true during Christmas and summer seasons when demand is on its peak. Strawberry maybe processed into jam, jelly, wine, cake and candies. It may also be made into various recipes like fruit salad and fruit shake.

Strawberry is successfully grown in Benguet because of the cool climate. However, continuous heavy rains destroys the flower and fruits. Strawberry grows best in fields at temperature ranging from 14 to 23°C. Temperatures higher than 23°C may reduce flower development in most strawberry cultivators.



In La Trinidad, many farmers had already shifted from backyard cultivation to commercial growing of strawberry, hence the place is becoming one of the leading producers of strawberries in the country. Due to the increasing worldwide demand, strawberry fruit is an excellent product for export and can be a dollar earner for local economy, provided that there is constant large volume of produce. A single farmer maybe unable to produce the necessary volume alone but if a cooperative unit of strawberry growers collaborate toward this end, they maybe able to produce the required volume regularly demanded by consumers as well as the processors.

To be able to catch up with the increasing demand for strawberry, farmers have to either improve their technique of production, increase the area planted to strawberry, or both. In either case, farmers have to increase their investment on strawberry production. This study therefore will be conducted to look into the costs incurred by the farmers and the returns they get from strawberry production and analyze the profitability of the activity.

Statement of the Problem

1. What are the technologies used by farmers in strawberry production and from whom was the technology learned?
2. What is the volume of production?
3. How much is the cost and return from strawberry production?
4. What are the problems encountered by strawberry farmers in producing strawberry ?



Objectives of the Study

1. To determine the following:
 - a. technology used
 - b. volume of production
 - c. costs of production
 - d. returns from production
2. To find out the problems encountered by strawberry farmers in cultivating strawberry.

Importance of the Study

The result of this study would give information to the farmers regarding the cost and returns of strawberry production, which could help them in making plans and decisions in their production activity. This would also provide data to other researchers conducting studies on strawberry to formulate programs and projects that would promote the production of quality and safe strawberry fruits.

Scope and Limitation

The study focused on the production practices including the type of technologies adopted by the farmers and the sources of the technology. A cost and return analysis was also done to find out how much the farmer was getting for the use of his resources. It also identified the problems encountered by farmers in producing strawberry.



REVIEW OF LITERATURE

McConnell (1975) stated that the production of any good requires the use of economic resources which, because of their relative scarcity, bear price tags, the amount of any product which a firm is willing to supply in the market depends upon the prices (costs) and the productivity of the resources essential to its production, on the one hand and the price which the product will bring to the market on the other.

According to Browne and Hoag (1980), understanding economic analysis is an appropriate supplement in advance economic courses. This are valuable to a large degree only when they are practiced and refined.

Michas and Reynolds (1983) concluded that production of each good should be carried to the point at which the benefits yielded by the last unit just equals the cost of producing it. This principle guide the producer in making decision as to how many units of the resource inputs to be used in the production of a product. The quantity of the input used would in turn determine the volume of the output to be produced.

Tibao (2001) stated that the successful farmers do not only select his own product or enterprise, which gives him a well balance, efficient value, but also give him reasonable income from business. Income of a particular farmer depends on his volume of production, the price he gets and his cost of production. It is within the power of the farmers, to some extent, to increase their average income.

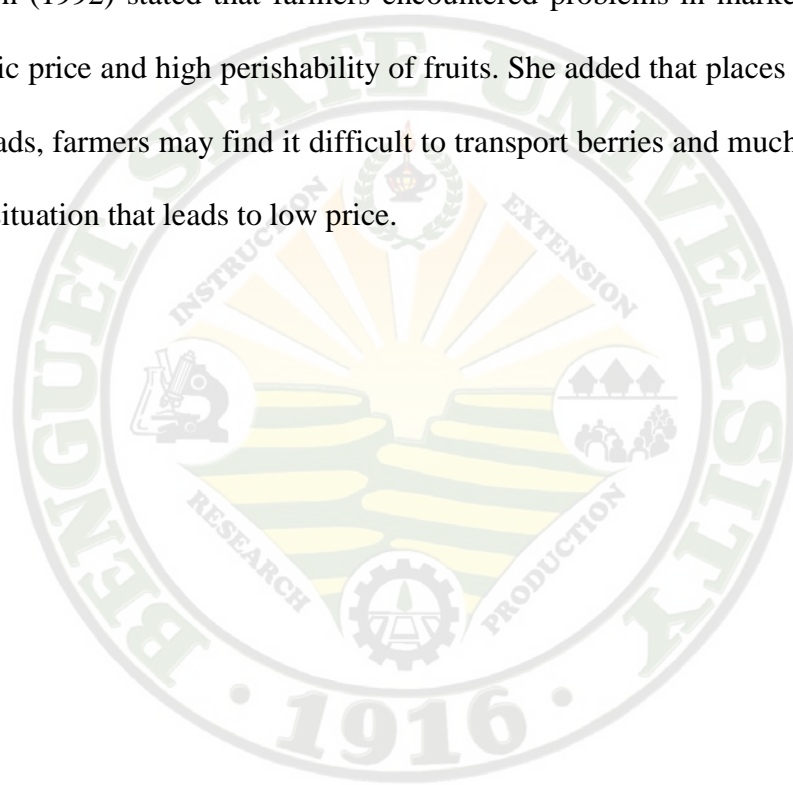
Goronel(1983) as cited by Anton(1995) stated that strawberry is a perennial herb of the genus *Fragaria*, a latin name which refers to the fragrance of the berries. It belongs to the Rosacea family. It is a lucrative source of income for farmers. It produces sweet



juicy fruit, one of the highly priced commodities in Baguio City and Benguet because of the unique temperate climate suited for strawberry production.

According to Shoemaker (1975), it grows vegetatively in its first growing season. During this stage, the plant grows and produces runners and stocks. These plants are collected as planting materials. During the second cycle, the plant grows vegetatively and also initiate and differentiate flower buds and eventually fruits.

Moron (1992) stated that farmers encountered problems in marketing. Problems include erratic price and high perishability of fruits. She added that places with poor farm to market roads, farmers may find it difficult to transport berries and much berries can be damaged, a situation that leads to low price.



METHODOLOGY

Locale and Time of the Study

This study was conducted in the different strawberry producing areas of La Trinidad, Benguet specifically Puguis, Pico, Buyagan, Wangal, Balili and the Swamp area. This was conducted on January 2006.

Respondents of the Study

The study took 30 respondents from the strawberry producing farmers from the different areas of La Trinidad, Benguet.

Research Instrument

All data was gathered through a survey questionnaire, which was administered personally by the researcher.

Data to be Gathered

The data gathered included production practices of the farmers, input utilization data, production data and prices of both inputs and the strawberry. It also collected information regarding the problems of strawberry farmers that were affecting their production activity.

Data Analysis

The data collected were analyzed using descriptive statistics such as frequency, percentage and average. A cost and returns analysis was also done.



RESULTS AND DISCUSSION

Profile of the Respondents

Table 1 presents the general profile of the respondents in terms of civil status, age, sex, educational attainment and number of family members.

Civil status. Majority (93.33%) of the respondents were married and only 6.67% were single. This finding indicates that majority of the strawberry farmers are married and with family to support.

Age. There were 7 or 23.33% respondents that belonged to the 20 – 30 years old bracket, 12 or 40% belonged to the 31 – 40 years old bracket, 4 or 13.33% to the 51 – 60 years old, 6 or 20% to the 51 – 60 years old and only 1 or 3.33% to the 61 – 70 years old bracket. This finding implies that majority of the farmers are still young.

Sex. Majority (93%) of the respondents was male and only 7% was female. The result shows that more male were engage in strawberry farming than female.

Educational attainment. Majority (53.34%) of the respondents reached high school level or high school graduates, while 23.33% each were elementary graduate and college graduate. This implies that majority of the farmers in the different areas of La Trinidad, Benguet have not reached college.

Number of family members. Majority (56.6%) of the respondents had 2 – 5 number of family members, 36.67% had 6 – 10 members and only 6.67% had 11 – 15 number of family members. The result shows that majority of the farmers had few family members.



Table 1. Profile of respondents

| CHARACTERISTICS | FREQUENCY | PERCENTAGE |
|------------------------------------|-----------|------------|
| a. Civil Status | | |
| Married | 28 | 93.33 |
| Single | 2 | 6.67 |
| Total | 30 | 100 |
| b. Age | | |
| 20 - 30 | 7 | 23.33 |
| 31 – 40 | 12 | 40.00 |
| 41 – 50 | 4 | 13.33 |
| 51 – 60 | 6 | 20.00 |
| 61 - 70 | 1 | 3.33 |
| Total | 30 | 100 |
| c. Sex | | |
| Male | 28 | 93 |
| Female | 2 | 7 |
| Total | 30 | 100 |
| d. Educational Attainment | | |
| Elementary | 7 | 23.33 |
| High School | 16 | 53.34 |
| College | 7 | 23.33 |
| Total | 30 | 100 |
| d. Number of Family Members | | |
| 2 – 5 | 17 | 56.67 |
| 6 – 10 | 11 | 36.67 |
| 11 - 15 | 2 | 6.66 |
| Total | 30 | 100 |
| Mean | 6 | |

Source of Technology Used by the Farmers

Table 2 shows the sources of technology being used by the strawberry farmers of La Trinidad, Benguet. It shows that 36.67% of the respondents developed their own technology, 20% mentioned that the technology they were using comes from Benguet State University (BSU), 30% mentioned that the technology they were using was recommended by the Department of Agriculture (DA), another 20% said that the technology they were using was recommended by technicians of chemical companies while majority (53.33%) were adopted from other farmers. This finding shows that there are farmers who do their own research, though not in a scientific way, and develop their own technology. The finding also implies that farmers observe the practices of their co-farmers and adopt their practices which they think are good and effective.

Table 2. Source of technology being used by the respondents

| SOURCE | FREQUENCY | PERCENTAGE |
|----------------------------|-----------|------------|
| Own Technology | 11 | 36.67 |
| Recommended by BSU | 6 | 20.00 |
| Recommended by DA | 9 | 30.00 |
| Recommended by Technicians | 6 | 20.00 |
| Adopted from other farmers | 16 | 53.33 |

Varieties of Strawberry Planted by the Farmers

Table 3 presents the varieties grown by the farmers. There were only two varieties of strawberry planted by the respondents. These were Sweet Charlie and Aliso. However, there were only 3 or 10% that planted the Aliso while 100% of the respondents planted the Sweet Charlie variety. The table further shows that majority of the farmers were producing the variety which they used to grow. Only 27% of the respondents tried to plant a new variety.

Table 3. Strawberry varieties grown by the respondents

| VARIETIES | FREQUENCY | PERCENTAGE |
|----------------------------|-----------|------------|
| Sweet Charlie | 30 | 100 |
| Aliso | 3 | 10 |
| Is the variety new to you? | | |
| Yes | 8 | 27 |
| No | 22 | 73 |
| Total | 30 | 100 |

Sources and Types of Planting Materials Used

Table 4 presents the sources and types of planting materials planted by the farmers. The result shows that majority (67%) of the respondents got their planting materials from other farmers. Nine of the respondents propagated their own planting



materials while 5 or 16.67% got them from the Department of Agriculture. Two of the respondents bought their planting materials from traders.

As to type of planting material planted, 87% planted the runners while 43% of the respondents planted the mother plant. According to them, they use the mother plant when the runners are not enough.

Table 4. Sources and type of planting material used

| PARTICULAR | FREQUENCY | PERCENTAGE |
|---------------------------|-----------|------------|
| a. Source | | |
| Other Farmers | 20 | 66.67 |
| Traders | 2 | 6.67 |
| Propagate it myself | 9 | 30.00 |
| Department of Agriculture | 5 | 16.67 |
| B. Type | | |
| Runner | 26 | 86.67 |
| Mother plant | 13 | 43.33 |

Use of Plastic Mulching and source of the Technology

Table 5 shows that all the respondents were using the black plastic for mulching. This technology was adopted by the respondents from different sources. These sources were their co-farmers, BSU, DA and technicians of chemical companies. It was found that majority of respondents adopted this from their co-farmers who first adopted it. Fifty percent mentioned that they adopted it directly from BSU. Seven of the respondents



mentioned that they adopted it from the DA while one of them said that he adopted the technology from the technicians of chemical company.

Table 5 . Use of plastic as mulching material

| PARTICULAR | FREQUENCY | PERCENTAGE |
|---------------------------------|-----------|------------|
| Use plastic for mulching | 30 | 100 |
| Source of the Technology | | |
| Co-farmers | 16 | 53.33 |
| BSU | 15 | 50.00 |
| DA | 7 | 23.34 |
| Technicians of chemical company | 1 | 3.33 |

Schedule of Planting

Table 6 shows that farmers do not plant their strawberry on the same month. The schedule for planting of strawberry started from July to November. There were 2 farmers that planted their strawberry in July , 6 or 20% in August, 13 or 43.33% in September, 8 or 26.67% in October, and 1 or 3.33% in November. This finding shows that most of the farmers plant their strawberry on the month of September followed by October. Very few farmers plant it on the month of July and November.



Table 6. Month of planting

| MONTH | FREQUENCY | PERCENTAGE |
|-----------|-----------|------------|
| July | 2 | 6.67 |
| August | 6 | 20.00 |
| September | 13 | 43.33 |
| October | 8 | 26.67 |
| November | 1 | 3.33 |
| Total | 30 | 100 |

Type and Source of Irrigation used

The different types of irrigation used by the strawberry farmers were drip irrigation, flooding, and overhead irrigation. The most common way of irrigating strawberry farm practiced by the farmers was the overhead type. Since majority of the farmers get their irrigation water from the canal the farmers use manual labor to carry the water using watering cans and pour the water over the strawberry plants. There were 5 farmers that used flooding and only 3 farmers used the drip type of irrigation.

As to sources of irrigation, 67% of the farmers get their irrigation water from canals, 13 farmers get it from river, 4 farmers used water pump and 5 get their water from the spring with the use of hose. The farmers who used water pump still get their water from the river or from the canal.



Table 7. Type and source of irrigation used

| PARTICULAR | FREQUENCY | PERCENTAGE |
|-------------------------|-----------|------------|
| a. Type of irrigation | | |
| Drip | 3 | 10.00 |
| Flooding | 5 | 16.67 |
| Overhead | 28 | 93.33 |
| b. Source of Irrigation | | |
| Canal | 20 | 66.67 |
| River | 13 | 43.33 |
| Water pump | 4 | 13.33 |
| Spring | 5 | 16.67 |

Source of Capital for Strawberry Production

Strawberry farmers sourced out their capital from various sources. Majority (60%) for the respondents used their personal savings, 9 or 30% borrowed from their relatives and 6 or 20% borrowed from the cooperative or from the bank.

Table 8. Source of capital for strawberry production

| SOURCE | FREQUENCY | PERCENTAGE |
|--------------------------------|-----------|------------|
| Personal savings | 18 | 60 |
| Borrowed from relative | 9 | 30 |
| Borrowed from cooperative/bank | 6 | 20 |



Market Outlet of Strawberry Produce

There were three market outlet used by the strawberry growers , trading post at La Trinidad, the traders, contract grower financier as presented in Table 9. Majority (70%) of the farmers sell their strawberry produce to traders in Baguio and La Trinidad. Two of the growers sell their products to retailers at the trading post while 8 or about 28% sell their strawberry to contract growing financiers. These farmers borrowed money from the financier as capital in the production of strawberry and signed a contract to sell their strawberries to the financier. The financier is responsible in bringing the fresh strawberry to buyers in Metro Manila.

Table 9. Market outlet of strawberry produce

| MARKET OUTLET | FREQUENCY | PERCENTAGE |
|-------------------------------|-----------|------------|
| Retailers at the Trading Post | 2 | 6.67 |
| Traders | 21 | 70.00 |
| Contract growing financier | 8 | 26.67 |
| Total | 30 | 100 |

Mode of Selling

The finding shows that the strawberry producers either sell their products on cash basis, credit or consignment. Table 10 presents that majority (53%) of the farmers sell their strawberry on cash basis. This was followed by 44% that sell their product on consignment basis. The consignment arrangement is just like the credit arrangement



because there were no cases where the buyer returned the unsold strawberries to the farmers.

Table 10. Mode of selling product

| MODE OF PAYMENT | FREQUENCY | PERCENTAGE |
|-----------------|-----------|------------|
| Cash | 16 | 53 |
| Credit | 1 | 3 |
| Consignment | 13 | 44 |
| Total | 30 | 100 |

Average Area Planted

Table 11 presents that 17 or 56.67% of the respondents planted an area of 500 – 1,000 square meters. The area planted by 13.33% ranged from 1,001 – 1,500 square meters. The same number of respondents planted an area of 1,501 – 2,000 square meters while 16.67% planted an area that ranged from 2,001 – 2,500 square meters. The average area planted to strawberry by all the respondents was 1,308 square meters.

This finding presents that in the five barangays of La Trinidad, Benguet considered in this study, only few farmers were cultivating an area of more than 2,500 square meters.



Table 11. Average area planted to strawberry

| AREA (in Sq. Meters) | FREQUENCY | PERCENTAGE |
|--------------------------|------------------|------------|
| 500 – 1,000 | 17 | 56.67 |
| 1,001 – 1,500 | 4 | 13.33 |
| 1,501 – 2,000 | 4 | 13.33 |
| 2,001 – 2,500 | 5 | 16.67 |
| Total | 30 | 100 |
| Mean area | 1,308 sq. meters | |

Volume of Production

Table 12 shows the volume of strawberry produced by the respondents. There were 6 or 20% that produced less than 500 kilograms, 33.33% produced about 500 – 1,000 kilograms, 26.67% produced 1,001 – 1,500 kilograms, only 2 or 6.67% produced 1,501 – 2,000 kilograms and there were 4 or 13.33% that produced more than 2,000 kilograms. These were the farmers with wider area planted. The average volume of production by all the respondents was 1,225.77 kilograms while the average volume produced per 1,000 sq. meters per cropping was only 937 kilograms. This finding implies that very few of the strawberry farmers produce more than 1,500 kilograms.



Table 12. Average volume of strawberry produced

| VOLUME PRODUCED (in Kilograms) | FREQUENCY | PERCENTAGE |
|-------------------------------------|--------------------|------------|
| Less than 500 kilograms | 6 | 20.00 |
| 500 – 1,000 | 10 | 33.33 |
| 1,001 – 1,500 | 8 | 26.67 |
| 1,501 – 2,000 | 2 | 6.67 |
| More than 2,000 kilograms | 4 | 13.33 |
| Total | 30 | 100 |
| Average volume per farmer | 1,225.77 kilograms | |
| Average volume per 1,000 sq. meters | 937 kilograms | |

Average Price of Strawberry

Table 13 shows the prices received by the respondents. Five or about 17% sold their strawberry for a price ranging from P39 – P54 per kilogram. The same number of farmers received a price ranging from P55 – P70 per kilogram for their strawberry. Three or 10% each received P71 – P86 per kilogram, P103 – P118 per kilogram and P119 – P134 per kilogram. The average price received per kilogram per farmer was P84.47.

This finding shows that majority of the farmers received less than P100 per kilogram for their strawberry. This is because when the price of strawberry is at its lowest it can go as low as P30.00 per kilogram. On the other hand when price is high it can go as high as P115 pesos per kilogram.



Table 13. Prices received by the respondents

| AVERAGE PRICE (in pesos) | FREQUENCY | PERCENTAGE |
|------------------------------|-----------|------------|
| 39 - 54 | 5 | 16.67 |
| 55 – 70 | 5 | 16.67 |
| 71 – 86 | 3 | 10.00 |
| 87 – 102 | 11 | 36.67 |
| 103 – 118 | 3 | 10.00 |
| 119 – 134 | 3 | 10.00 |
| Total | 30 | 100 |
| Mean Price | | P 84.47 |

Costs and Returns from Strawberry Production

The cost and returns analysis presents the total returns per farm and the total expenses or cost of producing strawberry. Table 14 showed an average sales per farmer amounting to P79,082.33 per cropping. The expenses incurred by the farmers in producing strawberry included mulching material, which is the black plastic commonly used by the farmer in the study area; land rent including the opportunity cost of owned land, depreciation cost of farm tools and equipment, planting materials including the value of farmer-grown planting materials, farm supplies, and labor cost. Unpaid family labor was valued using the current farm wage rate.

The total cost of production per farm, excluding family labor, was P61,692.17. Of this total cost, land rent was the highest with P15,053 or 24.4% of total cost. This was followed by hired labor cost with P12,445.83 or 20.17% then cost of planting materials



with P9,658 or 15.65%, and mulching material with P7,233.33 or 11.72% of the total cost. The net income before deducting unpaid family labor was P17,390.17. If family labor cost and interest on capital is deducted from the net farm income, the return to farm operator's labor and management is (P313.06). This finding shows that the income from strawberry production could not pay for the operator's labor and management. In fact the return is negative. It could be that the average yield per farm is very low or the average farm size was very small that made operator's labor and management inefficient.

Table 14. Costs and returns from strawberry production

| PARTICULAR | VALUE | PERCENT |
|--|--------------------|------------|
| Average Sales | P79,082.33 | |
| Expenses or Costs: | | |
| Mulching material (1,096 m) | P 7,233.33 | 11.72 |
| Land rent (| 15,053.67 | 24.40 |
| Depreciation | 2,255.32 | 3.65 |
| Planting material (5,117 pcs) | 9,658.33 | 15.65 |
| Fertilizer | 5,879.65 | 9.53 |
| Insecticide | 4,467.97 | 7.24 |
| Fungicide | 3,215.00 | 5.20 |
| Flower Inducer | 471.43 | 7.24 |
| Other supplies | 1,041.43 | 5.20 |
| Hired Labor | 12,445.83 | 20.17 |
| Total Cost | P 61,692.17 | 100 |
| Net Farm Income | P 17,390.16 | |
| Unpaid Family Labor | P 16,616.68** | |
| Interest on Average Inventory | P 1,086.54* | |
| Returns to operators labor and management | (P 313.06) | |

** valued at current wage rate

*Assuming a 16% interest rate per annual



Problems Met by the Farmers

Table 15 presents the problems encountered by the strawberry farmers. Almost all the farmers mentioned they have problems on pest and disease control. According to them, the pest and diseases of strawberry are difficult to control and so they have to use strong chemicals to control these pests and diseases. These chemicals are very expensive and so they have to spend much money to buy chemicals. The same number of farmers pointed out that they have problem on low price of strawberry. The prices of inputs used in production keep on increasing according to the farmers but the price of strawberry do not increase also. The price is only high when there are few supply in the market but during peak harvest season, the price usually go down. The other problems mentioned were lack of capital as mentioned by 53%, marketing problem by 30%, lack of irrigation by 37%, and perishability of the fruit as said by 27%.

Table 15. Problems encountered in strawberry production

| PROBLEMS | FREQUENCY | PERCENTAGE |
|--|-----------|------------|
| Pest and diseases are difficult to control | 28 | 93 |
| Lack of capital | 16 | 53 |
| Low price of strawberry | 28 | 93 |
| Lack of irrigation | 11 | 37 |
| High cost of farm inputs | 24 | 80 |
| Marketing | 9 | 30 |
| Perishability of product | 8 | 27 |



SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The study on cost and return analysis of strawberry production in La Trinidad, Benguet was conducted to determine the technologies used by farmers in strawberry production and from whom was the technology learned, to determine the varieties of strawberry grown, determine their volume of production, the cost and return from production, and to find out the problems encountered by strawberry farmers in cultivating strawberry.

There were 30 respondents interviewed from 5 selected barangays of La Trinidad, Namely: Pico, Buyagan, Balili, Puguis, and Wangal, and including the Swamp area. A prepared survey questionnaire was used as a guide.

Majority of the farmers were males, and married. Majority planted the Sweet Charlie variety and adopted their technology from other farmers. They used runners and mother plant for planting materials and the main source of their planting material is from other farmers. All of the respondents used the black plastic as mulching material. They learned this technology from other farmers.

Finding shows that the volume of strawberry produced by each farmer was 1,225.77 kilograms per cropping. The very low volume of production was due to the small area planted per farmer. The average volume produced per square meter as estimated was 937 kilograms. The finding implies that very few farmers produced more than 1,500 kilograms.

The total cost of production per farm, excluding family labor was P61,692.17. Of amount, land rent was the highest amounting to P15,053 or 24.24% of the total cost. This



was followed by hired labor cost with P12,445.83 or 20.17%. Cost of planting materials and cost of mulching material comprised 15.65% and 11.72%, respectively. The average net income before deducting unpaid family labor was only estimated at P17,390.17. If the cost of family labor and opportunity cost of capital would be deducted from the net farm income, returns to operators labor and management would be negative, (P131.06). This finding reveals that strawberry production could not even pay for the labor and management effort of the farmer.

The major problems met by the farmers on their production activity were; pest and diseases are difficult to control, low price of strawberry, high cost of farm inputs and lack of capital to expand the area in order to increase the volume produced.

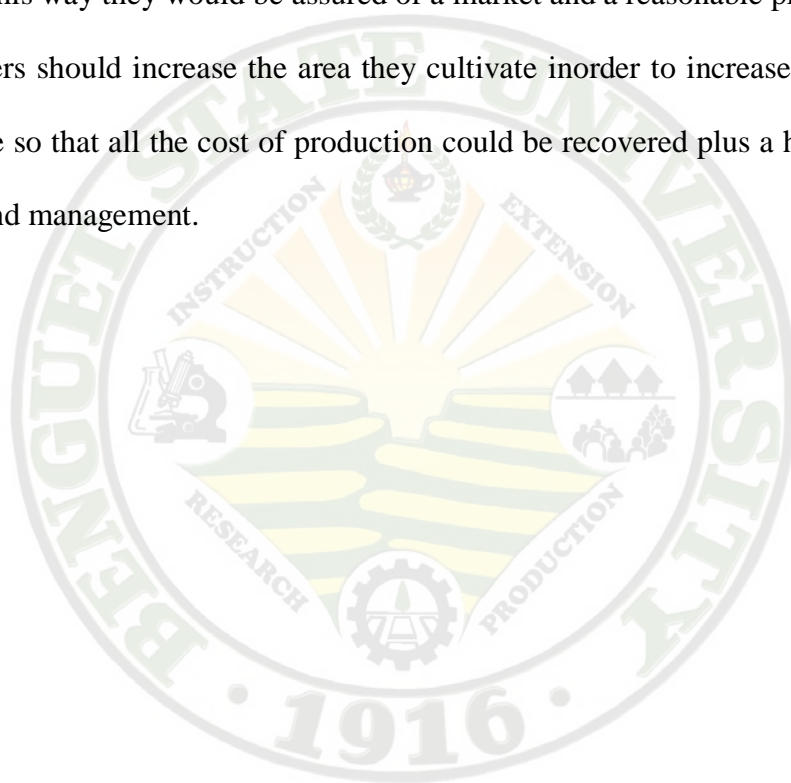
Conclusions

1. Majority of the farmers were male, married, adopted technology from other farmers and used Sweet Charlie variety for production. All of them used plastic mulch in their production.
2. Very few farmers harvested more than 1,500 kilograms of strawberry because of the very limited area cultivated. This also led to the very low net income per farm and a negative return to operator's labor. Lack of capital was a limiting factor in the expansion of area cultivated.
3. Apart from limited capital, the farmers were also beset by problems like pest and diseases are difficult to control, low price of strawberry, and high cost of farm inputs. All of these problems contributed to the low production and income of farmers.



Recommendations

1. The farmers should seek the technical assistance of technical people or experts in strawberry production to assist them in order to increase the yield of their crop.
2. The farmers should organize themselves into an association or become a member of a cooperative, like the BSUMPC, that could help them finance their production activity and at the same time make a tie-up with the cooperative for the marketing of their produce. In this way they would be assured of a market and a reasonable price.
3. The farmers should increase the area they cultivate in order to increase the volume of their produce so that all the cost of production could be recovered plus a higher return to their labor and management.



LITERATURE CITED

- ANTON, M.D. 1995. Strawberry production in Longlong, La Trinidad, Benguet. BS Thesis. Benguet State University, La Trinidad, Benguet. Pp. 1-2
- BSU/HARDC. 1996. Benguet Strawberry Technoguide. Benguet State University, La Trinidad, Benguet. P.1.
- BROWNE, N. and B. HOAG (1980). Understanding Economic Analysis. P. 159
- McCONNELL, C. R. 1975. Economic Principles, Problems, and Policies. 10th ed. P.521.
- MICHAS. N. A. and L. G. REYNOLDS. 1983. Principles of Economics. 4th ed. Homewood, Illinois. Northern Illinois University. P. 17.
- MORON, P.L. 1991. Evolution and importance of strawberry production in the province of Benguet. A documentation. BS. Thesis. Benguet State University, La Trinidad, Benguet. P.7.
- SHOEMAKERS, J. S. 1979. Strawberry Growing in Practical Horticulture. 2nd ed. New York: Delmar Publisher, Inc. P. 351.
- TIBAO, J.Y. 2001. Survey on postharvest handling and marketing of static growers in La Trinidad, Benguet. BS. Thesis. Benguet State University, La Trinidad, Benguet. P.11.

