

BIBLIOGRAPHY

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ABSTRACT

The study aimed at assessing the post harvest practices of rice farmers in Pedlisan, Maddela, Quirino. Specifically, it identified the post harvest practices employed by the rice farmers; identify the problems encountered by the rice farmers in relation to post harvest practices as to threshing, drying, storing, milling, transporting, and marketing; and to determine the measures undertaken by the farmers to counter the problems in post harvest practices. The data were gathered from sixty-eight (68) respondents who were engaged in rice production for at least five years. Survey questionnaire, supplemented with personal interview and actual observation was used to gather information.

As to the findings, majority of the respondents were males, were married and belonged to middle ages. They cultivated an area of 1.0 – 1.99 hectares. Traditional practices were used in producing rice. Mechanical threshing was usually practiced than manual threshing. Harvested palay were dried along the road for two – three days. The dried palay were stored and piled in their residential house. Mechanized milling was being practiced and transports their product through the use of four wheel vehicle. Dried palay were sold on a whole sale basis to local buying station.

Moreover, post harvest problems in rice were lack of threshing machine, occurrence of typhoon during harvest, stored palay was attacked by rodents, milling machine had no stoner, poor road condition, and buyers buy their product at a low price.

Measures undertaken to counter the problems encountered by the rice farmers were through the use of improvised wooden rock, dry their palay granary especially during wet season, used of rat poison and use of improvised carts pulled by draft animals.

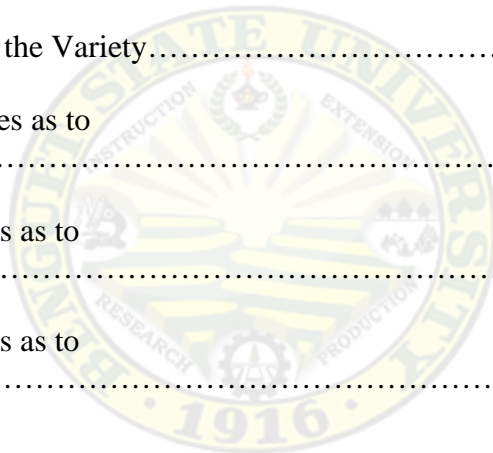
Based on the result of the study, the following recommendations were made: The respondents should be organized to cater to the needs on post harvest facility problems and they should attend trainings to update their knowledge on post harvest technologies.



TABLE OF CONTENTS

	Page
Bibliography	i
Abstract	i
Table of Contents.	iii
INTRODUCTION.	1
Rationale	1
Statement of the Problem.. . . .	1
Objectives of the Study	2
Importance of the Study.....	2
Scope and Limitation.....	2
REVIEW OF LITERATURE	3
Harvesting.....	3
Post Harvest Handling and Practices	3
Threshing.....	4
Drying.....	4
Milling.....	5
Packaging.....	6
Storage.....	6
METHODOLOGY.....	7
Locale and time of the Study.....	7
Respondents of the Study.....	7

Collection of Data.....	7
Research Instruments.....	7
Data Analysis.....	8
RESULTS AND DISCUSSION.....	9
General Information of the Respondents.....	9
Area for Rice Production.....	11
Number of Years Engage in Rice Production.....	12
Rice Varieties Cultivated.....	13
Reasons in Choosing the Variety.....	14
Posts Harvest practices as to Harvesting.....	15
Post Harvest Practices as to Maturity Indexes.....	15
Post Harvest Practices as to Threshing	15
Number of Days in Drying.....	16
Post Harvest Practices as to Drying Area.....	17
Post Harvest Practices as to Drying.....	17
Post Harvest Practices as to Storage.....	18
Post Harvest Practices as to Milling.....	19
Post Harvest Practices as to Transporting	19



Post Harvest Practices as to Marketing.....	20
Post Harvest Practices as to Threshing Problem.....	21
Post Harvest Practices as to Drying Problem.....	21
Post Harvest Practices as to Storage Problem.....	22
Post Harvest Practices as to Milling Problem.....	23
Post Harvest Practices as to Transporting Problem.....	23
Post Harvest Practices as to Marketing Problem.....	24
Measures Undertaken as to Threshing Problems.....	24
Measures Undertaken as to Drying Problems.....	24
Measures Undertaken as to Storage Problem.....	26
Measures Undertaken as to Milling Problem.....	26
Measures Undertaken as to Transporting Problem.....	27
Measures Undertaken as to Marketing Problem.....	28
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	29
Summary.....	29
Conclusions.....	30

Recommendations.....	31
LITERATURE CITED.....	32
APPENDIX.....	33
A. Communication Letter.....	33
B. Survey Questionnaire.....	34



INTRODUCTION

Rationale

Rice (*Oryza sativa L.*) is the staple food of the Filipinos. It is a politically sensitive commodity with which supply disruption causes people distress. The Philippines consumes about 33,000 tons of rice daily. Approximately, 80% of the total population spends almost 1/4 of their income on rice alone (Mears, 1974).

In barangay Pedlisan, Maddela, Quirino where rice is the major crop, post harvest practices are usually observed just after the harvesting time from the month of October to November and for the second crop harvesting from March to April. And since all people in the community are engaged in agriculture, there is need to study and analyze their ways of farming especially in the post harvest practices of their products which had been handed down from generation to generation from their ancestors.

Statement of the Problem

Since all farmers in Pedlisan produce rice as their main crop, it is appropriate to evaluate their post harvest practices and its effect on rice production. This study therefore attempts to answer the following questions:

1. What are the post harvest practices employed by the rice farmers in Pedlisan, Maddela, Quirino as to threshing, drying, storing, milling, transporting and marketing?;
2. What are the problems encountered by the rice farmers in relation to post harvest practices as to threshing, drying, storing, milling, transporting and marketing; and
3. What are the measures undertaken by the rice farmers to counter the problem encountered in post harvest practices?



Objectives of the Study

Generally, the study aimed to assess the post harvest practices of rice farmers in Pedlisan, Maddela, Quirino. In line with this general objective specific objectives were the following to:

1. Identify the post harvest practices employed by the rice farmers in Pedlisan, Maddela, Quirino as to threshing, drying, storing, milling, transporting and marketing;
2. Identify the problems encountered by the farmers in relation to post harvest; and
3. Determine the measures undertaken by the rice farmers to counter the problem encountered in post harvest practices.

Importance of the Study

The result of the study will help farmers not only in barangay Pedlisan but also in the municipality of Maddela to become familiar with the different post harvest practices of rice farmers. This study will also serve as the baseline information to the agriculturists, farmers and students to adopt relevant strategies for better post harvest handling of rice.

Scope and Limitation

The study was limited only to the post harvest practice of rice farmers in Pedlisan, Maddela, Quirino.



REVIEW OF LITERATURE

Harvesting

Harvesting generally refers to all operations carried out in the field which include cutting the rice stalk or reaping the panicles, either laying out the paddy -on -stalk or stacking it to dry, and bundling for transport. Harvesting and its related handling operations and processes should be understood to prevent considerable amount of post-production losses. There is a positive relationship between the method of handling and the degree of loss as shown by various study. Too much paddy handling creates a problem both in quality and quantity.

Several methods of harvesting have evolved during the progress of rice production. The most common among the developing countries are still the use of sickle which is the traditional manual method (Naphire, 1997).

Post Harvest Handling Practices

Post harvest is a specific term used for the movement of commodities from harvest to the time immediately prior to meal preparation which also include the technological aspect of marketing and distribution, as cited by Equetan (2001). The import consideration in post harvest handling and sorting the crops is to prolong the time with in which the commodity would be used.

Salbino (1993) cited that in order to produce maximum yields or high milling quality, rice should be harvested when moisture content of the grain standing rice has to drop to 23% from 28%. In addition, proper harvesting and threshing should be done to minimize field losses. Clean and dry grains to 14% moisture content or lower before storage. For sun drying, spread palay on concrete pavement at 2-4 cm. thick and mix



every 30 minutes for uniform drying and to prevent over heating. This result to better milling recovery. Use dryers if available for uniform and faster drying. For seed purposes, palay should be dried lower than 14% moisture content (Gintong Ani, 1996).

Threshing

Harvested crops should be threshed soon; otherwise, the grain quality will deteriorate with longer waiting between harvesting and threshing. Machine threshing is normally done immediately after harvesting when the grain MC is 20 to 25 percent. If the grain MC is < 20 percent or > 25 percent, grain damage will occur at machine threshing. Hand threshing is normally done one to two days of field drying after harvest, when the grains reach 20 percent MC. If the grain MC is > 25 percent, it will be difficult to thresh and separate the grains from panicles by manual threshing (Fischer and Cordova, 1998).

Drying

Rice grains are dried to 14 percent MC before storage. Sun drying is the most common method used by farmers in Asia. If properly done, the moisture will be reduced from 20 to 14 percent in one day. Grain damage by rains, wind, or by birds is common in open drying floors. Different types of dryers are available for drying wet rice: low cost in-store dryer (SRR) (1-2 tonnes/60-70 h), flat bed dryer (4-6 tonnes/8 h), columnar batch recirculating dryer (1-2 tonnes/6-8 h), etc. The grain quality is good and the germination percent is high with machine-dried rice (Andales *et al.*, 1996).

Ardullo (1976) stated that majority of the farmers rely on sun drying of threshed paddy. The process is normally cheaper than artificial drying and requires no special skills. Essentially, it is a natural method of drying since it relies mainly on solar energy



and natural air movement. It is different from natural field drying since conventional sun drying involves drying of threshed grains and requires a drying floor and occasional mixing or turning of the grain to avoid uneven drying or subjecting the grain to excessive temperature which include cracking or fissuring.

Milling

The “kiskisan” is popularly and widely used in rural areas because of its availability, low capital outlay and its low volume requirement for milling and production of rice bran (Ilayat, 2004).

Packaging

Andales (1996) as cited by Martin (2006) stated that in small-scale production and processing, field-threshed and partially cleaned paddy is bagged in jute or propylene sacks for handling purposes in transporting paddy from the field to the roadside or to the house. The weight of each bag ranges from 30 to 100 kg depending upon the trading practice in the locality or country.

In large-scale and mechanized rice production operations where the combine is used, the paddy is not packaged but instead delivered in bulk to the rice mill or drying compound. From the combine hopper, paddy is transferred by means of an auger conveyor to a waiting lorry or wagon at the roadside or alongside the combine depending upon the traffic ability of the field.

Milled rice, the final product for marketing, is packaged in polyethylene, propylene or jute sacks in weights ranging from 1 kg to 1000 kg depending upon whether the market is for retail or wholesale or for export. Higher quality rice normally retailed in



specialty groceries and in supermarkets is packed in attractively labeled packages made of polyethylene, propylene, jute and paper bags or cardboard boxes. Brown rice, which has a special market, is packed in sealed polyethylene bag inside the cardboard box or the outer bag. This is to increase the shelf life of the grain, which is prone to rapid rancidity due to the free fatty acid in the bran.

Rice is retailed in small village stores and displayed in their original large sized sacks or in wooden bins and labeled as to variety and price per unit weight or volume as may be required by law in some developing countries. In this case, purchased rice is weighed or measured and packed in plastic bags or other container brought in by the customer.

Storage

Farmers store their paddy in traditional and non-traditional structures primarily for food security until the next harvest. Also, as a source of cash during emergencies, for seeds, for future increase in price of paddy during the lean months, and for anticipated future festivities. Paddy retained for storage is sun-dried several times and cleaned before loading to the storage containers. Although farmers do not have moisture meters, they know by experience the dryness of the grain appropriate for storage. Grain dryness is determined by pressing hard a bunch of grains on the hand and/or biting several grains to determine hardness. Usually, a fully dried grain is hard. Paddy is usually stored with 14 percent moisture content or lower. Storage containers are checked, cleaned and repaired if necessary, before loading the grain. Paddy is stored until the next harvest season or for 6-12 months (Lantin, 1994).



METHODOLOGY

Locale and Time of the Study

Pedlisan is a major producer of rice and is one of the 32 barangays of Maddela, a first class municipality in the province of Quirino. It is a land locked agricultural-based community located 6 kilometers away from the municipal market.

On the other hand, the study was conducted from December to January 2011.

Respondents of the Study

Sixty eight (68) farmers who are engaged in rice production for the last five years were the respondents of the study. Random sampling was used to identify the respondents from the five (5) sitios of barangay Pedlisan.

Collection of Data

The researcher administered the survey to the respondents. For respondents with higher educational attainment, the questionnaire was given for them to accomplish. On the other hand, the questionnaire served as interview guide for “no read, no write” respondents.

Research Instruments

The researcher used survey questionnaire in collecting the needed data. Personal interview and observation were used to supplement the information.

Data Analysis



The data collected was tabulated and consolidated. Percentage, frequency distribution were utilized in the descriptive presentation of the general information derived.



RESULT AND DISCUSSION

This portion of the study answers the following specific problems:

1. What are the post harvest practices employed by the rice farmers in Pedlisan, Maddela, Quirino as to threshing, drying, storing, milling, transporting, and marketing?
2. What are the problems encountered by the rice framers in relation to post harvest practices as to threshing, drying, storing, milling, transporting, and marketing
3. What are the measures undertaken by the rice farmers to counter the problems encountered in post harvest practices?

General Information of the Respondents

Table 1 shows the general information of the respondents which includes gender; civil status; ethnic affiliation and educational attainment.

Gender. Among the 68 respondents, 67.76% of them were males and 38.24% were females who are engaged in rice production for the last five years.

Age. As shown in Table 1, 19.12% of the respondents belonged to age bracket of 41 to 45 and from 46 to 50 years old; 13.24% belonged to 56-60 years old; 11.76% from age bracket of 36-40 years old; 10.29% from age bracket 26-30; 8.82% from 31-35 and 61 and above years old; 7.35% from 51-55 years old; and 1.47% from 21-25 years old. This implies that rice farmers of Pedlisan, Maddela, Quirino belongs to middle age.

Civil Status. Majority of the respondents (80.88%) were married; 10.29% were single; and 8.82% were widow. This finding indicates that majority of the respondents were married and with family to support.



Table 1. General information of the respondents

PROFILE	FREQUENCY	PERCENTAGE
Gender		
Male	42	61.76
Female	26	38.24
TOTAL	68	100.00
Age Bracket		
21 – 25	1	1.47
26 - 30	7	10.29
31 - 35	6	8.82
36 - 40	8	11.76
41 - 45	13	19.12
46 - 50	13	19.12
51 - 55	5	7.35
56 - 60	9	13.24
61 & above	6	8.82
TOTAL	68	100.00
Civil Status		
Single	7	10.29
Married	55	80.88
Widow	6	8.82
TOTAL	68	100.00



Table 1 Continued. . . .

PROFILE	FREQUENCY	PERCENTAGE
Ethnic Affiliation		
Applai	64	94.12
Ilocano	2	2.94
Ifugao	2	2.94
TOTAL	68	100.00
Educational Attainment		
Elementary undergraduate	20	29.41
Elementary graduate	9	13.24
High School Undergraduate	18	26.47
High School Graduate	9	13.24
College Undergraduate	8	11.76
College Graduate	4	5.88
TOTAL	68	100.00

Ethnic affiliation. Most (94.12%) of the respondents were Applai from Mountain Province, 2.94% were Ilocano and another 2.94% were Ifugao. This implies that most of the farmers from the area were Applai from Mountain Province due to migration.

The Applai are indigenous people of the western Mountain Province which is composed of the municipalities of Besao, Sagada and parts of Sabangan, Bauko and Tadian. The word Applai is a term popularly used by the Mountain Provinces Easterners



to refer to the Mt. Province Westerners, in the same manner that the Easterners are called "I-lagod." The word Applais are sometimes referred to as "kankanaeys" of Mountain Provinces because of some similarities. Noting however, the difference in culture from Benguet Kankanaeys, especially in ritual observance, then Congressman Alfredo Lam-En, himself an Applai, had the "Applai" accredited as a separate tribe. (<http://library.thinkquest.org/C003235/applai.html>)

Educational Attainment. Twenty (20) or 29.41% of the respondents were Elementary undergraduate; nine (9) or 13.24% were Elementary graduate; eighteen (18) or 26.47 % were High School Undergraduate; nine (9) or 13.24% were High School graduate; eight (8) or College Undergraduate; and four or 5.88% were College graduate.

Area for Rice Production

Table 2 shows that 54.41 % of the respondents cultivated 1.0 – 1.99 hectares; 22.06 % cultivated 2.0 – 2.99 hectares; 19.12 % of the respondents cultivated less than a hectare; and 4.41 % cultivated 3.0 and above hectares of land.

Number of Years Engaged in Rice Production

Table 3 shows that more than 33.82 % of the respondents were engaged in rice production for 11-15 years; 27.94% for 21 and above; 16.18 % from the respondents were engaged in rice production for 16-20 years; 14.71 % from 1-5 years; and 7.35 % of the respondents were engaged in rice production for 6-10 years.



Table 2. Area for rice production

AREA	FREQUENCY	PERCENTAGE
less than one	13	19.12
1.0 - 1.99	37	54.41
2.0 - 2.99	15	22.06
3.0 and above	3	4.41
TOTAL	68	100.00

Table 3. Number of years engaged in rice production

NUMBER OF YEARS	FREQUENCY	PERCENTAGE
1-5 years	10	14.71
6-10 years	5	7.35
11-15 years	23	33.82
16-20 years	11	16.18
above 21	19	27.94
TOTAL	68	100.00

Rice Varieties Cultivated

Table 4 shows the rice varieties cultivated by the respondents which includes the following: C-1, C-18, PG7, Jasmine, 82, 92, INSIC-160, and INSIC-156. Majority (57.35) percent of the respondents cultivated C-18 variety; 45.59 percent cultivated 82 variety; 19.12 for INSIC-160; 11.76 for C-1 variety; 8.82 percent cultivated Jasmine variety; 5.88 percent for PG-7 variety; and 4.41 percent cultivated INSIC-156 variety.



Reasons in Choosing the Variety

Table 5 shows the reasons of the respondents in choosing the variety of rice they cultivated. 83.82% choose the variety because it is good quality (aroma and taste); 30.88% because it is available and because it is high yielding variety; 5.88% for cheaper in price; and 1.47% choose the variety because it was a good milling recovery.

Table 4. Rice variety cultivated

VARIETY	FREQUENCY	PERCENTAGE
C-1	8	11.76
C-18	39	57.35
PG-7	4	5.88
Jasmine	6	8.82
82	31	45.59
92	7	10.29
INSIC-160	13	19.12
INSIC-156	3	4.41

*multiple response

Table 5. Reasons in choosing the variety

REASON	FREQUENCY	PERCENTAGE
It is available	21	30.88
High yielding variety	21	30.88
Good quality (aroma and taste)	57	83.82
cheaper in price	4	5.88
good milling recovery	1	1.47



*multiple response
Post Harvest Practices as to
 Harvesting

All of the respondents used sickle in harvesting their palay. This implies that the respondents did not use transverse- bladed knife in harvesting their palay because it was time consuming and they did not use mechanized harvester (tractor) because they cannot afford with the high cost of the technology.

As corroborated by De Datta (1981) several methods of harvesting have evolved during the progress of rice production. The most common among the developing countries are still the use of sickle which is the traditional manual method in long stalk cutting of rice.

Post Harvest Practices as to
 Maturity Indexes

Table 6 shows that 66.18% of the respondents determined maturity by looking at its appearance; 57.35 % determine maturity by looking at its color. Leaves and rice grain are golden yellow in color. 23.53 % determined maturity by counting the number of days. Counting the number of days was usually done from planting until harvesting time and usually an average of 125 days for the “biit rice” to 185 days for the “bayag rice”. Another determined maturity index by computation as claimed by 2.94% of the respondents and 1.47% determined maturity by doing the sampling method. This implies that majority of the respondents determined maturity index by looking at its appearance.

Post harvest Practices as to Threshing

Table 7 shows that 98.53 % of the respondents practiced the used of mechanical threshing and 17% used manual threshing such as improvised wooden rock/ mortar and



pestle. This implies that used of mechanical threshing can make their work easier, reduced grain losses and reduced labor requirement rather than the used of manual threshing.

Number of Days in Drying

All of the respondents claimed that they dried their palay for a period of one to three days.

Table 6. Maturity indexes

MATURITY INDEXES	FREQUENCY	PERCENTAGE
By counting the no. of days	16	23.53
By looking at its color	39	57.35
By sampling	1	1.47
By looking at its appearance	45	66.18
By computation	2	2.94

*multiple response

Table 7. Post harvest practices as to threshing

THRESHING PRACTICES	FREQUENCY	PERCENTAGE
Mechanical threshing	67	98.53
Manual threshing using improvised wooden/metal rock	17	25.00

*multiple response

Post Harvest Practices as to Drying Area



Table 8 shows that majority (79.41%) of the respondents spread their palay along the road as their drying area; 41.18% utilize the public area (school playground, basketball court); 23.53% of the respondents dried their grains on privately owned drying pavement; and 5.88% used the black net / tarpaulin for drying. This shows that majority of the respondents were drying their rice grains along the road. This is because the palay can be easily dried and convenient to use.

Post Harvest Practices as to Drying

As shown in Table 9, most (98.53%) of the farmers rely on traditional/ sun drying as method of drying their rice grains. Field drying method was practiced by 8.82% of the respondents. Another 1.47 % from the respondents practiced shade drying particularly for grains intended for seeds. This implies that most of the respondents practiced traditional sun drying method in drying their rice grain.

As stated by Ardullo et al (1976), sun drying is normally cheaper than artificial drying and requires no special skills. Essentially, it is a natural method of drying since it relies mainly on solar energy and natural air movement. It is different from natural field drying since conventional sun drying involves drying of threshed grains and requires a drying floor and occasional mixing of the grain to avoid uneven drying or subjecting the grain to excessive temperatures which induce cracking or fissuring.

Table 8. Post harvest practices as to drying area



DRYING AREA	FREQUENCY	PERCENTAGE
Spread along the road	54	79.41
Dry on privately owned drying area	16	23.53
Dry on public area (school playground, basketball court)	28	41.18
Net	4	5.88

*multiple response

Table 9. Post harvest practices as to drying

DRYING PRACTICES	FREQUENCY	PERCENTAGE
Traditional/sun drying	67	98.53
Shade drying	1	1.47
Field drying	6	8.82

*multiple response

Post Harvest Practices as to Storage

The data revealed (Table 10) that 42 or 61.76 % of the respondents piled the palay in sacks one side of their room as their storage practices; 14 or 20.59% piled the sacks inside the rice granary; 10 or 14.71% piled the palay sacks in open sheds near drying pavement; 8 or 11.76 % piled their palay beside the road; and 1 or 1.47 % stored their palay in the milling station.

Table 10. Post harvest practices as to storage



STORAGE PRACTICES	FREQUENCY	PERCENTAGE
Place in sacks and pile one side/room of the residential	42	61.76
Place in sacks and pile inside barn (kamarin)	14	20.59
Pile in sheds near drying pavement	10	14.71
Pile beside the road	8	11.76
Store in the milling station	1	1.47

*multiple response

Post Harvest Practices as to Milling

All of the respondents used mechanized rice mill “kiskisan” in milling their palay. This implies that manual milling using hammer beam pounder or mortar and pestle is not being practiced by rice farmers. As corroborated by Ilayat (2004, the “kiskisan” is popularly and widely used in rural areas because of its availability, low capital outlay, and its low paddy volume requirement for milling and production of rice bran.

Post Harvest Practices as to Transporting

Table 11 shows that 61.76 %of the respondents used improvised cart pulled by draft animals as their means of transporting palay; 55.88%used four wheeled vehicle (jeepney, elf truck, etc.) as the means of transportation; 20.59% used tricycle as their transportation; and 5.88% of the respondents used of human power. This implies that majority of the respondents used improvised carts pulled by draft animals as means of transportation.

Table 11. Post harvest practices as to transporting



TRANSPORTING PRACTICES	FREQUENCY	PERCENTAGE
Use of improvised cart pulled by draft animals	42	61.76
Use of tricycle	14	20.59
Use of four wheel vehicle (jeepneys, elf truck, etc.)	38	55.88
Use of human power	4	5.88

*multiple response

Post Harvest Practices as to Marketing

Table 12 shows the marketing practices of rice farmers which include marketing practices as to bulk, location, and moisture content.

Mode of Selling. Majority of the respondents (79.41%) practiced whole sale in marketing their palay; (17.65 %) for wholesale- retail; and (8.82%) practiced retail in marketing their palay.

As to Location. Majority (69.12%) of the respondents sold their palay to local buying station; 27.94% brought their palay to municipal buying station; and 10.29% marketed their palay on-farm.

As to Moisture Content. Most (91.18%) of the respondents market their palay on dry weight and 35.29% sold it fresh.

Table 12. Post harvest practices as to marketing

MARKETING PRACTICES	FREQUENCY	PERCENTAGE
MODE OF SELLING		
Wholesale	54	79.41



Retail	6	8.82
Wholesale-retail	12	17.65
AS TO LOCATION		
Farm gate/on-farm	7	10.29
Bring to local buying station	47	69.12
Bring to municipal buying station	19	27.94
MOISTURE CONTENT		
Dry	62	91.18
Fresh	24	35.29

*multiple response

Post Harvest Practices as to Threshing Problems

Table 13 shows that 27.94% of the respondents had no thresher; and 2.94% of the respondents had lack of laborers.

Post Harvest Practices as to Drying Problems

Table 14 shows that 66.18 percent of the respondents had a drying problem of occurrence of typhoon during harvest; 25 percent for non- availability of drying pavement; 10.29 percent for non- availability of drying machines; and 4 .41 percent of the respondents problem on labor. This indicates that occurrence of typhoon during harvest was the major problem of the respondents.

Post Harvest Practices as to



Storage Problems

Table 15 indicates that 34 or 50 % of the respondents had problem on storage due to rodents; 21 or 30.88 % are due to weevil; and 14 or 20.59 % of the respondents had problem on chicken and birds.

Table 13. Post harvest practices as to threshing problem

THRESHING PROBLEM	FREQUENCY	PERCENTAGE
Lack of threshing machine	19	27.94
Lack of workers	2	2.94

*multiple response

Table 14. Post harvest practices as to drying problems

DRYING PROBLEM	FREQUENCY	PERCENTAGE
Lack of pavement/road	17	25.00
Occurrence of typhoon during harvest	45	66.18
Lack of drying machines	7	10.29
Lack of workers	3	4.41

*multiple response

Post Harvest Practices as to Milling Problems



Milling problem was due to the rice milling station that had no stoner as claimed by 16.18 % of the respondents and 10.29 % for non- availability of rice milling station as shown in Table 16.

Post Harvest Practices as to Transporting Problems

Table 17 shows that 16 or 23.53 percent of the respondents had transportation problem due to poor road condition; 14 or 20.59 percent for non- availability of vehicles; and 5 or 7.35 of the respondents transporting problem on expensive hauling fees. This indicates that their main problem in transporting their produced was due to poor road condition.

Table 15. Post harvest practices as to storage problems

STORAGE PROBLEM	FREQUENCY	PERCENTAGE
Attack by rodents	34	50.00
Attack by chicken and birds	14	20.59
Attack by weevil	21	30.88
*multiple response		

Table 16. Post harvest practices as to milling problem

MILLING PROBLEM	FREQUENCY	PERCENTAGE
Lack of milling station	7	10.29
The milling machine has no stoner	11	16.18
*multiple response		

Table 17. Post harvest practices as to transporting problems



TRANSPORTING PROBLEM	FREQUENCY	PERCENTAGE
Lack of vehicles	14	20.59
Poor road condition	16	23.53
Expensive hauling fees	5	7.35

*multiple response

Post Harvest Practices as to Marketing Problems

All of the respondents claimed that marketing was a problem that the buyers bought the palay/rice at a low price during harvesting.

Measures Undertaken as to Threshing

Table 18 shows that 65.18 % or majority had no possible solution undertaken to solve their problem on non-availability of threshing machine and 41.18 % claimed that they used improvised wooden rock as their measures to solve their problem.

Measures Undertaken as to Drying

As shown in Table 19 were the measures undertaken by the respondents on their drying problem. This includes non-availability of solar drying pavement, occurrence of typhoon during harvest and non-availability of drying machines.

Lack of Pavement. Majority (61.76%) dried their palay inside the rice granary and 38.24% of the respondents used black net and tarpaulin to dry their palay. This implies that majority of the respondents, dried their palay inside the rice granary as possible measures undertaken to solve their problem on non-availability of drying pavement especially during wet season.



Occurrence of Typhoon during Harvest. All of the respondents claimed that they had no measures to undertake when typhoon occur during harvest time.

Lack of Drying Machines. All of the respondents had no drying machines and they had no mechanical innovations to solve the problem.

Table 18. Measures undertaken as to threshing

MEASURES	FREQUENCY	PERCENTAGE
Non-Availability of Threshing Machine		
Use of improvised wooden rock	28	41.18
None	45	66.18
*multiple response		

Table 19. Measures undertaken as to drying

MEASURES	FREQUENCY	PERCENTAGE
LACK PAVEMENT/ROAD		
Use of black net and tarpaulin to dry palay	26	38.24
Dry inside the barn	42	61.76
TOTAL	68	100

Measures Undertaken as to Storage



Table 20 shows the different measures undertaken by the rice farmers as to storage problem. This includes the following: attacked by rodents, attacked by chicken and birds, and attacked by weevil.

Attacked by Rodents. Majority (61.76%) of the respondents claimed that they were using rat poison; (32.35%) of the respondents had no measures undertaken as to storage problem on attacked by rodents; and (5.88%) were using bio - control by cat rearing as their measures undertaken to solve their storage problem on rodents.

Attacked by Chicken and Birds. As to the problem, attacked by chicken and birds, 82.35 percents of the respondents used black net/ tarpaulin to cover their palay; and 17.65 percent had none measure undertaken in solving their problem.

Attacked by Weevil. Majority of the respondents (66.18%) dried their palay again or used solar radiations to control the attacked of rice weevil and (32.82%) do not use any measures to counter their problem.

Measures Undertaken as to Milling

There were no measures that the respondents undertake in their problem as milling is concerned. This shows that all of the respondents had no innovative measures in solving the non-availability of milling station in their barangay. Another problem that they could not solve was the non-availability of stoner in the rice milling machine.

Table 20. Measures undertaken as to storage



MEASURES	FREQUENCY	PERCENTAGE
ATTACKED BY RODENTS		
Use rat poison	42	61.76
Cats rearing	4	5.88
None	22	32.35
TOTAL	68	100
ATTACKED BY CHICKEN AND BIRDS		
Use of net to cover their palay	56	82.35
None	12	17.65
TOTAL	68	100
ATTACKED BY WEEVIL		
None	23	33.82
Dry again the palay at least once	45	66.18
TOTAL	68	100

Measures Undertaken as to Transporting Problem

Table 21 shows the different transporting measures that the respondents undertaken to solve their transporting problem. This includes the following: non-availability of vehicles, and poor road condition.

Lack of Vehicles



All of the respondents used improvised carts pulled by draft animals as their measure when vehicles were not available and used human power as a means transportation when vehicles are not available. They had no measures undertaken as poor road condition problem was concerned.

Measures Undertaken as to Marketing Problems

As to the measures undertaken in marketing problem was concerned. All of the respondents claimed that they just sold their palay to middlemen even if they bought it at the lowest price.

Table 21. Measures undertaken as to transporting

MEASURES	FREQUENCY	PERCENTAGE
LACK OF VEHICLES		
Use of improvise carts pulled by draft animals	68	100
Use of human power	32	47.06
POOR ROAD CONDITION		
None	68	100
TOTAL	68	100





SUMMARY, RESULTS AND RECCOMENDATIONS

Summary

The study on assessment of post harvest practices of rice framers in Pedlisan, Maddela, Quirino was conducted to identify the post harvest practices employed by the



rice farmers, to identify the problems encountered by the rice farmers in relation to post harvest practices as to threshing, drying, storing, milling, transporting, and marketing and to determine the measures undertaken by the rice farmers to counter the problems encountered in post harvest practices.

It was conducted from December 2010 to January 2011 with the used of survey questionnaires and supplemented with personal interview. The data gathered were tabulated and analyzed through percentage, frequency and weighted mean.

Sixty-eight respondents were interviewed. Majority of them were males, married and have families to support, they belonged to middle age and most of them were undergraduate. Majority of them cultivated an area of 1.0-1.99 hectares of land for 21 years and above. Specific rice variety cultivated is C-18 because of its good quality based on aroma and taste.

As to the findings on post harvest practices, majority of the respondents used sickle in harvesting their palay and they determine maturity index by looking at its appearance and its color. Mechanical threshing was the usual practice than manual threshing. Harvested palay were spread and dried along the road through sun drying method for about 2-3 days. The dried palay were placed in sacks and stored on the residential houses. Mechanized milling was practice and they transported their product through the used of four wheeled vehicles. They sold the palay through whole sale marketing directed to local buying station. The palay should be fully dried.

Moreover, post harvest problems in rice were non-availability of threshing machine, occurrence of typhoon during harvest, rodents problem during storage, milling



machine had no stoner, poor road condition, and buyers bought their product at a low price.

Measures undertaken by the rice farmers were through the used of improvised wooden rock, dried their palay inside the granary especially during wet season, used of rat poison and used of improvised carts pulled by draft animals.

Conclusions

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

1. Post harvest practices of the respondents are; the use of sickle in harvesting, maturity index is used by looking at its appearance and color, used mechanical threshing, harvested palay are dried along the road for about 2-3 days, dried palay are stored in sacks and piled one side of their houses, mechanized milling is practiced and they transport their product through the use of four wheeled vehicles.

2. Dried palay are sold on whole sale marketing and marketed to local buying station.

3. Post harvest problems in rice are lack of threshing machine, occurrence of typhoon during harvest, stored palay are attacked by rodents, milling machine had no stoner, poor road condition, and buyers buy their product at a low price.

4. Measures undertaken to solve the problems encountered are; use of improvised wooden rock, dry palay inside the granary, use of rat poison and use of improvised carts pulled by draft animals.

Recommendations

Based on the result of the study, the following recommendations were made:



1. The rice farmers should be organized to cater the needs on post harvest facility problems like threshing/drying machine, storage house (granary) and transport facilities.
2. Farmers should attend trainings to update their knowledge on technologies in post harvest and rice production practices.



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APPENDICES

Appendix A

Communication

Republic of the Philippines
Benguet State University
College Of Agriculture
La Trinidad, Benguet

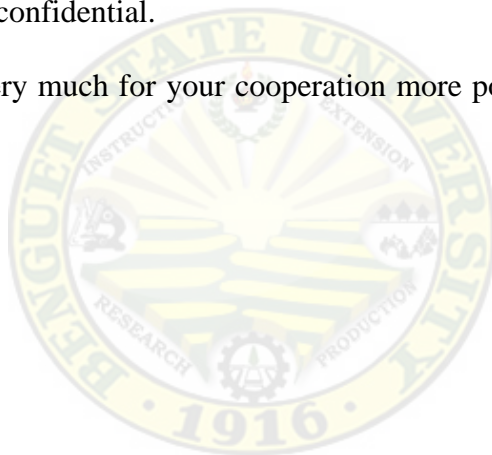


Dear Respondents,

Allow me to introduce myself. I am FRANCISCA D. KAWI, a fourth year student of Benguet State University (BSU). I am conducting a study entitled “AN ASSESMENT OF POST HARVEST PRACTICES OF RICE FARMERS IN PEDLISAN, MADDELA, QUIRINO.” This major course is a requirement of Bachelor of Science in Agriculture.

The success of this study relies on how honestly you will answer the questionnaire. Your valued cooperation is highly appreciated rest assured that your answers will be kept confidential.

Thank you very much for your cooperation more power, and may the Lord bless you.



Truly yours,

FRANCISCA D. KAWI
Researcher

Appendix B

Survey Questionnaire

I. General Information

1. Respondents name: _____

2. Gender: _____male _____female



3. Age: _____
4. Civil Status:
 single married widow/er
5. Home Address (place of Origin): _____
6. Ethnic Affiliation: _____
7. Educational Attainment:
 elementary undergraduate
 elementary graduate
 high school undergraduate
 high school graduate
 college undergraduate
 college graduate
 others, pls. specify _____

II. FARMING STATUS

1. Farming status (area intended for rice cultivation)
 0.1- 0.99 hectare
 1.0 – 1.99 hectares
 2.0 – 2.99 hectare
 3.0 – 3.99 hectare
 others, pls. specify _____
2. Number of years engaged in rice production
 1-5 years
 6-10 years
 11-15 years
 16-20 years
 above 21 years
3. What specific variety of rice do you plant?
 C1
 C18
 Sinandomeng
 Bordagol
 Jasmine
 others, specify _____
4. What is your reason in choosing the variety?
 it is available
 high yielding variety
 good quality based on aroma and taste
 cheaper in price
 others, specify _____

III. POSTHARVEST PRACTICES

A. HARVESTING

1. What method of harvesting do you use?
 sickle



- transverse-bladed knife
- mechanized harvester (tractor)
- others, specify _____

B. THRESHING

1. What procedure in maturity indexes do you used before harvesting?
 - by counting the no. of days
 - by looking at its color
 - by sampling
 - by looking at its appearance
 - by computation
2. Do you thresh your palay?
 - yes no
3. What method do you practice in threshing your palay?
 - mechanical threshing
 - manual threshing using improvised wooden/metal rock

C. DRYING

1. Do you dry your palay?
 - yes no
2. If yes, where do you dry your palay?
 - spread along the road
 - dry on privately owned drying area
 - dry on public area (school playground, basketball court)
 - net/ tarpaulin
 - spread on top of concrete building
3. What method do you adopt in drying?
 - traditional/ sun drying method
 - shade drying
 - field drying
 - others, specify _____
4. How many days do you dry your palay?
 - 1-3 days
 - 4-6 days
 - 7-9 days

D. STORAGE/ STORING

1. Do you store your palay?
 - yes no
2. If yes, how do you store your palay?
 - place in sacks and pile inside the rice granary (kamarin)
 - place in sacks and pile one side/room of the residential
 - pile in sheds near drying pavement
 - pile beside the road

E. MILLING

1. Do you mill your palay?
 - yes no



2. If yes, how do you mill your palay?
 mechanized milling
 manually using mortar and pestle

F. TRANSPORTING

1. Do you use transportation from farm to drying area?
 yes no
2. If yes, what type of transportation do you use?
 use of improvised cart pulled by draft animals
 use of tricycle
 use of four wheel vehicle (jeepney, elf truck, etc.)
3. If no, what do you usually practice?
 use of human power
 dry in the farm
 others, specify _____

G. MARKETING

1. What are the marketing practices as to bulk?
 wholesale
 retail
 wholesale-retail
2. What are the marketing practices as to location?
 farm gate/on-farm
 bring to local buying station
 bring to municipal buying station
 bring to national buying station

IV. PROBLEMS ENCOUNTERED

A. Threshing problem

- lack of threshing machine
 others, specify _____

B. Drying problem

- lack of pavement/road
 occurrence of typhoon during harvest
 lack of pavement/road
 lack of drying machines
 others, specify _____

C. Storage problem

- attack by rodents
 attack by chicken and birds
 attack by weevil
 theft and pilferage in the barn
 others, specify _____

D. Milling Problem

- lack of milling station
 the milling machine has no stoner



___ others, specify _____
 E. Transporting Problems
 ___ lack of vehicles
 ___ poor road condition
 ___ others, specify _____

F. Marketing Problems
 ___ buyers buy the palay/ rice in cheaper price
 ___ others, specify _____

V. What are the measures undertaken by the rice farmers to solve the problem encountered in post harvest practices?

PROBLEMS	MEASURES
A. THRESHING	
1. lack of threshing machine	
B. DRYING	
1.lack of pavement/road	
2.occurrence of typhoon during harvest	
3.lack of pavement/road	
C. STORAGE/STORING	
1. attack by rodents	
2. attack by chicken and birds	
3. attack by weevil	
4. theft and pilferage in the granary	
D. MILLING	
1. lack of milling station	
2. the milling machine has no stoner	
E. TRANSPORTING	
1. lack of vehicles	
2. poor road condition	
F. MARKETING	
1. buyers buy the palay/ rice in cheaper price	

