BIBLIOGRAPHY

DUGA-ONG, TEODY A. APRIL 2011. Production and Marketing of Rambutan

Coscosnong, Botac, Suyo, IlocosSur.BenguetStateUniversity, La Trinidad, Benguet.

Adviser: Evangeline B. Cungihan, MSc.

ABSTRACT

The study was conducted to find out the profile of farmers who started rambutan

production in the study area, find out their reasons in engaging in rambutan production,

determine the volume of rambutan production in the study area, and find out the problems

encountered by the producers in production and marketing, and the supports provided to them. A

personal interview was conducted with all the rambutan growers in Coscosnong, Suyo,

IlocosSur.

It was found that very few of the farmers had college education and had undergone

training on rambutan production provided by the Department of Agriculture and the Department

of Environment and Natural Resources. A few of the farmers started production in 2000 and

more were added in 2005. Farmers engaged in rambutan production as an additional source of

income. They have planted an area ranging from half hectare to 7 hectare with tree ranging from

50 to 800. The first who started rambutan production is now harvesting about 80 to 100

kilograms per tree. The market outlets for their produce are Tagudin, Ilocos Sur, Sta. Cruz, Ilocos

Sur, Narvacan, Ilocos Sur, and San Fernando La Union. Farmers are selling it on credit basis to

wholesalers who are from their place. They have no problem on marketing their product because

there are no competitors, in fact, they cannot meet the volume of demand from their buyers.



INTRODUCTION

Rationale

Rambutan is a tropical fruit tree. It is native to Malaysia, Indonesia, the Philippines, Sri Lanka and Southeast Asia. Its origin is probably Malaysia and Indonesia then distributed through southern china, Indo-Chinese region, Malay Archipelago and the Philippines. The leading producer of rambutan is Thailand which exports fresh and canned rambutan to Asian and European countries.

Rambutan is a popular garden fruit tree and propagated commercially in small orchards for its fresh fresh. The fresh fruits are usually sold in the marketbut the fruits can also be processed into jams and jelly. Aside from its fresh fruits, the rambutan trees with their abundant coloured fruits are now being used as landscape specimens.

The rambutan fruit is a good source of daily nutritional needs. It contains high amount of all the important essential elements needed by the human body like calcium, magnesium, and potacium. Rambutan, like the coconut, has many important uses. The seed contains fats and oil valuable to industry, and used in cooking and the manufacture of soap. The roots, bark, and leaves have various uses in medicine and in the production of dyes. These various uses show therefore that rambutan is a potential crop for commercial production.

In 1987-88, the Philippines devoted about 500 hectares to rambutan production. This area continued to increase as production expanded to various places in northern. Rambutan production in Locos Sur started by a farmer organization in Coscosnong, Butac, Suyo, IlocosSur. In 1988, a group of 110 farmers were given training on rambutan production by the Department of Agriculture. In addition, DA provided100 seedlings for



trial production by the group. The organization was however closed in 1999 and the orchard was therefore maintained by Mr. Ramon Copido, the former president of the organization. In 2005, Mr. Copido expanded the production and included marketing of grafted rambutan to other farmers in the area. Farmers observed that demand for the fruits in the local market is high so many farmers started rambutan production in their farm.

This study was conducted to look into the production and marketing of rambutan in Coscosnong , Botac, Suyo, IlocosSur.

Statement of the Problem

The study would answer the following questions:

- 1. What is the profile of the farmers who started rambutan production in the study area?
 - 2. What were their reasons in engaging in rambutan production?
 - 3. What is the volume of rambutan produced in Coscosnong, Suyo, Ilocos Sur?
 - 4. What are the problems met by the rambutan growers?
 - 5. What supports are provided to these growers?

Objectives of the Study

The objectives of the study were the following:

- 1. Find out the profile of the farmers who started rambutan production in Coscosnong, Suyo, Ilocos Sur,
 - 2. Find out the reasons of the farmers in engaging in rambutan production.
 - 3. Determine the volume of rambutan produced in the study area,
 - 4. Determine the profitability of rambutan production in the study area,



- 5. Find out the problems of farmers in rambutan production and marketing.
- 6. Find out the supports provided to the rambutan growers.

<u>Importance of the Study</u>

This study provided benchmark information on rambutan production and marketing in Suyo, IlocosSur. This would be useful to organizations or individuals interested in promoting rambutan production in the place.

To the farmers who backed out and are again intending to engaged in rambutan production, this study would serve as guide for their decision making.

This study could be used as a reference material to other students who would be conducting a similar studies.

Scope and Delimitation of the Study

This study focused on the production and marketing of rambutan in Coscosnong, Suyo, IlocosSur. It only included all the farmers who planted rambutan in the study area.



REVIEW OF LITERATURE

Origin of Rambutan

The rambutan is native to Malaysia and commonly cultivated throughout the archipelago and Southeast Asia. Many years ago, Arab traders introduced it into Zanzibar and Pemba. There are limited plantings in India, a few trees in Surinam, and in the coastal lowlands of Colombia, Ecuador, Honduras, Costa Tica, Trinidad and Cuba. Some fruits are being marketed in Costa Rica. The rambutan was taken to the Philippines from Indonesia in 1912. Further introductions were made in 1920 (from Indonesia) and 1930 (from Malaysia), but until the 1950's its distribution was rather limited. Then popular demand brought about systematic efforts to improve the crop and resulted in the establishment of many commercial plantations in the provinces of Batnagas, Cavite, Davao, Iloilo, Laguna, Oriental Mindoro and Zamboanga. Seeds were imported into the United States from Java in 1906 (SPI #17515) but the species is not grown in this country (Morton, 1987).

It is a popular belief that rambutans are native to Malaysia and Indonesia. The earliest record of rambutan trees show that they were cultivated by the Malayan jungle tribes around their temporary settlements, a practice followed to date. Rambutan trees are today found growing naturally in Southern China, the Indochina region and Southeast Asia. With increasing popularity amongst non-Asians and growing demand for rambutans worldwide, the fruit is presently considered an important agricultural produce. It is grown commercially in Indonesia, Malaysia, Philippines, Thailand, Brunei Darussalam, Sri Lanka, Australia, Hawaii, Vietnam and Central America. Even in 1981, rambutans were grown commercially on up to 700 hectares of land in Singapore. Rapid



urbanization meant rambutan plantations are no longer found in Singapore. To meet the demands of its people, Singapore has remained the largest importer of rambutans in the world, accounting for more than 60% of world imports (Thulaja, 2003).

Propagation

Rambutan seeds, after removal from the fruit and through washing, should be planted horizontally with the flattened side downward in order that the seedling will grow straight and have a normal, strong root system. Seeds will germinate in 9 to 25 days, the earlier, the more vigor in the seedling. The rate of germination of 2-day-old seeds is 87% to 95%. A week after seed removal from the fruit, there may be only 50% to 60% germination. Sun-drying for 8 hours and oven-drying at 86°F (30°C) kills seeds within a week. Washed seeds will remain viable in moist sawdust, sphagnum moss or charcoal for 3-4 weeks, and some will even sprout in storage. The juice of the flesh inhibits germination. Accordingly, unwashed seeds or seeds treated with the juice can be held for a month in moist sawdust without sprouting. Rambutan seedlings bear in 5-6 years, but the ration of female to male trees is 4 or 5 to 7. One Philippine seedling orchard was found to have 67% male trees. Then, too, hardly 5% of female trees give a profitable yield. Vegetative propagation is essential. Cuttings have been rooted experimentally under mist and with the use of growth-promoting hormones, but this technique is not being practiced. Air-layering may at first appear successful, but many air-layers die after transplanted into 5-gal. containers, or, later, in the fields, long after separation from the mother tree. Marching is very effective onto 5 to 9 months old seedlings of rambutan or of pulasa (N.mutabile L.) or N. intermediumRadlk., but is a rather cumbersome procedure. After 2 or 3 months, the scion is notched 3 times over a period of 2 weeks and then severed from the parent tree. Cleft-, splice-, and side-grafting are not too satisfactory. Patch-budding is preferred as having a much greater rate of success. Seedlings for use as rootstocks are taken from the seedbed after 45 days and transplanted into 1-quart cans with a mixture of 50% cured manure and later transferred to 5 gal. containers. In OrientalMindoroProvince, if the budding is done in the month of May, they can achive 83.6% success; if done in June and July, 82%. Budded trees flower 21/2 to 3 years after planting in the field (Morton, 1987).

Climate

The rambutan flourishes from sea-level to 1,600 or even 1,800 ft. (500 – 600m.), in tropical, humid regions having well-distributed rainfall. In the ideal environment of Oriental Mindoro, Philippines, the average temperature year-round is about 81°F (27.3°C), relative humidity is 82%, rainfall 71 in (180 cm) about 165 rainy days. The dry season should not last much over 3 months (Morton, 1987).

Soil

The tree does not grow best on deep, clay-loam or sandy loan soil rich in organic matter, or in deep peat. It needs good drainage (Morton, 1987).

Economic Importance of Rambutan

The fruit (perhaps unripe) is astringent, stomachic; acts as a vermifuge, febrifuge, and is taken to relieve diarrhea and dysentery. The leaves are poulticed on the temples to alleviate headache. In Malaysia the dried fruit rind is sold in drugstores and employed in local medicine. The astringent bark decoction is a remedy for thrush. A decoction of the roots is taken as a febrifuge (Tindall, 1994).



METHODOLOGY

Locale and Time of the Study

The study was conducted in Coscosnong, Suyo, IlososSur. This was conducted from October to December, 2010.

Respondents of the Study

The respondents of the study were all the farmers of Coscosnong, Suyo, Ilocos Sur who are at present engaged in rambutan production.

Data Collection

Data collection was done through personal interview with Mr. Copido and focus group discussion with the other farmers who are now engaged in rambutan production.

Data Gathered

The data gathered included the profile of the farmers, their reasons for producing rambutan, volume of rambutan produced in the place, the problems met by the growers, and supports received by the growers.

Data Analysis

The data collected were analyzed using simple statistics like frequency distribution and percentage

RESULTS AND DISCUSSION

Background of the Respondents

The information about the fourteen respondents is presented in Table 1. The youngest respondent was 30 years old and the oldest was 70 years old. Majority of them



were more than 40 years old. As to their educational attainment, 3 had no formal education, 4 reached the elementary level, 3 high school level, and another 3 reached the college level. All of them were married and they had different religions except for one without any religion.

As to the years the respondents started growing rambutan, only 5 or 36% started their rambutan production in 2000–2005 while the 64% only started in 2006 – 2010. Some of them participated in the first training on rambutan production and they became very excited but after some time they backed out because they were doubting the success of the project. They thought that they would just be wasting their time in caring for the plants. Only Mr. Copido persisted in continuing the project. They again started their rambutan production when they saw that the rambutan of Mr. Copido were bearing fruits and demand for its fruits is high.

Table 1. Profile of the respondents

PARTICULARS	FREQUENCY	PERCENTAGE
Age		
30 - 40	4	28
40 - 50	5	36
60 – 70	5	36
TOTAL	14	100

Table 1. Continued ...

PARTICULARS	FREQUENCY	PERCENTAGE
Sex		
Male	11	79
Female	3	21



TOTAL	30	100
Educational Attainment		
No formal education	3	35.71
Elementary	4	21.43
Highschool	3	21.43
College	3	21.43
TOTAL	14	100
Religion		
Roman Catholic	6	43
CDCC	5	36
Pentecostal	2	14
No religion		7
TOTAL	14	100
Civil Status		
Married	14	100
Single	0	0
TOTAL	14	100

Year of engaging in rambutan production

2000 – 2005	5	36
2005 - 2010	9	64
TOTAL	14	100

Reasons for Engaging in Rambutan Production



Table 2 presents the reasons of the respondents for engaging in rambutan production. Majority (86%) of the respondents said that rambutan production is a source of additional income for the family. Even if it is seasonal it can contribute to income during harvest season specially that harvest season is during the start of the school calendar so they have cash to give to their children for their education. One of the respondents said that he engaged in rambutan production because it does not require much input unlike rice and vegetable that he has to buy fertilizer and pesticides. Another respondents mentioned that rambutan production does not require much labor unlike rice and vegetables. He said that once the trees are already big, the care and management time is lessened.

Area Planted to Rambutan and Number of Trees

Table 2 shows that area planted to rambutan by each farmer ranged from half hectare to seven hectares. Majority of the farmers had only a hectare of farm planted to rambutan. It was only Mr. Copido who had 7 hectares as of the conduct of this study. The same table presents the number of tree planted by the farmers. According to Mr. Copido, the appropriate distance of planting the rambutan seedlings is 10 m. by 10 m. It can be gleaned from the result that some of the farmers did not follow the recommended distance. In fact, some of them followed a spacing of 8 meters by 8 meters in order to accommodate more trees in their very small farms. There were 22% who said they have 50 trees, 50% have 100–150 trees, 21% 200-250 trees, and 7% 700-800 trees. Figure 2 shows a farm planted to rambutan.



Figure 2. A farm planted with rambutan

Table 2. Reasons of respondents in producing rambutan

REASONS	FREQUENCY	PERCENTAGE
Additional income	12	86
Low cost of materials	1	7
Low cost of labor	1	7
TOTAL	14	100

Table 3. Distribution of respondents according to farm area and number of trees planted

PARTICULARS	FREQUENCY	PERCENTAGE
Farm area in hectares		
0.5	4	29
1 – 1.5	6	43
1.6 - 2.5	3	21
7	1	7
TOTAL	14	100
Number of trees		
50	3	22
100 – 150	7	50
200 – 300	guerio 3	21
700 - 800	PRO T	7
TOTAL	14	100

Production per Tree

The production per tree was taken from the 5 respondents who are already harvesting rambutan fruits. The other 4 respondents just started their production so the trees are not yet bearing fruits. From Table 4, two respondents are harvesting 15-20 kilograms per tree per year, another two respondents are harvesting 30-50 kilograms and only one is harvesting 80-100 kilograms per tree per year. This respondents, Mr. Copido, has fully grown trees and they are already bearing much fruits when well maintained. This surpassed the general average production per tree in the Philippines which is only 48 kilograms. However, the average production per tree for the 21 selected



cultivars observed by the University of the Philippines at Los Banos was 120 kilograms (Morton, 1987). Figure 3 shows a fruit bearing tree.

Table 4. Distribution of respondents according to harvest per tree

ESTIMATED HARVEST	FREQUENCY	PERCENTAGE
15 – 20	2	40
30 – 50	2	40
80 – 100	1	20
TOTAL	5	100



Figure 3. A rambutan tree with fruits ready to be harvested

Number of Fruit Bearing Trees and Estimated Volume of Production

From 1992 to 2000 Mr. Copido was the only one producing rambutan. According to him the average yield per tree from 1992 to 1994 was 17.5 kilogram. This yield increased in 1995 – 1997 to 35 kilograms then the yield peaked in 1998 – 2000 to 80 kilograms. Even if the number of fruit bearing trees remains constant from 1992 to 2000, volume of production increased due to the increase in the yield per tree. In 2000 four farmers started planting rambutan thus in 2003 they started harvesting. Mr. Copido also planted more trees in 2000 so that in 2003 the number of fruit bearing trees totaled to 1,030. Total production from 2003 – 2005 was estimated at 36,050 kilograms. There were also additional trees planted in 2003 thus they started bearing fruits in 2006. Total fruit bearing trees in 2006 – 2010 was 1,520 and the estimated production was 53,200 kilograms.

Table 5. Number of fruit bearing trees and estimated volume of production by year

YEAR	NUMBER OF FRUIT	ESTIMATED VOLUME OF
	BEARING TREES	PRODUCTION (in Kilogram)
1992 -1994	60	1,080
1995 – 1997	60	2,100
1998 – 2000	60	4,800
2003 – 2005	1,030	36,050
2006 - 2010	1,520	53,200

Marketing Practices of the Respondents

The marketing practices included are market outlet, type of buyers, system of payment, packaging, and mode of delivery.

Market outlets and buyers. There were two types of buyers from the farmers. They are the wholesalers and the retailers. As shown in Table 6, majority of the respondents sell their rambutan to wholesalers and only one respondents sells to retailers. Based on the interview with the buyers, the wholesalers are bringing the rambutan to different market outlets in Tagudin, Ilocos Sur; Sta. Cruz, Ilocos Sur; Tagudin; Narvacan, Ilocus Sur; and San Fernando, La Union. For the retailers they sell the rambutan in their public market in Suyo, Ilocos Sur.

System of payment. The system of payment used by the respondents are either consignment or cash basis. Eighty percent of the respondents were giving their rambutan on credit basis to the buyers. The buyers pay them when they return to buy again. However, they also sell on cash basis to buyers who can pay in cash. They easily give their product on credit because these buyers are from their place. One of the respondents is selling his rambutan purely on cash basis.

<u>Packaging and mode of delivery</u>. Harvested rambutan are placed in baskets locally called as "tiklis". One tiklis contains 20–25 kilograms. There is no grading done on the rambutan so the price per tiklis is uniform. The farmers do not deliver the rambutan to the buyers because the buyers go to them directly. The buyers are then responsible in transporting the rambutan to the different market outlets.

<u>Market competition</u>. According to the respondents there is no market competition among them because their production is not even enough to supply the demands of the



Table 6. Marketing practices of the respondents

PARTICULARS	FREQUENCY	PERCENTAGE
Types of Buyer		
Wholesalers	4	80
Retailers	1	20
TOTAL	5	100
System of Payment		
Credit arrangement	4	80
Cash basis		20
TOTAL	5	100

buyers. In fact, the buyers are the ones competing for their produce that is why the buyers themselves go to the farm to be assured that they have products to buy. Furthermore, the rambutan produced in the study area are harvested earlier, from May to July, so there is no competion with the rambutan coming from Batangas and Laguna. Rambutan coming from these places would arrive when their harvest is already ending.

Problems Encountered by the Respondents

Table 7 presents the problems met by the respondents in producing rambutan. There were 5 respondents or 36% whose problem is lack of water. These are the farmers who just planted their trees and during summer they do not have water for irrigation. They have to pump water from the river to water their plants. Three respondents each mentioned that their problem is high cost of labor; high cost of investment because they have to buy hose, power sprayer, tools, and the seedlings; and lack of knowledge on the care and management of rambutan. Mr. Copido mentioned that some of the trees he first



Table 7. Problems encounter in producing rambutan

PROBLEMS	FREQUENCY	PERCENTAGE
Lack of water	5	36
High cost of labor	3	21
High investment required	3	21
Lack of technical knowledge	3	21
Difficult to determine male from	10	71
female tree		

planted were not fruit bearing because they are male tree. The other farmers who just planted their rambutan trees also fear that the trees they planted might not bear fruits and they invested much including their labor. Male trees cannot be determined when they are still seedling. The farmer would know that the tree is male when it does not bear fruit.

Support or Assistance Received

The assistance or support received by the rambutan growers in Coscosnong, Suyo, Ilocos Sur were provided by two government agencies, the Department of Agriculture (DA) and the Department of Environment and Natural Resources (DENR). The support for rambutan production was initially given by DA to a group of farmers through their



association. These farmers were trained on the care and management of rambutan seedlings and they were given seedlings to plant. These plants are supposed to be owned by the association but the other farmers backed out and Mr. Copido, the president of the association was left alone to continue the management of the plants until they are bearing fruits. Because it is now proven that rambutan can be produced in their place, other farmers became interested so the Department of Environment and Natural Resources gave them another training and provided them seedlings to plant. However, the seedling were not given to the association but to individual farmers who were interested to produce rambutan. Thus the number of rambutan growers increased.

SUMMARY, CONLUSIONS, AND RECOMMENDATIONS

Summary

This study was conducted to determine the profile of the rambutan growers, find out their reasons in producing rambutan, determine the volume of rambutan they are producing, and find out their problems in production and marketing their rambutan.

A total of 14 respondents were the source of information for this study. The ages of the respondent were 30 to 70 years old. Majority of them had formal education and were all married. They engaged in rambutan production as a source of additional income.

Majority of the respondents are producing rambutan on a less than two- hectare farm. Majority have less than 150 trees in their farm and they are producing less than 50 kilograms per tree in one production cycle. All the rambutan produced in the study area are sold in nearby markets like TagudinPoblacion; Sta. Cruz, Tagudin; Narvacan, Ilocos Sur to as far as San Fernando, La Union. The buyers are wholesalers and retailers who go



directly to the farmers. They buy on credit from the farmers and pay them when they return back to buy. Farmers did not find any problem in marketing their products since rambutan coming from other places arrive when their harvest is already ending.

The major problem in rambutan production met by majority of the farmers was the selection of female seedling. There is no way to detect female tree from male tree when they are still seedlings. The farmer would only know that a tree is male when it does not bear fruit. This was the problem that discouraged many of the farmers who first started rambutan production.

The supports received by the respondents were in the form of training on rambutan production and free seedlings given by both the DA and DENR.

Conclusions

From the findings of the study the following conclusions are forwarded:

- 1. More and more farmers from the study area are now looking at rambutan production as another source of income. More farmers are now starting to grow rambutan because they have already seen that it is productive and demand for it is high.
- 2. The common problem met by the growers was on the selection of seedlings to be planted. Base on the literature there is a high percentage of male trees than female if the seedlings are from seeds. The first one who planted were discouraged because their trees do not bear fruits after three years when they were expected to bear fruits and this discouraged them to continue.
- 3. Rambutan produced in the study area have high demand since the buyers are competing to buy from the farmers. The farthest market that rambutan from

Coscosnongreached is San Fernando, La Union. This shows that supply of rambutan coming from the study area is not sufficient to reach farther markets.

Recommendations

Based on the findings and conclusions the following are recommended:

- 1. The growers use budded seedling to minimize the problem of non-bearing trees met by the those who started rambutan production.
- 2. Since rambutan production is a good source of income and there is high demand for it, more farmers should grow rambutan to increase their family income.
- 3. The DA and DENR should continue to give support to the farmers maybe not in terms of giving free seedlings but to train the farmers to bud their own seedlings.
- 4. Farmers should be organized in marketing their products specially when they reached the competitive stage so that the traders will not take advantage of them.

LITERATURE CITED

- MORTON. J. 1987. Rambutan in Fruits of Warm, Climates. Miami,FL . Pp. 262-265
- THULAJA N.R. 2003. National Lidrary Board Singapore October 3, 2010. Edible tropical forest plant/eHow/com/list_6768631_edible tropical-forest plant.htm/x2202PJYgtZK
- TINDALL H. D. 1994 Rmbutan cultivation. Food and Agriculture Organization of the United nation:hh;//book.google.October4,2010.com/book?IdAgrlfzs0bxMc.



APPENDIX A

(Interview Guide)

Respondent profile
Name
Age
Sex. MaleFamale
Civil status, SingleMarried
Religion
Educational attainment
a. elementary graduate
b. high school graduate
c. college graduate
d. vocational graduate
e. no formal schooling
I. Production profile
A. Area of the farm.
B. How many rambutan trees are planted in your farm?
C. How many kilos you harvest in one plant
C. Year or month of planting rambutan trees
II. Reasons in producing rambutan,
a. low cost of labor
b. additional income
c. low cost of production
e. other (please specify)
III. Production problem
a. high investment required
b. high cost of labor
c. lack of technology
e. lack of water
d. others (please specify)
IVMARKETING
A. Buyers
Wholesalers
Retailers



Consumer
B. Reason why you choose the outlet
Higher price
They go direct to the farm
More products to sell
C. Market problems
a. Lack of transportation
b. Lack of buyers
c. Lack of outlet
e. Lack of price information
Others (please specify)
D .Marketing practices
D1. System of payment
D2 .Packaging
D3.System of marketing
Others (please specify)
C. Market outlet
Others (please specify)
V. Supports assistance
a. seminars
b. training
Others (please specify)
VI. Sources of support assistance

