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Farming Practices of Rice Farmers in Can-Avid and Dolores, Eastern Samar

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ABSTRACT

The research aimed to account for the rice technologies practiced by farmers of Can-avid and Dolores, Eastern Samar. These two municipalities are considered as the major rice producing towns of Eastern Samar. It sought to determine the degree of adoption of modern and indigenous rice technologies and to identify the problems met by the farmers in using said technologies. A total of 57 farmers served as respondents. Percentage, means, ranks, and ranges were used to analyse the data.

The mean age of the respondents was 54.94 years old with intermediate as the highest educational attainment with 5.43 years of formal schooling. Majority were married with 17.68 average years of farming. The average farm size was 1.26 has.

The respondents prepared their rice field by trampling, use of native seeds and by winnowing basket in cleaning the palay with a weighted mean score of 2.04, 2.5, and 2.23 respectively. Results also revealed that 71.05 percent were unsuccessful and 28.93 percent were successful or highly motivated while majority of the modern rice farmers were considered successful or highly motivated (67%).

Lack of knowledge and skills about rice farming, farm implements, and limited capital were the problems met by farmers.

Keywords: indigenous rice technologies, farming practices

INTRODUCTION

Improving agricultural productivity has been the world's primary defense against a Malthusian crisis; the idea that food demand from a rising population will confront limits to natural resources and lead to famine (Ferglie 2012). On the other hand, Ricketts and Ricketts (2013) cited that agriculture has changed. For years, agriculture has become a career and a way of life. Today, however, the agricultural industry is now technology-oriented that includes production, agri-science and agri-business.

Rice farming employs practices and improved technologies starting from land preparation to post harvest operation of the crop. The land preparation of rice farming is laborious and time consuming because of labor intensive tools and equipment used. These equipment are mostly for manual post-harvest activities. In Eastern Samar, modern facilities have been largely ignored by farmers due to financial constraint. Rice farming activities include such cultural practices as cleaning the seedbed for raising the seedlings, transplantation, weeding, harvesting, and postharvest practices.

Asinov (2013) stated that increases in agricultural productivity lead also to agricultural growth and can help to alleviate poverty in poor and developing countries, where agriculture often employs the greatest portion of the population. He explained further that as farms become more productive, the wages earned by those who work in agriculture increase. At the same time, food prices decrease and food supplies become

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more stable.

The present trend in rice farming is focused towards the adoption of new technologies developed through specific researches. The International Rice Research Institute (IRRI), Philippine Rice Research Institute (Philrice) Universities and research centers are intensively working to discover new applicable technologies to help rural farmers obtain better income from their farms (Philrice, 2014; IRRI, 2014).

A number of development programs from government and non-government entities have been launched in an attempt to increase the buffer stock of rice. Financial assistance has also been packaged to help farmers procure the necessary production inputs with the purpose of producing higher yield and/or productivity.

According to Strasbourg (2013), transformation of agriculture into a business activity has created a demand for professional management and use of modern technologies in areas such as specialized production, post harvest management, promotion of value added agri-products, chain management, and marketing.

Moreover, research institutions have focused on the development of low cost farming technologies to solve the farmer financial incapability to follow recommended technologies. However, with the centralized implementation of government programs on rice production, acceptance of appropriate technologies which are location specific have always been a felt difficulty owing to varying cultural patterns among different places. It is natural therefore for farmers in a particular place to resist change in their rice farming practices and remain traditional. Despite the introduction of modern technologies, some farmers are still using the indigenous practices for some reasons. It is however possible through extension programs for farmers in a particular place to accept change and follow the recommended technologies in rice farming.

Indigenous rice farming practices by farmers have been passed on from their forefathers. Farmers continue to adopt these indigenous farming practices in their respective farms in spite of the new technologies available because they believe in their beneficial effects. This study focused on the indigenous rice practices by farmers in Can-avid and Dolores Eastern Samar. In particular, the study aimed to account for the rice technologies that were practiced by the farmers in these places. It also determined the degree of adoption of both modern and the indigenous rice farm practices, compared the benefits derived by farmers using the indigenous and the modern technologies, and analyzed the problems met by the farmers in adopting the aforesaid practices and/or technologies.

METHODOLOGY

This study was conducted in selected barangays (villages) of Can-avid and Dolores, Eastern Samar, Philippines being the rice bowl of the province. Purposive sampling was employed in selecting the barangays studied which included: Malogo, Canteros and Carolina in the Municipality of Can-avid; and Barangays Aroganga, Dampigan and Bonghon in the municipality of Dolores, Eastern Samar. The sites of the study were chosen from among the many barangays of Can-avid and Dolores, Eastern Samar because these barangays were rice producing areas, thus it was believed that farmers may have common problems and practices. These barangays are easily reached by different agents of the government for technology transfer and other new innovations, especially in agriculture.

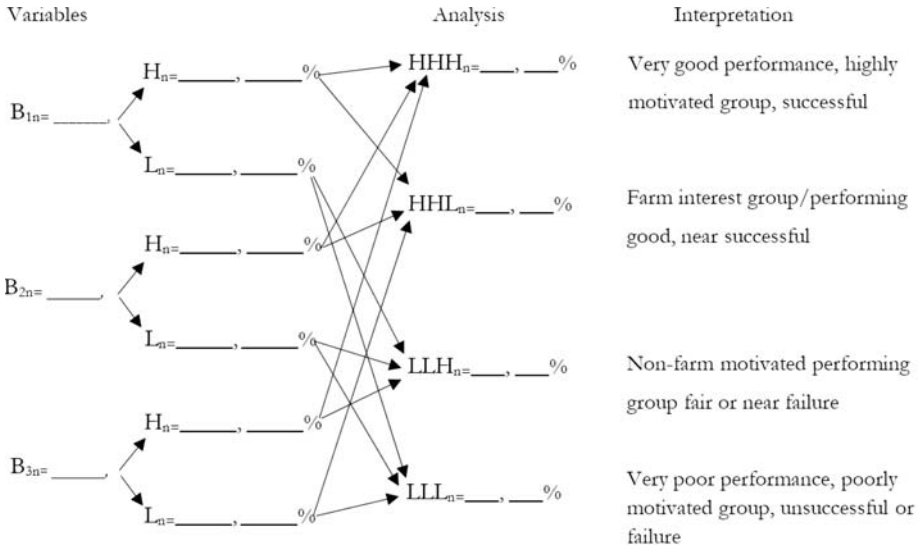
Twenty five percent of the rice farmers in each of the selected barangays were randomly selected. The rice farmers who were selected comprised the population sample.

Data gathering was done using an interview schedule which was written in English and translated into Waray-Waray to facilitate understanding among the target correspondents.

Frequency counts and percentages were used to describe the demographic characteristics and other sample presentation of the data. The 5 point scale measures was

used to analyze the degree of adoption of the adopters of both technologies e.g., 1 low, 2 average, and 3 for high adopter.

Branching Diagram Analytic Technique (BRANDANT) (Harris, 1979) was used in determining the performance of rice farmers adopting the indigenous practice, modern technologies, and both modern and indigenous rice farming as reflected in Figure 1.



Code:

H – Average and above average
L – Below Average

Benefits:

B_1 – Income in rice farming
B_2 – Off-farm income
B_3 – Social and involvement in community related services

Figure 1. Branching Diagram Analytic Technique (BRANDAT) as a tool in determining the performance of rice farmers in adopting both indigenous practices and modern technologies.

RESULTS AND DISCUSSION

C*haracteristics of farmers*

The rice farmers of Can-avid and Dolores, Eastern Samar were categorized into two groups: the younger group the majority of whom belonged to the age bracket 30 to 40 and the mature group whose ages ranged between 41 and 70. The mean age of the farmers was 53.94 years old indicating that majority of the respondents were past middle age. This implies that there is going to be a replacement problem in the future if the sons and daughters of these farmers will not be encouraged to go farming.

On the average, the respondents had approximately 5.43 years of formal schooling implying that they only reached the intermediate level. Since education is related to the adoption of innovation wherein, the farmer with a higher level of education is more prone to adopt new farming technology. This result suggests that the adoption of technologies is slow and a problem in the study areas.

Almost all of the respondents were married. This suggests that young unmarried individuals are not engaged in farming. This is going to be a big problem of Eastern Samar if the youth would not be motivated to go to farming because older farmers generally lack the vigor to perform heavy farm jobs.

Almost 9 out of 10 farmers were engaged in rice farming with coconut farming, vegetable raising, fishing, and carpentry work as their secondary farm work. It seems that the respondents were contented with rice farming as their main farm work.

Very few respondents had attended trainings related to rice farming. They claimed that they had no time, they were busy; and above all they were not informed of the schedule for the trainings. This is probably one of the reasons for the slow development of rice farming and cropping system in Samar.

The farmers' average in farming was 17.68 years suggesting that they had a lot of experience in rice farming using their own system of growing rice. With this number of years of experience it would be quite difficult for them to be convinced to change their old practices.

Rice farmers owned an average farm area of 1.26 hectares. This shows that each farmer has a wide land to be farmed. Consequently, development process of rice farming would rather be slow unless they would realize the value of improving their farm.

Most farmers were able to acquire their farm from their parents and grandparents although some of them had purchased their land. Given the proper education and practical training, these farmers would be able to be more productive considering that they own the land they till.

The study revealed that majority of the respondents were not members of any club or organization. They claimed that no benefits would be derived as members of the different organizations. Again education plays an important role for them to realize the value of organizations. These farmers should be motivated to appreciate the role and the benefits derived from becoming members of associations or organizations.

Table 1. Summary of farmers' characteristics in selected barangays in Can-avid and Dolores, Eastern Samar.

Characteristics	Number	Percent
Age		
61-70	4	7.02
51-60	14	24.56
41-50	18	38.58
31-40	14	24.56
30-below	7	12.28
Total	57	100.00
Mean 53.94		
Educational Attainment		
College (11-14)	3	5.26
High School (7-10)	15	26.32
Intermediate (5-6)	26	45.61
Primary Grades (1-4)	12	21.05
No Formal Schooling	1	1.76
Total	57	100.00
Civil Status		
Married	56	98.25
Single	1	1.75
Total	57	100.00
Occupation		
Main Farm Work		
Rice Farming	56	89.47
Coconut Farming	1	10.53
Total	57	100.00

Table 1. Continuation.

Characteristics	Number	Percent
Secondary Farm Work		
Rice Farming	5	8.77
Copra	16	28.07
Vegetable Raising	4	7.02
Fishing	2	3.51
Barangay Captain	1	1.75
Kagawad	1	1.75
Carpenter	2	3.51
Log Sower	1	1.75
Tuba Gatherer	2	3.51
Root Crop Production	1	1.75
None	22	38.60
Total	57	100.00
Training Attended		
Attended		
Yes (attended)	5	8.77
No (did not attend)	52	91.23
Total	57	100.00
Reasons for not attending		
No time, busy working	6	11.38
No invitation, busy working	29	55.77
No organization	3	5.77
Not interested	1	1.92
No reason	13	25.00
Total	57	100.00
Types of Training		
About scientific farming	3	5.26
About rice morphology	1	1.75
About loan and scientific farming	1	1.75
None	52	91.23
Total	57	99.84
Years in Farming		
46-55	2	3.51
36-45	4	7.02
26-35	5	8.77
16-25	17	29.82
6-15	18	31.58
5 and below	11	19.29
Total	57	99.99
Mean		17.68
Land Owned		
Rice	5	9.62
2.10 and above	25	48.07
1.10-2.0	22	42.31
0.1 -1.0	52	100.00
Total		
Others (coco land)	7	12.28
2.10 and above	3	5.26
1.10-2.0	23	40.35
0.1 -1.0	24	42.11

Table 1. Continuation.

Characteristics	Number	Percent
None	24	
Total	57	100.00
Mean - .69		
Number of Hectares Farmed		
2.10 and above	8	14.04
1.10-2.0	25	43.86
.1 -1.0	24	42.09
Total	57	**99.99**
Mean – 1.21		
Ways of Acquiring the Land		
Inherited	39	68.42
Purchased	13	22.80
Share Tenant	5	8.77
Total	57	99.99
Club Membership		
Farmer's Association (FA)	5	8.77
Municipal Agric'l. and Fishery Council	3	5.26
Small Coconut Farmers Association	2	3.51
Lupon	3	3.51
Senior Citizen's Organization	1	1.75
Not a member of any organization	42	73.68
Total	57	99.98
Benefits Derived from Club Membership		
Degree of Usefulness		
Very Useful	1	1.75
Fairly Useful	12	21.06
Not Useful	2	3.51
Total	15	26.32

Adoption on Indigenous Practices and Modern Technologies in Rice Farming

Modern Rice Technologies

The rice farmers of Can-avid and Dolores, Eastern Samar had a minimal adoption of modern rice technologies. Most of the modern rice farming practices enumerated (Table 2) were only partially adopted by the respondents. It was only the "right planting time" which majority (70.18%) of the respondents had adopted with a weighted mean score (WMS) of 1.81. This indicates that the acceptance by rice farmers of modern rice technologies has not yet been reached or achieved.

Indigenous Rice Farming Technologies

Generally, it was observed that the rice farmers of Can-avid and Dolores, Eastern Samar had practically practiced their own way of growing rice. They did not change their old practice of raising crops. They insisted on adopting their own indigenous practices of growing rice which they had practiced since they had started farming. In the project site, the use of winnowing basket in cleaning the palay is still practiced by majority of the farmers

having a weighted mean score (WMS) of 2.23. They preferred to plant the traditional native seeds rather than the new high yielding IRRI varieties of rice. The practice of using native seeds by the farmers got a weighted mean score of (WMS) 2.5. Findings revealed that farmers prepared their rice fields by trampling with the use of carabao having a WMS of 2.04. This implies that the recent technique of land preparation had not been popularly used in these areas. Several reasons were raised why farmers who continuously used these technologies. In these regard, development efforts should therefore consider the sustainability of the technology suited to these areas.

Table 2. Degree of adoption by farmers of modern rice farming technologies in Can-Avid and Dolores, Eastern Samar.

Recommended Modern Rice Technologies	Degree of Adoption						WMS*
	Did not Adopt (1)		Partial Adoption (2)		Full Adoption (3)		
	No.	%	No.	%	No.	%	
1. Use of recommended seed varieties (high yielding)	41	71.93	12	21.05	4	7.02	1.25
2. Use of appropriate pest control measure	41	71.93	15	26.32	1	1.75	1.30
3. Use of soil fertility improvement technique (green manuring, application of inorganic fertilizer)	51	89.47	4	7.02	2	3.51	1.14
4. Fertilizer application	45	78.95	9	15.79	3	5.26	1.26
5. Pesticide application	42	73.68	14	24.56	1	1.75	1.24
6. Good water management	52	91.23	4	7.02	1	1.75	1.07
7. Proper land preparation	40	70.18	15	26.32	2	3.51	1.33
8. Right seedbed preparation	42	73.68	12	21.05	3	5.26	1.32
9. Weeding	49	85.95	6	10.53	2	5.26	1.18
10. Treating seeds	48	84.21	7	12.28	2	5.26	1.19

*WMS- weighted mean score

Table 3. Degree of adoption by farmers of indigenous rice farming practices in Can-avid and Dolores, Eastern Samar

Indigenous Rice Farming Practices	Degree of Adoption						WMS
	Did not Adopt (1)		Partial Adoption (2)		Full Adoption (3)		
	No.	%	No.	%	No.	%	
1. Trampling	1	1.75	53	92.98	3	5.24	2.04
2. Use of native seeds	-	-	54	94.74	3	5.24	2.05
3. Direct seeding (broadcasting method)	43	75.44	10	17.54	4	7.02	1.32
4. Use of hot pepper juice mixed with tide powder soap as control of rice bug	51	89.47	5	8.77	1	1.75	1.09
5. Use of sea weeds as control of rice bug	47	82.46	10	17.54	0	0	1.18
6. Diwata (pagtuna) before harvesting	9	15.79	48	84.21	0	0	1.84
7. Use of winnowing basket in cleaning the palay	2	3.51	40	70.18	15	26.31	2.23
8. Use of "dalagdagan" threshing	56	98.24	1	1.75	0	0	1.01
9. Use of mortar and pestle in milling	4	7.02	51	89.47	2	3.51	1.96

Performance of Indigenous Rice Farmers

The study revealed that the rice farmers interviewed had poor performance based on the result of the BRANDAT of whom 71.05 % were poorly motivated/unsuccessful, suggesting that farmers have low in rice farm income for rice, low in income outside the farm and also low community involvement. It also suggests that their production was low and that they had less interest in farming. Unless something would be done to motivate them to work hard, they cannot increase the yield of their rice farms. Only 28.93% had very good performance, successful or highly motivated group as reflected in Figure 2.

Performance of Modern Rice Farmers

Based on the results of BRANDAT farmers using modern farm practices had very poor performance; of which 66.75 percent of whom were poorly motivated or unsuccessful and were further characterized as low in rice farm income as well as in income outside the farm and in community involvement. Only 33.25 percent were successful or highly motivated group. If these farmers would employ the modern and approved practices in growing rice, there is still a need to motivate and encourage them to improve their system of farming as reflected in Figure 3.

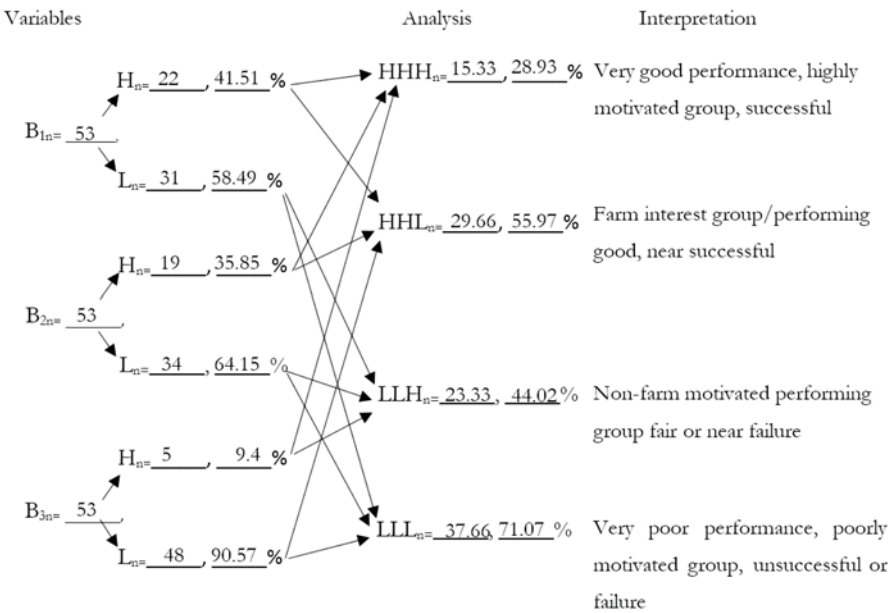


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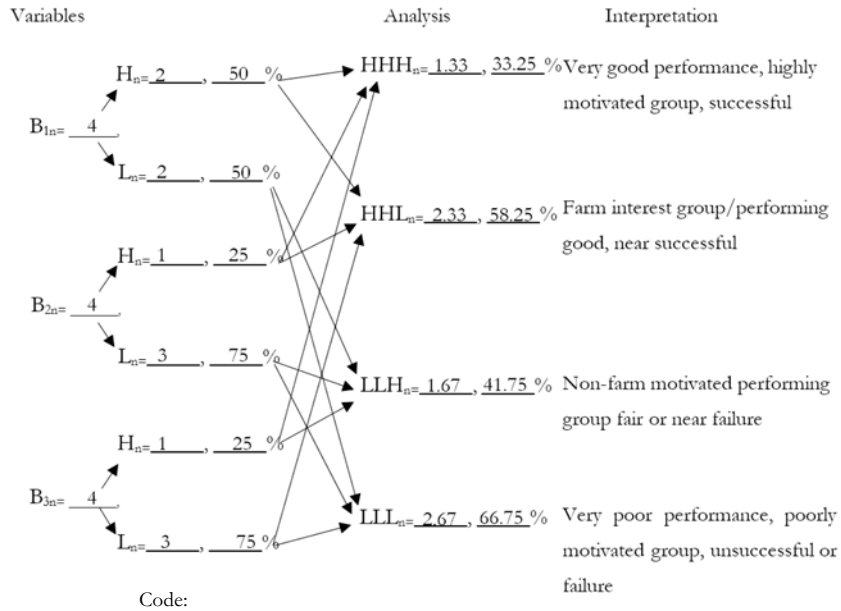
Figure 2. Performance of Rice Farmers Adopting the Indigenous Rice Farming Practices.



Code:

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Figure 3. Performance of Rice Farmers Adopting the Modern Technologies

Performance of Rice Farmers Adopting both Modern and Indigenous Practices

Of the farmers who were using indigenous and some of the recommended practices in raising rice, 70.18 percent were unsuccessful and considered very poor in performance or poorly motivated based on the result of BRANDAT. They were characterized as low in rice farm income, in income outside the farm, and in community involvement. Only 28.82 percent were considered successful or highly motivated group. This implies that even if the farmers would use either technology in raising rice, but they are not well motivated to work in the farm, it would result in poor performance (Figure 4).

Problems of Rice Farmers in Adopting the Modern and Indigenous Practices

Modern Rice Technologies

Many problems had been raised by the respondents on using the recommended modern rice practices. Of the different recommended practices (Table 3), the problem on inadequacy of water to irrigate the rice field ranked first followed by the problem on (intensive care) weeding. Although these problems were related to each other, the latter problem could be solved if they had the capital. This implies that the farmers have not yet been educated and are not well informed on several funding agencies or organizations that could be tapped as sources of funding. Minor problems such as expensive and no recommended seeds, chemicals (pesticide and insecticide) available in the locality which ranked second and third, respectively, could still be enhanced if they had money to support their farming activities.

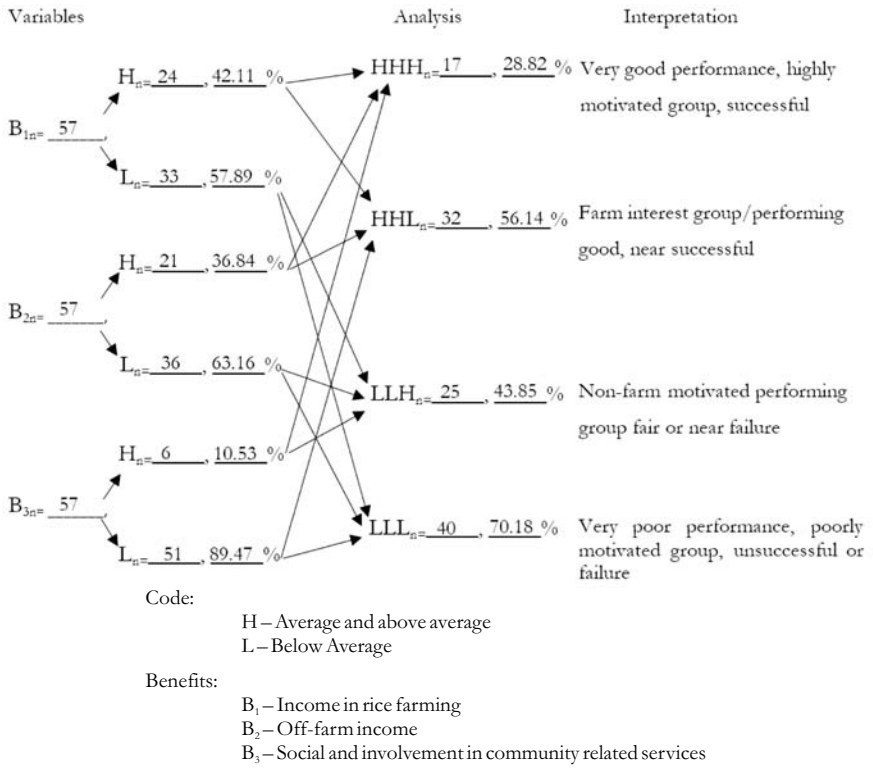

Figure 4. Performance of Rice Farmers Adopting both Modern and the Indigenous Rice Practices.

Indigenous Rice Technologies

The traditional farmers had several problems on their own way of rice farming. But this did not bother them much compared to those farmers who had used some of the recommended modern rice practices. On trampling their rice field, the problem that ranked first was the need for two or more carabaos. On problems related to direct seeding, fast growing of weeds ranked first. The farmers were already contented on trampling the land during preparation; they were also contented using native seeds (own seeds). Although they had no cash, they could still produce rice. Moreover, the farmers preferred the native rice varieties because they grow taller than the weeds, unlike the modern rice varieties which are short that need intensive weeding. This implies that the technology to be introduced should be modified in such a way that it would be economically feasible and sustainable in the area.

Table 3. Problems of farmers in adopting the modern and indigenous rice technologies.

Recommended Modern Rice Practices	Problems	Number of Respondents* (N-57)	Rank
1. Use of recommended seeds varieties	Needs ample water (controlled)	40	1
	Needs intensive care weeding etc.	30	2
	Expensive and no recommended seed available	24	3
	No knowledge/skill	11	4

Table 3. Continuation.

Recommended Modern Rice Practices	Problems	Number of Respondents* (N-57)	Rank
2. Use of soil fertilizer improvement technique (green manuring)	No farm implements (plow, sprayer etc.)	40	1
	No knowledge/skill	32	2
	Need capital	13	3
	Laborious	9	4
3. Use appropriate pest control measure	No knowledge/skill	28	1.5
	No chemicals available in the locality	28	1.5
	No money	12	3
	No farm implements (plow, sprayer etc.)	9	4
4. Fertilizer application	No irrigation water	50	1
	Needs capital	34	2
	No fertilizer available in the locality	26	3
	No knowledge and skill	13	4
5. Pesticide application	No sprayer	42	1
	Needs capital (expensive)	24	2
6. Good water management	No irrigation water	54	1
	No response	15	2
	No farm implements	7	3
	Needs capital	2	4
	No knowledge and skill	1	5
7. Proper land preparation	No farm implements (plow etc.)	50	1
	Needs capital	10	2
	No knowledge/skill	9	3
	Laborious	8	4
	Needs more workers	5	5
8. Right seedbed preparation	Laborious	16	1
	No farm implements	14	2
	No knowledge/skill	13	3
	Needs capital	8	4
	Needs more workers	6	6
	Time consuming	3	6.5
	Needs sufficient water (controlled)	3	6.5
9. Weeding	Needs capital	33	1
	Laborious	27	2
	Needs more workers	13	3
	No knowledge/skill	3	4
	Time consuming	1	5
10. Treating seeds	No knowledge/skill	51	1
	No chemicals available	48	2
	Needs capital	24	3
	No equipment	7	4

Table 3. Continuation.

Indigenous Rice Practices	Problems	Number of Respondents* (N-57)	Rank
1. Trampling	Needs at least two or more carabaos	60	1
	Difficult to loosen especially if there is no water available	9	2
	Time consuming	5	3
	Not properly prepared	4	4
	No problem	3	5
	Laborious	2	6
2. Use of native seeds	No problem	48	1
	Sometimes low harvest	26	2
	Tall	5	3
	Late maturing	2	4
3. Direct seeding (broadcasting)	Weeds easily grow	60	1
	Do not use	17	2
	Sometimes eaten by birds and rats	10	3
4. Use of hot pepper juice mixed with tide (powder soap) as control for rice bug	Do not use	51	1
	Sometimes not effective especially during rainy days	39	2
	Run out of materials (hot pepper fruit)	3	3
5. Use of sea weeds as control of rice bug	Do not use	50	1
	Laborious/bulky	48	2
	Sometimes not available	2	3
6. Diwata (pagtuna) while harvesting	No problem	40	1
	Sometimes causes delay in working	20	2
	Sometimes not effective	6	3
7. Use of "dalagdagan" while threshing	Do not use	53	1
	Only one can use at a time/limited space	49	2
8. The use of mortar and pestle in the absence of rice mill.	Difficult job	69	1
	Time consuming	56	2
	No problem	40	3
9. The use of winnowing basket in cleaning the palay.	No response	49	1
	Time consuming	45	2
	Difficult when not windy	38	3

*Multiple response

CONCLUSIONS

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

1. The respondents continuously practiced the old way of raising rice because they could hardly afford to buy or rent farm equipment and facilities for modern rice farming. They also lacked knowledge and skills on the recommended modern rice practices.
2. The local rice farmers manifested creativity for tilling their own rice farms. Some of them practiced the traditional or old method of rice farming, while others applied both the modern and the indigenous rice technologies.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations can be drawn:

1. Incentives from lending institutions should be made available to local farmers, like cash loans for production capital or the availability of equipment for agricultural production. These loans should be extended to the farmers with affordable modes of payment. With this assistance, the farmers would be motivated to adopt the recent farming technologies. Similarly, efforts should be made in such a way that these technologies be economically feasible, socially acceptable, and sustainable in the area.
2. Introduction of rice technologies and the implementation of rural development programs should be locale-specific or area-based particularly on harnessing the local materials or indigenous resources of the farmers to be employed for the improvement of rice farming operations.
3. The extension workers in the area should therefore initiate and conduct trainings for the local farmers. The training should focus on technologies suitable to the place. This further suggests that the development workers and change agents should look into the existing resources of the farmers and their capabilities and from there, an enriched rice farming technology introduction should evolve.
4. A model barangay family farm may be established in the area where farmers are practicing indigenous farming. It must showcase the farm inputs and other farm implements to be used for the improvement of their farms.

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