BIBLIOGRAPHY

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ABSTRACT

The study was conducted to determine the differences in production methods, postharvest methods, yield of Taiwan and *Ginulot* rice, the cost incurred and returns derived from the two varieties and determine the profitability of both varieties through cost and return analysis.

Forty five rice farmers producing Taiwan and *Ginulot* rice served as respondents of the study. Majority of the Taiwan rice farmer respondents were from aged ranged of 30 to 40 years old while the *Ginulot* rice farmers were older from 71 to 80 years old. Majority had rice farming as major source of livelihood and wit an income ranging from P50,000 to 100,000 per annum. All the farmers were producing the two varieties because of better price and income.

Cost and return analysis showed that Taiwan rice variety had a lower production cost at an average cost of P21,520 but comprises most of the cash cost incurred while the *Ginulot* rice variety had an average cost of P25,330 which comprises most of the non-cash cost such as family labor and opportunity cost for organic inputs. *Ginulot* rice production gave a higher income because of the premium price given to heirloom or traditional rice.

With the support of the Regional Development Council (RDC) and the Revitalize Indigenous Cordillera Entrepreneurs (RICE) who are promoting heirloom rice production for

export it is recommended that production of heirloom rice like *Ginulot* should continue to meet the demand of export market providing a better price and better income to heirloom rice growers in Mountain Province.

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INTRODUCTION

Rationale

Rice (*Oryza sativa*) is the principal food for the tropical population, and more than half of the world's population depends heavily on rice for sustenance. It is typically grown in paddy land, which can alternately irrigated and also drained. Rice also supplies high quality of carbohydrates, protein and sufficient stocks of rice bran feed. In the Philippines rice is grown throughout the year (IRRI, 1985) and is the major staple food.

Despite of the introduction of varieties form IRRI, the Cordillera are still producing the traditional or heirloom varieties of rice. There are over 300 indigenous rice species in the rice terraces all over the Cordillera Administrative Region. However, at present there are only 11 to 18 heirloom rice varieties reportedly grown in the different terraces of the Cordillera. Ironically, most of the rice producing barangays in Mountain province grow only 3-6 varieties compared to the 8 to 15 varieties in the previous decade. Twelve out of the 145 barangays in the different municipalities of Mountain Province grow 7 to 12 varieties and that the same are all located in Bauko, Mountain Province, the biggest municipality in the province.

Bauko is one of the municipalities of Mountain Province. Most of the barangays of Bauko are planting rice as their main crop. Bila is one of the barangays of the municipality. Eighty percent of the population are rice farmers. The heirloom rice varieties grown in the area include the *Ginulot* or *Unkil* rice, *Senyora* Red, *Kintoman*. Aside from the heirloom rice farmers are also planting hybrid rice like the Intan and Taiwan.

Taiwan rice is now widely produced in the area because of the high yield. However, there are few farmers who are producing the traditional variety (*Ginulot*), and there is also a growing demand for this traditional rice variety especially if grown in traditional way and are referred to as heirloom rice. According to some farmers in Bila, Taiwan variety was introduced in 1993 by the farmers from Aluling.

This study therefore was conducted to look into the costs incurred by the farmers and the returns they get from producing it and analyze the profitability of producing Taiwan rice and growing heirloom rice using the *Ginulot* variety.

Statement of the Problem

The study specifically aimed to answer the following questions:

1. What the differences of Taiwan rice and the *Ginulot* rice in terms of: (a) production methods/ practices, (b) post harvest methods, and (c) yield?
2. What are the costs incurred in Taiwan and *Ginulot* rice production?
3. What are the returns derived from Taiwan, *Ginulot* rice production?
4. Which is more profitable between the two rice varieties?

Objectives of the Study

The objectives of the study were the following:

1. To identify the differences of the Taiwan rice and *Ginulot* rice in terms of: (a) production methods/ practices, (b) post harvest methods, and (c) yield?
2. To find out what are the cost incurred in Taiwan and *Ginulot* rice production?
3. To find out what are the returns derived from Taiwan, *Ginulot* rice production?

4. To find out which is more profitable between the two rice varieties

Importance of the Study

Farmer's decision on the selection of crop and crops variety to plant depends on the yield and returns (profitability), ease of production, market preference and outlet and the availability of resources. Thus, result of the study could be used by the farmers on the decision on what variety to plant in order to maximize profit. Result could also serve as a guide for other who will be conducting similar studies.

Scope and Delimitation

The study focused on the profitability of *Ginulot* rice and Taiwan rice in Bila, Bauko, Mountain Province.

REVIEW OF LITERATURE

Profitability

Profitability is the ability of a company to earn a profit. It is relative measure of success for a business (Investor Dictionary, 2010).

Farmers manage and stimulate the growth of plants and animals on their farms. The production activities then on each farm constitute a business enterprise where cost and returns are important (PCAC, 1979).

According to Rola (1997), in the Philippines, farmer's current crop protection practices are chemical-based. Studies show that even if farmers have indigenous knowledge of other crop protection measures, they still use pesticides unilaterally, especially in crops other than rice.

Price Comparison

Under this scheme, farmers get to sell a 50 kg sack of rice P2500 which is better than 1,200 per sack for hybrid rice. Yield per hectare for heirloom rice is 50-60% of the average 80 cavans per hectare for hybrid rice, though. That offsets the price difference per kilo. If you consider for the savings obtain because of less expense for chemical fertilizers and pesticides, then maybe there is a better profit margin (Cariño, 2008).

Cost and Yield Comparison

Detailed analysis of the individual farm operations for the wet season, 1972-1973 showed a distinct relationship between yield and cost of production per cavan. Farmers who used relatively larger amounts of important inputs and practiced improved cultural

practices realized higher yields. The increased yield had a tendency to reduce the cost of production per cavan (Pecadizo *et al*, 1973).

Cordillera Heirloom Rice Project and Revitalize Indigenous Cordillera Entrepreneurs (RICE)

Through the Cordillera Heirloom Rice Project, the RICE, Inc, developed a sustainable economic enterprise that is now helping farmers use their traditional knowledge and expertise in terrace farming and rice cultivation to develop a globally competitive especially food product (Domoguen, 2007).

Heirloom rice will be marketed as a positive social and ecological purchases. The Philippine Rice Terraces of Northern Luzon stand in quiet testament to a culture that has revolved around rice, ecology and relationship to the environment. Over the centuries, indigenous farmers carved into the steep mountainsides an engineering masterpiece of integrated irrigated rice terraces. In 1995, UNESCO designated five of the most spectacular terraces areas as World Heritage sites. These dramatic terraced landscapes were the first sites to be designated within the category of "living culture landscapes" (Hensley, 2005).

The potential international market for heirloom rice encouraged numerous rice terraces in the three provinces of Cordillera (Mountain Province, Ifugao and Kalinga) to go back to their rice farms and continue indigenous farming practices which are helpful in the preservation and protection of the rapidly denuded watersheds especially in the three provinces (See, 2010). Furthermore, See added that because of the shift from chemical farming to organic rice farming, the greenery in the denuded mountains is

slowly going back since the barren areas are now being planted with herbs, shrubs and grasses which are used as organic fertilizers of the heirloom rice.

Hundreds of native rice farmers in this landlocked province will export at least eight tons of heirloom rice to the lucrative United States (US) market this year to augment the volume of native native rice being exported by the province of Kalinga and Ifugao. The heirloom rice to be exported will be sourced out from the different municipalities of Mountain Province such as Tadian, Bauko, Natonin, Sadanga and Barlig (See, 2010).

METHODOLOGY

Locale and Time of the Study

The study was conducted in Bila, Bauko, Mountain Province. The study was conducted from September to October 2010.

Respondents of the Study

A total of 40 rice farmers growing Taiwan variety and five farmers growing *Ginulot* rice variety served as source of data. The respondents were chosen at random.

Research Instruments

The study made use of secondary and primary date. Primary data were gathered through survey. Survey questionnaire were distributed to the respondents. Data were validated on the collection period of questionnaire. Secondary data were taken from the record of Municipal Agricultural Office.

Data Gathered

The data gathered were the physical features, production methods, post harvest methods and yield of Taiwan and *Ginulot* rice. The cost incurred and returns derived in *Ginulot* and Taiwan rice production were gathered for the cost and return analysis

Data Analysis

The data collected were analyzed using frequency and descriptive analysis. Cost and return analysis and Return on Expenses (ROEs) were used on the profitability analysis

RESULTS AND DISCUSSION

Profile of the Farmers Producing
Taiwan and *Ginulot* Rice

The profiles of the farmers were described as to their age, gender, civil status and educational attainment.

Age. For the respondents producing Taiwan rice, 10% were ages ranging from 30 to 40 years old; 42.50% were ages ranging from 41 to 50 years old; 27.50% were ages ranging from 51 to 60 years old; 12.50% were ages ranging from 61 to 70 years and 7.50% were ages ranging from 71 to 80 years old. This shows that there were still old farmers who are into rice production and interesting to note that they have accepted the new variety of rice. For the respondents producing the traditional variety- *Ginulot* rice, 20% were ages ranging from 41 to 50 years old; 20% were ages ranging from 51-60 years old; 20% were ages ranging from 61-70 years old and 40% were ages ranging from 71 to 80 years old. There were no rice farmers ranging from ages 30 to 40 years who were planting the *Ginulot* rice. As expected, majority of the rice farmers producing the traditional variety were older or are already senior citizens.

The result implies that still the older farmers are not receptive to changes on technology such as change on variety planted or even changes on planting methods/practices. The younger farmers were more receptive to changes, thus, majority of them had changed the traditional variety to Taiwan which is high yielding and shorter maturity.

Gender. Farming is a job both for male and female. As shown in the result, 50% of the respondents who were into Taiwan rice production were male and 50% were

female. All the respondents for *Ginulot* rice production were females. This result implies that in farming, male and female are equal.

Civil status. Majority (97.5%) of the respondents were married only one was single.

Educational attainment. Some of the farmers have not attended formal education but some also have attended formal education. For the Taiwan rice respondents, 2.5 percent of the respondents have no formal education, 35% have finished or undergraduate of elementary, 42.50% have finished undergraduate of high school, and 20% have finished college. For the *Ginulot* rice respondents, 40 percent of the respondents have no formal education, 20% have finished elementary, 40% have finished high school. This result implies that for Taiwan rice growers, most of them had finished or undergraduate of high school and for the *Ginulot* respondents, most of had finished high school and no formal education.

Household size of the respondents. Table 1 shows the distribution of respondents according to household size, annual household income and their major source of income. Based on the number of household, Taiwan rice farmer respondents, (57.5%) have a household size of 1 to 4 members and (42.5%) have a household size of 5 to 9 members. For the *Ginulot* rice farmer respondents, (40%) have a household size of 1 to 4 members and (60%) have a household size of 5 to 9 members. According to the farmer, the big size of a family is an advantage in farming because of labor. Farming requires intensive labor, thus, the family labor could be utilized. Most of the problem of farmers in the area was lack of labor, because majority of the labor forces have migrated to the urban areas like Baguio City and La Trinidad, Benguet.

Table 1. Profile of the respondents

PARTICULAR	TAIWAN RICE FARMERS		*GINULOT* RICE FARMERS	
	F	%	F	%
Age (years)				
30 – 40	4	10.00	0	-
41 – 50	17	42.50	1	20
51 – 60	11	27.50	1	20
61 – 70	5	12.50	1	20
71 - 80	3	7.50	2	40
TOTAL	40	100.00	5	100
Gender				
Male	20	50.00		
Female	20	50.00	5	100
TOTAL	40	100.00	5	100
Civil status				
Single	1	2.50	0	-
Married	39	97.50	5	100
TOTAL	40	100.00	5	100
Educational attainment				
No formal education	1	2.50	2	40
Elementary level	14	35.00	1	20
Secondary level	17	42.50	2	40
College level	8	20.00		
TOTAL	40	100.00	5	100
Household members				
1 – 4	23	57.50	2	40
4 – 9	17	42.50	3	60
TOTAL	40	100.00	5	100

Major Source of Income

Majority (87%) of the Taiwan rice farmers mentioned that farming is their major source of income while all the *Ginulot* rice farmer respondents were into farming as major source of income (Table 2). There were two respondents who were employed but were also engaged in farming and three respondents were engaged in business and farming is an alternative/additional source of income. Result implies that for some farmers, rice farming is only a source of additional income or source of rice for home consumption especially if the area planted is small.

Annual Income of the Farmers

Rice production is not as attractive as other crops especially for high value vegetable crops. In terms of production and income rice production is too laborious as compared to vegetables. In the case of Bila, Bauko Mountain Province result shows that income of farmers were high ranging from P50,000 to 200,000 per annum with an average annual income of P125,000 from rice farming. For Taiwan rice farmer, 40 percent of the respondents had an income of P50,000 – 100,000 annually and 27.5% had an annual income of PhP 101,000-200,000 and for the *Ginulot* rice farmer respondents, 20% had an income of PhP 50,000- 100,000 per annum. The result implies that the rice farming in Bila, Bauko Mountain Province provide a high to farmers. This maybe attributed to the high price both for Taiwan and *Ginulot* rice. According to the report of Carino (2008), a 50 kgs (1 cavan) of Taiwan rice sells at P2,500 per cavan and P2,800 per cavan for *Ginulot* rice as compared to the hybrid rice which sells P1,500 per 50 kgs or one cavan..

Table 2. Major source of income and annual income of respondents

PARTICULAR	TAIWAN RICE FARMERS		*GINULOT* RICE FARMERS	
	F	%	F	%
Major source of income				
Farming	35	87.50	5	100
Employment	3	7.50		
Business	2	5.00		
TOTAL	40	100.00	5	100
Annual household income				
P50,000 – 100,000	16	40.00	1	20
P101,000 – 200,000	11	27.50		

Farm Size of Respondents

Table 3 shows the farm size of the respondents. Ten or 25% of the farmers producing Taiwan rice have small area ranging from 200 to 250 sq.m. , 35% have an area of 251 to 500 sq.m. and 27.5% have an area of 501 to 1,000 sq.m. Result shows that farm area of farmers is relatively small. Farmers producing *Ginulot* rice have also small farm size. Majority (80%) has 200 to 250 sq.m. area and 20% have 501 to 1,000 sq.m. area.

Source of Planting Materials

All the respondents used *palay* from their previous harvest as planting materials. Farmers buy from other farmers who have extra if there is shortage of seeds. The

Table 3. Farm size of respondents

SIZE (SQ.M)	TAIWAN RICE		*GINULOT* RICE	
	FREQUENCY	PERCENTAGE	PARTICULARS	FREQUENCY
200-250 sq.m	10	25.00	4	80
251-500 sq.m	14	35.00		
501-1000 sq.m	11	27.50	1	20

common practice of the respondents is after harvest a portion of the harvest is set aside for seeds.

Year Started in Producing Rice Variety

According to the respondents Taiwan rice have been introduced in the area in 1993 by a farmer from Aluling, from there the number of farmers producing the variety had increased to 28 from 1993 to 2000 (Table 4). The number of Taiwan producer increased because of a better price for Taiwan rice as compare to other commercial rice or the IRRI varieties. These farmers shifted to Taiwan from the *Ginulot* rice production. In early 2000's, the government started to promote organic production of crops until the Executive Order 481 was signed in 2005, the government (Municipal Agriculture Office) organized rice farmers and promoted production of traditional rice referred to as heirloom rice. Heirloom rice are traditional varieties and were produced in the old traditional or indigenous method of production where no chemical inputs were used. The conventional or production with chemical inputs started in the area when Taiwan rice was also introduced. With the RA 100681 (Organic Agriculture Act), the Department of Agriculture through the Municipal Agriculture Office strengthened the Heirloom rice

Table 4. Year started in rice farming by the respondents

YEAR STARTED	TAIWAN RICE FARMERS		*GINULOT* RICE FARMERS	
	F	%	F	%
1950 - 1980			1	20
1981 - 2000	28	70	2	40
2001 - 2010	12	30	2	40
TOTAL	40	100	5	100

production organization in Mountain Province and other areas of Cordillera Administrative Region.

For the Taiwan rice respondents, 70% of the respondents started late 90's to 2000, Twelve or 30% of the respondents started Taiwan rice production in 2001 to 2010. On *Ginulot* rice production, 20% of the respondents started production in 1950-1980, 40% started in 1981-2000 and 40% started in 2001 to 2010 (Table 4). This implies that *Ginulot* rice production had started long ago.

Number of Years Producing Rice Variety

Table 5 shows the respondents number of years in producing *Ginulot* and Taiwan rice. For the Taiwan rice respondents, 52.50% of the respondents have been in rice production for 1 to 10 years, and 47.50% percent have been in rice production for 11 to 20 years. For the *Ginulot* rice respondents, 40% of the respondents have been in rice production for 11 to 20 years, 20% for 21 to 30 years and 40% have in rice production for more than 30 years. The result implies that most of the respondents had produced the Taiwan variety for 1to 10 years.

Table 5. Number of years growing the variety

NUMBER OF YEARS	TAIWAN RICE		*GINULOT* RICE	
	FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
1 to 10	21	52.50		
11 to 20	19	47.50	2	40
21 to 30			1	20
31 and above			2	40
TOTAL	40	100 .00	5	100

Reasons of the Farmers in Producing Taiwan Rice and *Ginulot* Rice

Table 6 shows the reasons of the respondents in producing Taiwan and *Ginulot* rice. Majority (90%) of the respondents producing Taiwan and all the respondents producing *Ginulot* rice mentioned that the reasons why they produce these varieties were because of premium price providing them a better income. As stated by Cariño (2008), traditional rice varieties from the Cordillera commands a better price at P2,500 per cavan as compared to the hybrid or *Mestisa* rice at P1,500 per cavan. Other farmers produce for own/home consumption especially that these varieties of rice are good eating quality. The *Ginulot* rice is sold as heirloom rice, taste and aroma is good. The findings shows that majority of the respondents are concerned with the income benefits, that the major reason of producing the varieties was because of a better income derived. Furthermore, the respondents were producing the rice both for income and for consumption. Sometimes farmers sell their produce at a higher price and purchase NFA rice which has a lower price.

Table 6. Reasons in producing Taiwan and *Ginulot* rice

REASONS	TAIWAN RICE		*GINULOT* RICE	
	FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
Better income delivered	36	90	5	100
Premium price	36	90	5	100
Home consumption	40	100	2	40
Market	22	55	2	40

*Multiple response

Market Outlet of Respondents

Table 7 shows the market outlet of the respondents. Taiwan rice producers sell their produce to nearby *barangays* (17.50%), sell to their neighbor in the *barangay* (40.00%) and 17.50% sell to rice agent/traders. The *Ginulot* rice producers sell their produce to nearby *barangays* (40%). Result implies that most of the rice produced in Bila were sold in the community and neighbors and nearby *barangays* and few sell to agents and are sold to other areas as heirloom rice.

Table 7. Market outlet of the respondents

MARKET OUTLET	TAIWAN RICE		*GINULOT* RICE	
	FREQUENCY	PERCENTAGE	PARTICULARS	FREQUENCY
nearby barangays	7	17.50	2	40
Neighbors in the barangay	16	40.00		
Agent	7	17.50		

*Multiple response

Production Practices/Methods for Taiwan and *Ginulot* Rice

Production practices and method vary for Taiwan and *Ginulot* rice. Taiwan rice production follows the conventional method similar with other rice producing areas in the Philippines. Chemical fertilizers such as complete fertilizer (Triple 14 or 16) were applied to the plants to get a better yield. Insecticides were also used to protect the plant from pest. Plant height of Taiwan rice is short approximately 1.5 to 2 ft. and are early maturing (4-5 months) as compared to *Ginulot* rice at 5-7 months maturity with a height of 3 to 4 ft. The quantity of fertilizer applied on Taiwan rice varies among farmers sometimes it depends on the availability of cash to purchase farm inputs. On the average, the amount of fertilizer applied is 2 bags per hectare.

Traditional or indigenous practice was employed in the production of *Ginulot* fertilizers used were organic such as application of sunflower leaves in the farm, animal manure and other materials that are available in the area.

In harvesting, Taiwan rice, producers practice the "*gapas*" method. "*Gapas*" is a local term of harvesting *palay* where the *palay* are cut from the base of the plant. Ginulot rice is harvested through "*ani*" method. "*Ani*" is a local term of harvesting *palay* with the use of "*lakem*" to cut the *palay* from the plant from a length of 1.5 ft. This is practiced for *Ginulot* because the plant is tall.

Implements Used in the Production of Taiwan and *Ginulot* Rice Varieties

In the production of Taiwan and *Ginulot* rice varieties, the implements used are the same. The farmers in the area use carabao and grab hoe to plow the farm area. They use sickle and bolo to clean the surroundings of the area. In harvesting also, in Taiwan

rice, the farmer uses sickle and thresher while in *Ginulot* rice, farmers uses the old tradition as the "*lakem*".

Labor Utilization

Production of the two varieties of rice differs on the application of fertilizers and on the harvesting method. Land preparation is the same. More labor is required for the *Ginulot* rice production because of the additional 20 mandays for the gathering of sunflower leaves and manure for fertilizer, additional manual milling and threshing and harvesting which takes a longer time.

Comparative Cost and Return Analysis of Taiwan and *Ginulot* Rice Production

The Taiwan rice had a lower price as compared with the *Ginulot* rice (Table 8). *Ginulot* rice when sold in the market are classified as heirloom rice which command a higher price almost double than the commercial rice.

Under this scheme, farmers get to sell a 50 kg sack of rice P2500 which is better than 1,200 per sack for hybrid rice. Yield per hectare for heirloom rice is 50-60% of the average 80 cavans per hectare for hybrid rice, though. That offsets the price difference per kilo. If you consider for the savings obtain because of less expense for chemical fertilizers and pesticides, then maybe there is a better profit margin (Cariño, 2008).

On the cost and return analysis, result shows that lower cost of production is incurred with Taiwan rice production at an average cost of P 21,520 per ha and for *Ginulot* rice at an average cost of P 25, 330, a difference of P3, 810. The cost incurred in Taiwan rice production comprises most of cash cost while for *Ginulot* rice it is more on non-cash cost using opportunity cost in the analysis. However, net income derived from

Ginulot rice (P118,670 per ha) was a little higher than the Taiwan rice (P118,480 per ha) because of the premium price for *Ginulot* or heirloom rice. If production/yield of *Ginulot* rice would increase then a better profit will be derived. Return for cash cost cost/expenses was higher for *Ginulot* rice at 12.39.

Result implies that growing both variety of rice provides a good income to the farmers. However, the priority of the Agriculture Office is the production of heirloom rice (growing the traditional/indigenous varieties using also traditional or indigenous method), because of the agreement with United States that the Cordillera will export 8 tons of heirloom rice per year (See, 2010). The export of heirloom rice to the US is being administered by the Revitalized Indigenous Cordillera Entrepreneurs (RICE) which has established linkages with prospective markets in order to accommodate the increasing production of native rice. Revitalized Indigenous Cordillera Entrepreneurs (RICE) is a non-stock (non-profit) corporation registered in the Philippines with a mission to preserve heirloom rice and the culture of the community rice production that surrounds it.

Table 8. Comparative cost and return analysis of Taiwan and *Ginulot* rice production (1 ha)

PARTICULAR	TAIWAN	*GINULOT*
Gross Sales/Revenue		
Yield (cavans)	56	48
Price (P)	2,500	3,000
TOTAL REVENUE	140,000	144,000
Cost of Production		
Cash Cost		
Fertilizer	3,200	
Insecticide	800	

Table 8. Continued.

PARTICULAR	TAIWAN	*GINULOT*
Weedicide/herbicide	1,200	
Labor (uprooting seedlings, planting and harvesting)	3,000	4,500
Labor (Land preparation)	1,500	1,500
Threshing cost	3,000	3,000
Milling cost	3,000	
Sacks	660	580
TOTAL CASH COST	13,760	9,580
Non-Cash Cost		
Seeds	2,200	2,200
Compost, sunflower leaves, etc. (labor for collecting and hauling)	-	4,000
Manual milling		2,000
Drying of palay	1,500	1,500
Labor cost (Land preparation, uprooting of seedlings, transplanting, harvesting, etc)	4,000	6,000
Depreciation cost	60	50
TOTAL NON-CASH COST	7,760	15,750
TOTAL COST	21,520	25,330
NET INCOME	118,480	118,670
RETURN ON EXPENSES	5.51	4.68
RETURN ON CASH COST/EXPENSES	9.32	12.39
RETURN ABOVE CASH COST	126,240	134,420
RETURN ABOVE NON-CASH COST	132,240	128,250

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The study was conducted to describe the differences of Taiwan rice and the *Ginulot* rice production in terms of production methods, post harvest methods and yield. To identify the cost incurred in Taiwan and *Ginulot* rice production, identify the returns derived from Taiwan and *Ginulot* rice production and to identify which is more profitable between the two varieties.

There were 45 respondents from the area which is 40 for Taiwan and 5 for the *Ginulot* rice. The data were collected through survey using survey questionnaire. Findings show that majority of the respondents for Taiwan rice were ages ranging 30-40 years old while for *Ginulot* rice were ages ranging 71-80 years old. The number of male respondents is equal to the number of female respondents which implies that farming is both a work for male and female.

Majority of the respondents had rice production or farming as their major source of income and some consider it as additional source of income or rice for home consumption. Most of the respondents had an annual income ranging 50,000-100,000 for both Taiwan and *Ginulot* rice farmer respondents. For both Taiwan and *Ginulot* rice farmer respondents, majority were in rice production for 1-10 years.

Majority of the respondents mentioned that they grow Taiwan and *Ginulot* rice because both varieties deliver a better income. This is due to the fact that the price of both rice is premium or higher than the other rice varieties commonly grown in other areas of the Philippines. The result show that income derived from production is the major consideration of farmers in the decision on what variety to produce.

Cost and return analysis, result shows that lower cost of production is incurred with Taiwan rice production at an average cost of P 21,520 per ha and for G*inulot* rice at an average cost of P25, 330. The cost incurred in Taiwan rice production comprises most of cash cost while for *Ginulot* rice it is more on non-cash cost. Net income derived from *Ginulot* rice (P118,670 per ha) was a little higher than the Taiwan rice (P118,480 per ha) because of the premium price for *Ginulot* or heirloom rice. Return for cash cost cost/expenses was higher for *Ginulot* rice at 12.39.

Conclusions

Based on the findings the following conclusions were derived;

1. Production of Taiwan rice employed conventional method using synthetic fertilizers and chemical pesticides. Production of *Ginulot* rice follows the traditional or indigenous rice production practiced by old folks in the area. Thus more labor is utilized in *Ginulot* rice production.

2. Production of both Taiwan rice and *Ginulot* are profitability giving a high income ranging at P 118,480 and P118,670 per annum respectively.

3. Yield of Taiwan rice was higher as compared to *Ginulot* rice but the price of *Ginulot* variety was higher thus higher income for *Ginulot* rice.

Recommendations

Based on the conclusions, it is recommended the production of both varieties to continue in the area to cater to the export and local market because of the good eating quality of both varieties. With the assistance of RICE to heirloom rice farmers in the Cordillera and linkage to the US market then farmers should be encourage to produce

heirloom rice to meet the demand of the market at the same time supporting the objectives of the RICE. The growing of heirloom rice in Mountain Province, Ifugao and Kalinga is a significant development of the government in an effort of the concerned agencies to preserve and protect the man-made rice terraces as well as the bid to preserve and protect the deteriorating watersheds and forest in the region being spearheaded by the Regional Development Council.

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APPENDICES

APPENDIX A

Letter to the Respondents

Republic of the Philippines
Benguet State University
College of Agriculture
DEPARTMENT OF AGRICULTURAL ECONOMICS
AND AGRIBUSINESS MANAGEMENT

September 2010

Sir/Madam:

I am a fourth year student taking up Bachelor of Science in Agriculture major in Agricultural Economics at Benguet State University. To fulfill my field of study, I am required to conduct this research titled, "A Comparative Study on the Economic Profitability of Taiwan and *Ginulot* Rice of Bila, Bauko, Mountain Province". In this connection, may I therefore ask your time, your honesty, and sincerity in giving the needed information about my study.

Thank you very much! God bless you.

Respectfully yours,

JAMES L. BATAWANG
Student Researcher

Noted by:

JOVITA M. SIM
Thesis Adviser

APPENDIX B

Farm Survey Questionnaire

A. Farmers Profile

Name: _____

Age: _____ Gender: _____ Marital Status: _____

Educational Attainment

____ No formal education ____ Elementary graduate ____Vocational

____ High school graduate ____ College graduate _____Others, specify

Household size: _____

Annual household income: _____

Major source of income: _____

What are the varieties of rice produced?

How many years producing that variety?

Reasons in producing that variety of rice

____ Low cost of inputs ____ Premium price

____ Better income Delivered ____Others, specify

B. Farm Profile

Farm location:

Year started farming:

Characteristics of the farm area:

____ Elevation ____ Open area

Size of the farm area: _____

Source of planting materials:

____ Own seeds ____ from neighbors

____ bought from farm supplies ____ Others, specify

C. Labor Cost

ACTIVITY	MD/MH/ MA		COST/MD/MH		TOTAL COST	
	Taiwan Rice	*Ginulot*	Taiwan Rice	*Ginulot*	Taiwan Rice	*Ginulot*
Land Preparation						
Planting						
Fallowing						
Weeding						
Fertilizer						
Harvesting						

D. Farm inputs

FARM INPUTS	QUANTITY		PRICE	
	Taiwan rice	*Ginulot*	Taiwan rice	*Ginulot*
Seedlings				
Fertilizer				
Sacks,				
Pesticide,				
Weedicide				

E. Farm implements

FARM IMPLEMENTS	QUANTITY		PRICE	
	Taiwan Rice	*Ginulot*	Taiwan Rice	*Ginulot*
Plow				
Sickle				
Grab hoe				
Trowel				
Bolo				
Irrigation implements				
Shovel				

F. Variety

Variety	Can(s)of rice produced	Price per cavan
Taiwan Rice		
Ginulot Rice		

What is/(are) your market outlet(s)?

Are you producing for the market or for home consumption?