

FARMERS' FIELD SCHOOL GRADUATES PERCEIVED OUTCOMES AND FEEDBACK ON THE IRRIGATED RICE PRODUCTION ENHANCEMENT PROJECT (IRPEP) COMPONENT 2b-IMPROVED ACCESS OF PADDY FARMERS TO RICE TECHNOLOGY EXTENSION SERVICES

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**FARMERS' FIELD SCHOOL GRADUATES PERCEIVED OUTCOMES AND FEEDBACK
ON THE IRRIGATED RICE PRODUCTION ENHANCEMENT PROJECT (IRPEP)
COMPONENT 2b-IMPROVED ACCESS OF PADDY FARMERS TO RICE TECHNOLOGY
EXTENSION SERVICES**

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I. BACKGROUND

The Irrigated Rice Production Enhancement Project (IRPEP) is a sub – project under the **Rapid Food Productivity Enhancement Program** of the Department of Agriculture and attached agencies and bureaus funded by the International Fund on Agricultural Development (IFAD), European Union (EU), Food and Agriculture Organization (FAO), the Philippine Government and selected Local Government Units. It was implemented from 2010 – 2015 to improve the productivity and production of irrigated paddy on selected communal irrigation systems in Region 6, 8 and 10 through Strengthening of Irrigators Associations, Irrigation and Rural Infrastructure Enhancement, Provision of Production Inputs (Seed Buffer) and Related Support Services, Provision of Marketing and Processing Facilities, Programme Management and Policy Dialogue.

The Project was implemented in collaboration with the following key implementing agencies: National Irrigation Administration, DA-National Rice Program, Bureau of Plant Industry, Agricultural Training Institute, National Food Authority, and the respective Local Government Units.

The Agricultural Training Institute implemented Component 2 or the Provision of production support and related Services. Under this component, ATI provided extension support services. Activities under this include the conduct of Training of Trainors (TOTs) and Farmers Field School (FFS).

Under this component, the Agricultural Training Institute is responsible for the capacity building of the extension workers and IA members on rice production technologies. Specifically, a Training of Trainors and Farmers' Field School on Palaycheck System were conducted for the extension workers and farmers, respectively. These various activities aimed to enhance the knowledge and skills of both the extension workers and farmers on rice production. These needed interventions aimed to improve agricultural productivity.

This study is designed to determine IA members' perceived outcomes and feedback on the implementation of the IRPEP activities on Component C. Results of this study will be used as a guide in improving the implementation of future similar projects on rice enhancement.

II. OBJECTIVES

Specifically, the study aims to answer the following objectives:

1. Assess the respondents' adoption rate of Key Checks;
2. Determine the relationship between respondents' demographic characteristics, farming variables and adoption of Key Checks;
3. Find out if a relationship exists between adoption rate of Key Checks and farming variables (hectares cultivated, average yield/cropping and average income); and
4. Determine the respondents' feedback on the implementation of IRPEP, specifically on Component C in their respective communities.

III. RESEARCH DESIGN AND METHODOLOGY

This study was conducted in the three provinces of Region 8 where the IRPEP was implemented. Specifically, it was conducted in the different municipalities of Leyte, Samar, and Northern Samar.

A total of 221 farmer-graduates of FFS Palay Check System served as respondents through a simple random sampling. They were interviewed using a pretested questionnaire which include the adoption of the Key Checks in irrigated rice production and feedback on the implementation of the IRPEP.

Descriptive statistics such as frequencies, percentages and standard deviations were used. The data were analyzed using the Statistical Package for the Social Sciences (SPSS).

IV. RESULTS AND DISCUSSION

A. PROFILE OF THE RESPONDENTS

Two hundred twenty-one (221) farmers were chosen as the respondents of the study. Figure 1 shows that more than half (52.5%) were from Leyte; followed by Samar (26.7%) and about 21% from Northern Samar. Appendix Table 1 shows the distribution of respondents by municipality.

This include the municipalities of Matalom, Kananga, Tanauan, Carigara, Ormoc City and Mayorga, Leyte; Calbayog City, Sta. Margarita Samar; and San Jose and Rosario Northern Samar and Basey, Samar. (Appendix Table 1.)

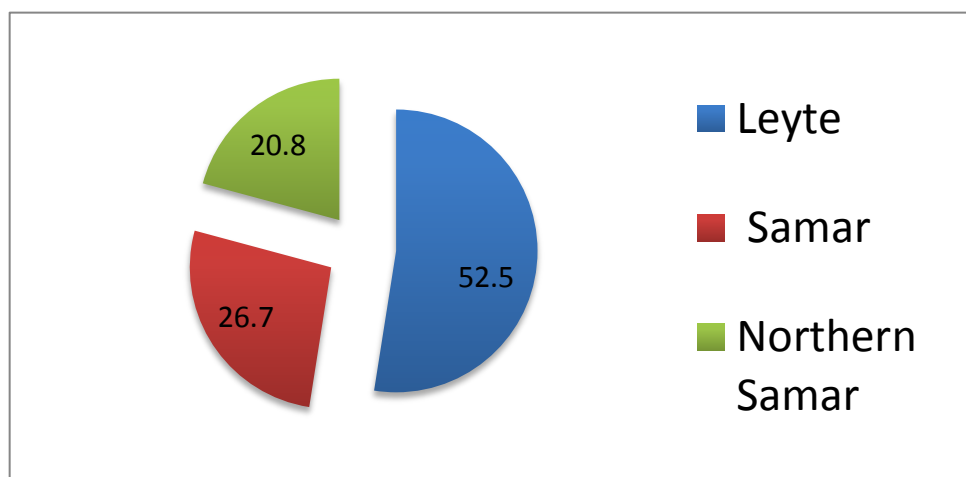


Figure 1. Distribution of respondents by province

Specifically, almost 60% of the respondents were women and 40% were men (Figure 2). The Food and Agriculture Organization (FAO) reports that there is much evidence to show that women contribute substantially to the family income by participating in agricultural activities. Although the men play major roles in production, in countries like the Philippines, Laos, Vietnam, and Cambodia, women are also mainstays in the field.

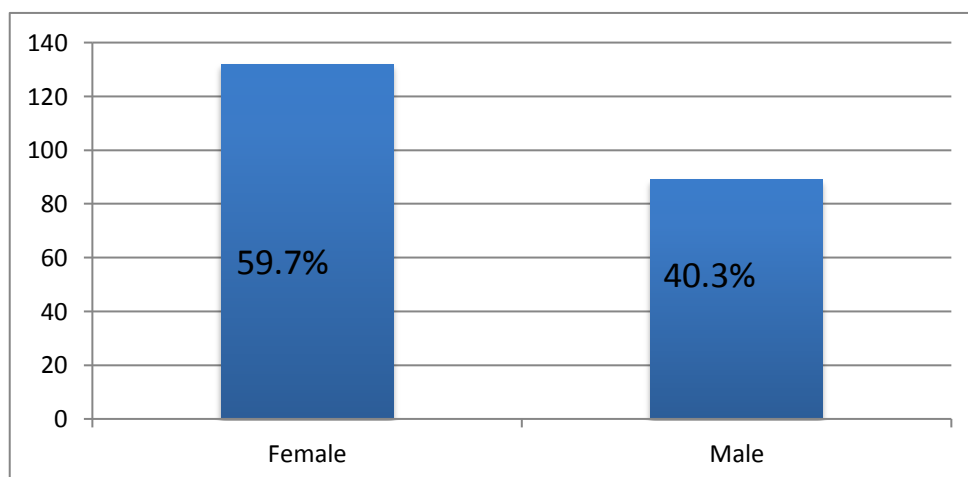


Figure 2. Distribution of respondents by sex

Age Category of the Respondents

Based on the age classification of the National Economic Development Authority (NEDA), 37% belonged to the middle-aged bracket which is 46-59, with a mean age of 53. This corroborates the study findings presented by the Central Mindanao State University that states the average age of Filipino farmers is 55 (Cariño, 2013). (Appendix Table 2)

Majority of them (81.4%) were married. On the average, most of the respondents had four children. The household mean size is 5.

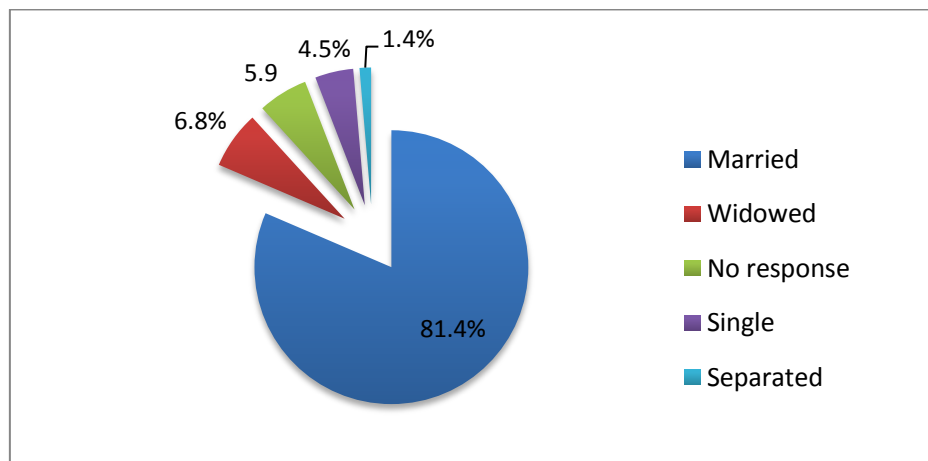


Figure 3. Civil status of respondents

Educational Attainment of the Respondents

One-fourth of the respondents (20.4%) were mostly high school graduates, spending 7 to 10 years in school. Following closely at 19.9% were elementary graduates while 11.8% reached elementary level, spending mostly up to 6 years in school. Dir. Asterio Saliot of ATI mentioned that the average level of education for farmers is Grade 5 ([www. Irinnews.org](http://www.Irinnews.org)). Only 8% of them were able to finish college and 13.1% reached college level (Appendix Table 3).

Household Size and Number of Children of the Respondents

Almost half of the respondents (43.0%) had a household size of 4 to 6 while one-fourth (20/4%) had 7 to 9 members of the family. The rest (5.9%) had 10 or more family members while 19 percent only had up to 3. The respondents had an average of 5 direct family members and 3 other extended members of the family, respectively Appendix Table 4-5)

Main Occupation of the Respondents

Majority of the respondents (86.9%) had farming as their main occupation. Few of them (5%) worked as barangay officials while the rest were laborers (2.3%); self-employed (2.7%); and one was a service worker (0.5%).

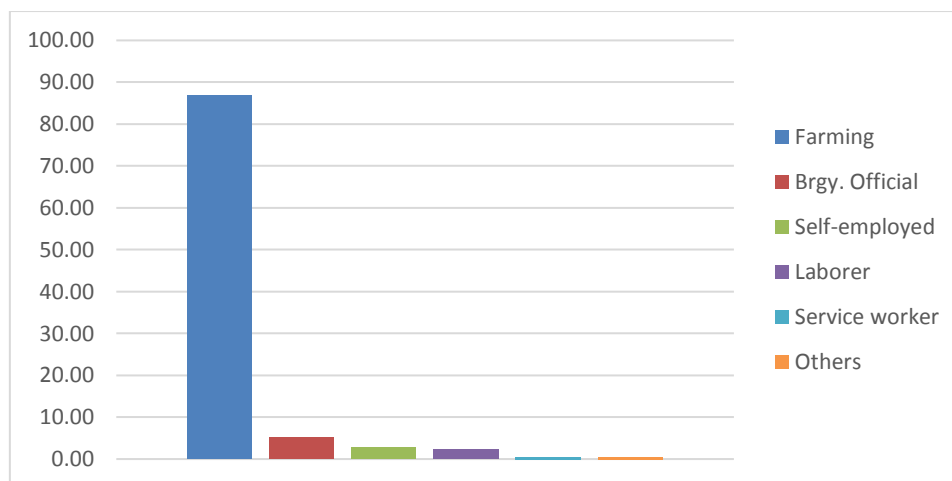


Figure 4. Main occupation of the respondents

Area Cultivated, Yield per Cropping (baseline), Actual Yield per Cropping, Average Income and Gross Margin

Result shows that 28 % of the respondents cultivated an area of about 1.0 to 1.49 ha while almost 23% of them cultivated 0.5 to 0.99 ha. The rest (19.9%) cultivated 2.0 ha. and above while 14% cultivated below 0.5 ha. The data also indicates that on the average, the respondents tilled an area of about 1.3 hectares (Appendix Table 6). There was an increase in yield by about 11 % per hectare before and after the IRPEP implementation. Likewise, the average income also increased by 11 % per hectare (Appendix Table 7).

B. RELEVANCE OF THE IRRIGATED RICE PRODUCTION ENHANCEMENT PROJECT

Respondents' Understanding About IRPEP

Result shows how much the respondents understand about the IRPEP. A little more than half of the respondents (54.2%) understood IRPEP as a training on Palay Check system which includes seed selection, land preparation, water management, nutrient management, pest management and harvesting. The respondents also mentioned that IRPEP is about training the farmers to increase rice productivity (6.7%), production of fertilizer (2.2%), program that will help farmers and will give financing to the farmers (4.5%), increasing knowledge (1.3%), improving the organization and members (1.3%); and increasing income (5%) (Appendix Table 8).

Respondents' Opinion On Why IRPEP Helped the IA members

Result shows the respondents' perception on how helpful IRPEP was to IA members. Almost one-half of the respondents (46.6%) said that they had learned or gained knowledge about the Palay Check System. The information gained include proper land preparation, use of high quality seeds, synchronous planning, fertilizer application, healthy seedlings, water management, pest management and harvesting. Some 9.4% said that through IRPEP, they were able to organize associations and availed of trainings, technology, and farm inputs. There were also 9% who were provided with assistance for irrigation and rehabilitation of the canal system. Some 3.6% of the respondents mentioned that through IRPEP, farmers increased their production while 1.3% improved their farming (Appendix Table 9).

Out of the 221 respondents, only two (2) of them perceived IRPEP to have not been useful to IAs and farmers. Their reasons were focused on the lack of access to irrigation and the inadequate monitoring of the irrigation water supply that affected the availability of water in the IAs and farmers' fields.

Consultation With the Respondents About the Project

The respondents were asked if they were consulted about the IRPEP. Majority of them (91.4%) answered in the affirmative. Only a few (3.2%) said no while others (5.4%) did not respond. The data shows that the respondents were aware of the project prior to its implementation (Appendix Table 10).

Respondents' Involvement in IRPEP Activities

Almost all (93.2%) of the respondents participated in IRPEP activities except for 15 (6.8%) who did not give responses. Of the IRPEP activities they participate in, the meetings (88.2%) accounted for being the most attended. Other activities include: attending the farmers' field school (78.8%), participating in field days (55.2%), rehabilitating irrigation canals (33%), and attending institutional development trainings to strengthen the irrigators' association and members.

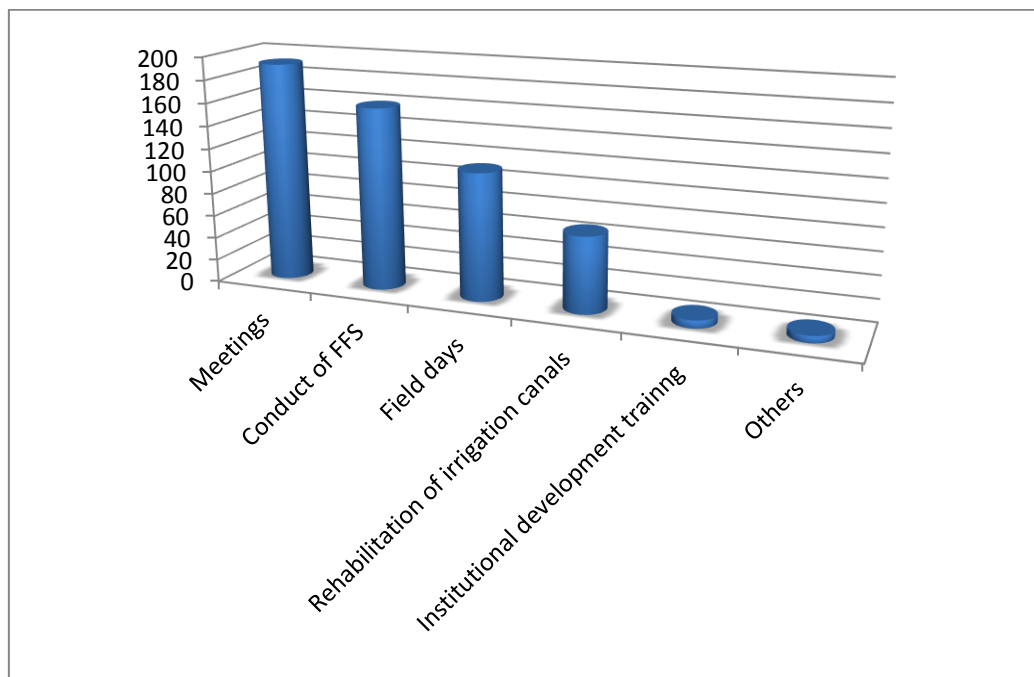


Figure 5. Activities engaged by IRPEP respondents

(a) Multiple responses (n = 221)

C. APPLICATION OF KNOWLEDGE FROM THE TRAINING

Respondents' Adoption of Key Checks in their Farms

There are eight (8) Key Checks recommended by the PhilRice for adoption by the farmers in their farms. These are: Key Check 1. Use certified seeds of a recommended variety; Key Check 2. No high or low spots after final levelling; Key Check 3. Practice synchronous

planting after a fallow period; Key Check 4. Sufficient number of healthy seedlings; Key Check 5. Sufficient nutrients from tillering and early panicle initiation and flowering; Key Check 6. Avoided excessive water or drought stress that would affect growth and yield of crop; Key Check 7. No significant yield loss due to pests and Key Check 8. Cut and threshed the crop at the right time. Currently, Key Check 2 (90.5%) was the most adopted by the farmers followed by Key Checks 3 (86 %), and Key Checks 1 and 8 (83.7% each). The top four Key Checks adopted are easiest to apply because they do not require any additional expense on the part of the farmers. These findings corroborated the results of the study conducted by Saliot, AP., Patindol, VM. et al. (2011). On the other hand, Key Check 5, which is about sufficient nutrients from tillering and early panicle initiation and flowering, was the least adopted by the respondents (57.5 %) from among all the Key Checks. This could be due to the additional cost incurred by the respondents on fertilizer application on the said stages of plant growth (Appendix Table 11).

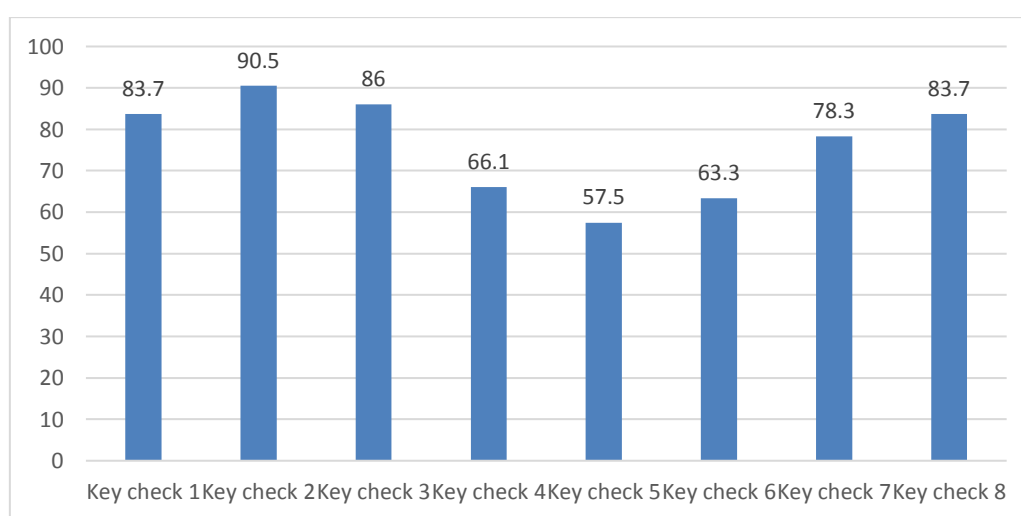


Figure 6. Key Checks adopted/practiced (%)

Total Number of Key Checks Adopted By the Respondents

On the average, the respondents adopted six (6) Key Checks. Specifically, about one-third of the respondents (31%) adopted eight (8) Key Checks while 20 percent of them adopted seven (7). Others (18%) adopted six (6) Key Checks while 12.7% adopted five (5) Key Checks. There were also respondents (7.7%) who adopted four (4) Key Checks; 4.5% adopted three (3) Key Checks and 5% adopted 2 Key Checks (Appendix Table 12).

Respondents' Reasons for Adopting Key Check 1: Use certified seeds of a recommended variety

Results show the reasons of the respondents for adopting Key Check 1 which pertains to the use of high quality seeds i.e. certified, adaptable to the locality and highly recommended. The respondents of this study cited the following reasons for adoption: good quality planting materials and rice quality (9 %), higher yield and income (33.5%), Availability of technician to survey and provide assistance (1.4 %), better plant growth and harvest (6.3 %) and higher disease tolerance (2.7 %). More so, 47.1 % of the respondents gave no responses.

It could be observed that among the respondents who reasoned for the adoption of Key Check 1, higher yield and income got the highest percentage (33.5 %). This is consistent with the findings of Engr. Eden Gagelonia of the Seed Production and Health Division of PhilRice, a

high quality seeds like certified seeds ensures high yields for the farmers. Certified seeds have high germination percentage rate of 85 % and high physical and varietal purity. The use of certified seeds lead to healthy seedlings that grow fast and uniformly. The yield of irrigated rice can increase by 5-20 % (irrigated) by just using good quality seed instead of low quality seed. Seeds of high quality are of one variety only and has high percentages for vigor and germination. This was followed by good quality planting materials and rice quality (9%) and better plant growth and harvest (6.3 %). These corroborated to the findings of Rice Knowledge Bank (2016) that high quality seeds was made free from seed borne disease, weed seeds, red kernels and other impurities like sand, stones, straw, etc. On the other hand, higher disease tolerance (2.7 %) and availability of technician to survey and assist them (1.7 %) got the lowest respondents. (Appendix Table 13).

Respondents' Reasons for not Adopting Key Check 1: Use certified seeds of a recommended variety

The study results show the reasons of the respondents for non-adoption. Only fourteen (14) respondents cited reasons for not adopting Key Check 1. They cited the following reasons for non-adoption: they produced and used their own seeds (0.4 %), no permanent water supply (0.9 %), the seeds won't germinate (0.9 %), seed quality is not good/suitable to the area (2.3 %), borrowed seeds from neighbor (0.5 %), no certified seeds available (0.9 %) and they don't know (0.4 %). It could be observed that only few of the respondents cited some reasons for non-adoption of Key Check 1.

This could be that the respondents realized the benefits of using high quality seeds: genetically pure (true to type), has high return per unit area as the genetic potentiality of the crop can be fully exploited, less infestation of land with weed seed/other crop seeds, less disease and insect problem, minimization of seed/seedling rate i.e., fast and uniform emergence of seedling, vigorous, free from pests and disease, can be adopted themselves for extreme climatic condition and cropping system of the location, the quality seed respond well to the applied fertilizers and nutrients, uniform in plant population and maturity, crop raised with quality seed are aesthetically pleasing, good seed prolongs life of a variety, yield prediction is very easy, handling in post-harvest operation will be easy, and finished products are of high quality and marketability (<http://agriquest.info/index.php/quality-seed-and-its-importance-in-agriculture>). Retrieved on: May 11, 2016) (Appendix Table 14).

Respondents' Reasons for Adopting Key Check 2: Proper land preparation and no high and low soil spots after final leveling

Key Check 2 which pertains to proper land preparation and ensuring that there are no high and low spots after final levelling ranks first among the Key Checks adopted by most of the respondents (90.5 %). Out of two hundred twenty one (221) respondents, ninety five (95) respondents cited some reasons for adoption: They cited the following reasons for adoption: for easy water management (10 %), to evenly distribute water and nutrients/fertilizer (19%), for better plant growth and harvest (8.1 %), in preparation prior to planting (1.4 %), to control growth of weeds (2.7 %), because the technician told them to do so (0.4 %), and to control pest and diseases (1.4 %).

The study findings corroborated with the previous results of PhilRice (2015) a properly leveled field allows more uniform water distribution and reduces weed incidence. Experts from PhilRice added that because water is evenly distributed, a well leveled field required less water to fill up and allows for better management of golden snail (golden kuhol). More importantly, a well leveled fields achieve a uniform crop maturity because of more efficient use of nutrients.

In addition to respondents cited reasons of better plant growth and harvest are also in synch with the (Rice Knowledge Bank, 2016) findings showing the importance of land preparation as

it places the soil in the best physical condition for plant establishment and crop growth and to ensure that the soil surface is left level and is ready for planting. A well-prepared field controls weeds, recycles plant nutrients, and provides a soft soil mass for transplanting and a suitable soil surface for direct seeding. Whatever means of land preparation is used, the resulting soil surface should be as level as possible. In addition, the findings also indicate that level fields improve water use efficiency and help to control weeds. (Appendix Table 15).

Respondents' Reasons for not Adopting Key Check 2: Proper land preparation and no high and low soil spots after final leveling

Results show the reasons of the five (5) respondents who did not adopt Key Check 2. They cited the following reasons: insufficient water supply (0.9 %), rice field not leveled due to topography (0.4 %) and rice field was not leveled properly (0.9 %). The non-adoption of the respondents to this Key Check could be that they fail to realize the following benefits: labor saving reduction of heavy work load, increase in yield, timeliness of farm operations and crop intensification that they could get from proper land preparation and leveling of the fields (De Datta, 1981) (Appendix Table 16).

Respondents' Reasons for Adopting Key Check 3. Practice synchronous planting after a fallow period

Key Check 3 is the practice of synchronous planting after a fallow period of at least one month. The following are the reasons cited by the respondents for adopting this Key Check: to control pest and diseases (31.7 %), because it is the right thing to do (3.2 %) and because it is better to do synchronize farming (4.1%).

This corroborates the findings of Quilang et al. 2010 that the field should have a fallow period of at least 30 days after harvest breaks the insect pest cycle and destroys disease hosts. In synchronous planting the field should be planted 14 days before and after the majority of the irrigation service area has been planted. This avoids overlapping incidence of insect and disease populations. It was also cited by Dr. Rolando Cruz, leader of the PalayCheck System Project and scientist of PhilRice that pest usually inflict the biggest harvest loss. Key Check 3 limits pest occurrence, hence it has biggest impact on yield. Moreover, planting on time does not only help farmers who adopt Key check 3 but also Key Check 7 (Pest Management). Together, the two Key Checks are partners in preventing big harvest losses due to pest. Likewise, synchronous planting also minimize the occurrence of pest in particular field and pest management inputs that includes cost of pesticide and labor that goes with it. Timely planting into a well prepared seedbed will help produce a fast growing, uniform crop that will have higher yields and better competition against weeds and other pests (Rice Knowledge Bank, 2016) (Appendix Table 17).

Respondents' Reasons for not Adopting Key Check 3: Practice synchronous planting after a fallow period

Only 9 of the respondents gave reasons for their non-adoption of Key Check 3. These reasons include: insufficient capital (0.4 %) and source of irrigation water is insufficient (3.6 %). There reasons on not adopting this Key Check could be due to lack of capital in hiring labor to do the synchronous planting. Labor cost may increase due to limited labor force. Another factor in synchronous planting is the availability of irrigation. More farmers will need water, posing more problems as drought is now prevalent in our country due to climate change (Appendix Table 18).

Respondents' Reasons for Adopting Key Check 4: Sufficient number of healthy seedlings

Key Check 4 ranks last among the 8 Key Checks adopted by the respondents (57.5 %). Eighteen (18 %) of the respondents cited reasons for their adoption of Key Check 4 which pertains to sufficient number of seedlings. The reasons they cited for adoption are the following: just enough number of healthy seedlings/lesser number of seedlings is better (3.6 %), because it's the right thing to do (0.9 %), equal distribution of sunlight and nutrients (0.4 %), so that the fertilizer applied will be enough (0.4 %), high yield and equal seed growth (1.8 %), to maximize the area and avoid overcrowding (0.4%), to achieve same plant height/proper growth level (6.8%), to ensure it will survive and to avoid re-sowing (2.7 %), and to improve cropping (0.4 %).

The findings on the number of healthy seedlings is consistent with the previous study results indicating that high quality seeds reduce the required seeding rate and produce strong and healthy seedlings resulting in a more uniform crop with higher yields (Rice Knowledge Bank, 2016). In addition, it also corroborated the study results conducted by PhilRice, showing that there should be 1-2 seedlings/ hill to produce strong, healthy seeds and high tillering plants. They asserted that one bag (40 kg) of seeds is more than enough for a hectare field. At this density, the seedlings will not compete with each other for more productive tillers and more grains for higher yield. Healthy seedlings start from proper seedbed management (Appendix Table 19).

Respondents' Reasons for not Adopting Key Check 4: Sufficient number of healthy seedlings

Results show the reasons why some of the respondents did not adopt Key Check 4. This was because they were using inbred seeds (0.4 %), time constraints (2.3 %), no/insufficient capital (0.4 %), and the laborer didn't know how to plant or did not follow instructions (11.8 %) (Appendix Table 20). Usually, farm laborers are not the ones sent to attend trainings or not even trained.

Respondents' Reasons for Adopting Key Check 5: Sufficient nutrients at tillering to early panicle initiation and flowering

Key Check 5 pertains to sufficient nutrients at tillering to early panicle initiation and flowering. Respondents reasons for adopting this Key Check are as follows: because plants needs it (0.4 %), to achieve maximum number of tillers (0.4 %), to increase yield (6.8 %), to minimize wastage of fertilizer (0.9%), to promote proper growth of plants (5.0 %), to ensure the same fruiting time (0.4 %) and to provide enough amount of fertilizer/nitrogen (4.5 %). Respondents may have realized that most soils provide only limited amount of nutrients to the crop, therefore fertilizers need to be applied to increase grain yield. In some cases, fertilizers are also added to improve the soil's physical condition (Appendix Table 21).

Respondents' Reasons for not Adopting Key Check 5: Sufficient nutrients at tillering to early panicle initiation and flowering

Respondents (21.6%) gave reasons for their non-adoption of Key Check 5. The following are reasons for not adopting Key Check 5: unfavorable weather condition (0.9 %), expensive fertilizer resulted in less amount of fertilizer given (15.8 %), insufficient funds/lack of capital (1.8 %), not a priority (0.9 %), plenty of pest such as kuhol (1.4 %), lack of technical know-how (0.4 %), and use organic fertilizer (0.4 %) (Appendix Table 22). To sum up, respondents reasons were focused on socio-economic and technical aspects.

Respondents' Reasons for Adopting Key Check 6: Proper water management to avoid excessive water or drought stress that could affect the growth and yield of the crop

Key Check 6 pertains to proper water management to avoid excessive water or drought stress that could affect the growth and yield of the plants. Respondents adopted this Key Check for the following reasons: for better plant growth and harvest (7.7 %), to control weeds (2.3 %), to control pests (1.4%), to prevent damage of rice grains and death of plant (0.9 %) and to provide enough water to plants (7.7 %). This result is consistent with previous study conducted by Philrice, 2015 which showed that adequate supply of water ensures good crop establishment, seedling vigor and normal crop growth development and yield. In addition, right amount of water helps crops to achieve the optimum growth and yield (Appendix Table 23).

Respondents' Reasons for not Adopting Key Check 6: Proper water management to avoid excessive water or drought stress that could affect the growth and yield of the crop

The respondents cited the following reasons for non-adoption of Key Check 6: difficulty in managing water due to damaged water canals (0.4 %), lack of water supply for irrigation (19.5 %), and lack of capital (0.4 %). In every locality in the country, water distribution is not the same and there are some areas that are affected by drought. Even if farmers wanted to adopt this Key Check, realities in the field may hinder them from doing so (Appendix Table 24).

Respondents' Reasons for Adopting Key Check 7: No significant yield lost due to pests

Respondents cited reasons for adopting Key Check 7. Their reasons include: to minimize yield loss (0.4 %), for better plant growth (1.4 %), use Integrated Pest Management (IPM) approach (6.8%), preserve beneficial insects (1.4 %), to minimize cost for pesticide use and labor that comes with it (1.8 %) and to prevent damage from pests and diseases (8.6 %). Respondents' adoption of the Key Check could be due to the fact that IPM focuses on pest prevention and uses pesticides only as needed. Aside from that, IPM reduces the number of pests, number of pesticide applications, and save money while protecting human health. This provides a more effective, environmentally-sensitive approach. Key Check 7 requires that there should be no significant yield losses due to pests. It specifically emphasizes the importance of awareness in the interaction of the rice crop with the abiotic factors in the environment to understand the destructive potential of pest (Appendix Table 25).

Respondents' Reasons for not Adopting Key Check 7: No significant yield lost due to pests

On the other hand, there were few respondents who gave responses for not adopting Key Check 7. The respondents cited one reason as laborious since some bio-organic inputs are not readily available (4.1 %). This concurred with the study findings indicating excessive labor as one of the factors of farmer's inability to adopt technology innovations (Farmer, B.A. 2016). Other mentioned plants are still of good condition (0.4 %), spray pesticide right away (1.4 %), affects harvest (0.4 %) and they don't believe in hot chili (0.4 %) (Appendix Table 26).

Respondents' Reasons for Adopting Key Check 8: Cut and threshed the crop at the right time

Result show the reasons for adopting Key Check 8 which is about harvesting and threshing of the crop at the right time, was adopted by 83.7 % of respondents. Twenty four percent of the respondents cited the following reasons: to aid in harvesting (0.9 %), to harvest at the right time (3.6 %), to improve quality of rice (2.3 %), to increase income (0.4 %), to prevent damage from pests (0.9 %), to prevent yield losses (15 %) and to reduce postharvest losses (0.9 %).

This concurred to the study findings indicating excessive labor requirements as one of the factors of farmer's inability to adopt technology innovations.

The above findings also corroborate with the study results cited by Rice Knowledge Bank, 2016 which showed the importance to apply good harvesting methods to maximize grain yield, and minimize grain damage and quality deterioration. In addition, the study also cited that immediate threshing reduces the exposure of crop to insects, birds and rodents, disease, and molds. Crop that is piled over a period of time generates heat that will serve as an ideal medium for growth of molds, disease and pests. Piling for several days will lead to grain discoloration, germinated grains. Also, the study stressed that correct timing is crucial to prevent losses and ensure good grain quality and high market value. Moreover, harvesting too early results in a larger percentage of unfilled or immature grains, which lowers yield and causes higher grain breakage during milling. On the other hand, harvesting too late leads to excessive losses and increased breakage in rice (Appendix Table 27).

Respondents' Reasons for not Adopting Key Check 8: Cut and threshed the crop at the right time

There were only 7.7 % of respondents who gave reasons for not adopting Key Check 8. Their reasons of non-adoption were due to: dependence on the availability of thresher (6.8 %), not harvest time yet (0.4 %) and plenty of stray chicken (0.4 %). The respondents' reasons show that they still practiced the traditional way of harvesting and threshing and have not realized that traditional harvesting activities such as field drying and stacking/piling have negative results and are not recommended because these can lead to rapid quality deterioration and increased harvest losses. Immediate threshing reduces the exposure of crop to insects, birds and rodents, disease, and molds. (Appendix Table 28).

D. RELATIONSHIP BETWEEN RESPONDENTS' SELECTED DEMOGRAPHIC CHARACTERISTICS AND ADOPTION RATE AND RELATIONSHIP BETWEEN ADOPTION RATE AND FARMING VARIABLES

Relationship between selected demographic variables and adoption of Key Checks

The data indicates that a positive correlation ($r_s = .178^*$) exists between years in school and respondents' adoption of Key Checks. This means that the higher the educational attainment of the respondents, the more the Key Checks that they will adopt. This finding also corroborates the results of the study on the adoption of the Palaycheck system by the farmers' field school graduates (Saliot AP., Patindol VM. et al, 2011) (Appendix Table 29).

Relationship between adoption of Key Checks and farming variables (hectares cultivated, average yield/cropping, average income)

The data show a strong and positive correlation ($r_s = .216^{**}$) between hectares cultivated and adoption of Key Checks. This connotes that the bigger the land area cultivated, the more likely that the respondents will adopt the Key Checks. This also supports the study findings of Mohammed, 1979 indicating that the farmers of large size of holding tend to adopt agricultural innovations as compared to the farmers of small and medium size of holding.

Average yield/cropping and the respondents' adoption of Key Checks were also found to be positively correlated ($r_s = .413^{**}$). This means that the more number of Key Checks adopted by the respondents, the higher is their average yield per cropping. This is corroborated by Farmer, BH, 2016 on his study showing the rate of adoption of technology innovations give increased yield as compared to others.

Also, a highly positive correlation ($r_s = .361^{**}$) was noted between average income/cropping and adoption of Key Checks. This connotes that the more Key Checks the respondents adopted, the higher is their average income/cropping. Hence, the respondents' adoption of Key Checks contributed to their higher income/cropping (Appendix Table 30).

E. RESPONDENTS' FEEDBACK ON PERCEPTION ON THE IMPLEMENTATION OF IRPEP

Respondents' Perception as to Usefulness or Relevance of Farmers' Field School on Palay Check System to Farming

Seventy-nine percent of the respondents perceived that the Farmers' Field School on Palay Check system was useful or relevant to them particularly in their farming. Only 16 percent mentioned that it was slightly useful while only 0.5 percent said that it is not useful. This connotes that the farmer-respondents appreciated the knowledge and learnings they obtained from their attendance on FFS. This also connotes that the farmer-respondents recognized that FFS is an important training methodology in improving the knowledge, skills and attitudes of the respondents. (Appendix Table 31)

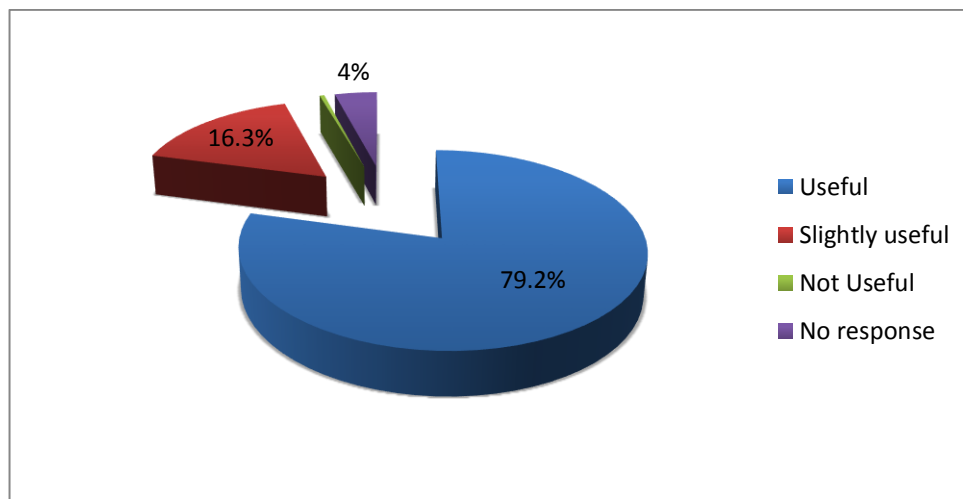


Figure 7. Distribution of usefulness of FFS on Palay Check to farming

Respondents' Assessment as to the Adequacy of Services Provided by LGU and National Agencies

Fifty-five percent of the farmer-respondents rated the services of the Local Government Unit - Office of the Municipal Agricultural Offices as adequate. About 38% claimed the services to be moderate or average while 5% of them said that the services was inadequate. The satisfaction rating given by the respondents implied that the LGUs should still exert more efforts in providing adequate services to their clients.

Among the government agencies, the ATI-RTC 8 services, in terms of conduct of TOT and provision of supplies, were assessed as adequate by more than half (54.8 %) of the respondents. Forty-one percent rated its services as average while others (8%) gave a rating of inadequate. The services of NIA, in terms of the provision of the institutional trainings to strengthen the IAs and its members, was rated as adequate by 33% of the respondents. The rest gave a rating of average (40.7%) and inadequate (21.7%). These figures indicate that vigorous efforts should still to be done to provide adequate services to the farmers.

On the other hand, market linkage and price support services provided by NFA was rated as adequate by 21% of the respondents. One-fourth of them (21%) rated NFA's services as average while 43% gave a rating of inadequate. In terms of the buffer stock seeds services provided by the DA-RFO 8, 23% of the respondents assessed it as adequate while 36% gave a rating of average or moderate. The rest, at 12%, rated DA-RFO's services as inadequate.

In summary, the services provided by the LGU-OMA and all the government agencies need to be improved to satisfy the needs of the beneficiaries and to sustain the benefits accrued to the beneficiaries brought about by the project, particularly on the adoption of the technologies (Appendix Table 32).

F. PROBLEMS

Problems Encountered by the Respondents Related to Rice Production

The study findings indicated both socio-economic and technical constraints encountered in farming by the respondents. Specifically, lack of capital is the highest ranking problem at 73.3% that is claimed by 162 respondents. A close second is the problem on the incidence of pest and diseases at 72.9%. Other respondents (49.8%) mentioned inadequate water or irrigation. Lack of seeds (22.2%) and fertilizer (19.9%) were also cited by some respondents. These results also corroborated the study findings conducted by Saliot, AP., Patindol, VM. et al. (2011) (Appendix Table 33).

Inputs, Assistance or Factors Critical to Rice Productivity cited by the Respondents

In this study, irrigation (60.0%) and fertilizer (59.1%) were cited by the respondents to be the most critical inputs and assistance needed to enhance rice productivity. Other respondents mentioned seeds (65.4%), marketing assistance (40.9%), and technical assistance (38%) as critical inputs also needed to increase rice productivity. The respondents also cited climate (41%), soil fertility (26.4%), land (11.8%) and topography (5.5 %) as critical factors affecting rice productivity. Hence, the subsidies provided by IRPEP such as fertilizer, seeds and irrigation assistance were of great help to the rice farmers (Appendix Table 34).

Respondents Perceived Problems Encountered as a Farmer

As a farmer in general, socio-economic which is lack of capital remained as the most prevalent problem at 32.6%. Poor condition of land/soil were the least encountered problem at 0.5% each. Other problems mentioned were natural disaster such as typhoons (20.8%); lack of irrigation (17.6%); incidence of pests and diseases (16.3%) and others (Appendix Table 35).

Perception as to Respondents' General Well-being Improvement or Changes Obtained after IRPEP

Asked if the IRPEP helped improve the respondents' general well-being, majority of them (89.1%) answered in the affirmative.

The increase in yield due to the adoption of new methods is the biggest change that contributed to the improvement of the general well-being of the farmers at 48%. Likewise, providing financial assistance that help reduce farming expenses and others were also experienced by some 12% of the respondents. Helping in the preservation of the environment and the irrigators association is the least experienced improvement after IRPEP at 0.5% each (Appendix Table 36).

G. PROJECT SUPPORT

Responses as to Acquiring Support from other Government Institutions as to Rice Production

Asked if they received support for rice production from other government institutions, almost half of them (43.0%, 44.8%) answered both in the affirmative and negative, respectively (Appendix Table 37).

Almost one-fourth (24%) of the respondents received varied farm inputs such as capital, land, labor, seeds and fertilizer. Water/irrigation support got the least at 0.5% support. Seventy-one percent of the respondents did not respond (Appendix Table 38).

Assistance Received by the Respondents from the Private Sector

Almost 50 percent of the respondents said that they did not receive assistance from the private sector while 32 percent of them mentioned they had received some assistance (Appendix Table 39).

Based on the findings, only NGO and farmer organization sectors were recorded to provide assistance to the respondents. NGO got higher rating at 27% and farmer organization at 0.5%. Majority of the respondents did not receive assistance from the private sector (Appendix Table 40).

H. PROJECT ASSESSMENT

Assessment on the Success of IRPEP as Perceived by the Respondents and Their Reasons

The respondents were made to assess the success of IRPEP in a scale of 1-10. Accordingly, the respondents rated an average of 7 in terms of the success of the IRPEP. Increased production yield (14.9%) was cited as one of the indicators that signify the success of IRPEP. Provision of farm inputs followed at 14% while support/assistance received was also mentioned by some 11 percent of the respondents. The size of the farm got the least rating at 0.5% (Appendix Table 41-42)

Respondents' Suggestions to Further Improve IRPEP Implementation

From those respondents who gave suggestions, almost half of them (45%) mentioned that to improve the implementation of IRPEP there should be financial assistance to be provided to the respondents for farm inputs, machineries and equipment. Twenty-three percent of them cited to have a system that will provide them access to high quality seeds or hybrid seeds. Building a bodega or warehouse for the needed seeds and implement seed buffer stock was mentioned by almost 5 percent of the respondents (Appendix Table 43).

Suggestions to Further Improved IRPEP Implementation in terms of Institutional development

There should be leadership and technical skills trainings for old and new members got the highest rating at 3.6% for those who gave their suggestions. Others suggested assistance in the registration of the association for further development. Majority of them (89.6%) did not give any suggestion (Appendix Table 43).

Suggestions to Improve the Implementation of IRPEP in terms of Infrastructure

For those respondents who gave suggestions, 9.5% said that they need assistance to build their organization center and provision of office supplies. There should be more assistance to be provided for irrigation and damaged canals as mentioned by almost six percent of the respondents (Appendix Table 43).

V. CONCLUSION

The Irrigated Rice Production Enhancement Project (IRPEP) for farmers demonstrated effectiveness in disseminating the Palay Check System (PCS) that is very relevant to them in enhancing their knowledge, skills and capabilities in rice farming. The support provided by this project helped the farmer to adopt six Key Checks on the average that contributed to their increased yield and income.

Key Checks with high rates of adoption were those technologies that did not incur much expenses on the part of the farmers.

The average yield per hectare before and after the implementation of IRPEP was notable. The adoption of Key Checks brought a positive result in increasing the farmers' yield per hectare. The increase in yield likewise increase the income of the farmers. Hence, the respondents' adoption of Key Checks being used by Irrigated Rice Production Enhancement Project contributed to their increase in yield and income per hectare.

The positive correlation of Key Checks and farming variables means that, for bigger land area cultivated the more likely that the respondents will adopt the Key checks, and the more number of Key Checks adopted, there is higher average yield and income. Hence, the respondents' adoption of Key Check contributed to a higher income per cropping.

The farmers cultivated on the average an area of 1.3 hectares. There was an increase in yield by about 11 % per hectare before and after the IRPEP Implementation.

Both socio-economic and technical constraints such as lack of capital, occurrence of natural disasters, lack of water and irrigation and incidence of pests and diseases were the priority problems cited by the respondents.

The respondents rated highly the success of the IRPEP. Increased production yield and provision of farm inputs were cited as indicators of success by the respondents.

Financial assistance, availability of high quality seeds, provision of capability building on leadership and technical assistance to organization should be adequately provided to improve the implementation of IRPEP were recommended by the respondents.

2-b component of IRPEP which is the Improved Access of Paddy Farmers to Rice Technology Extension proved to have achieved its objectives as shown by higher adoption of farmers of the rice technologies developed by PhilRice.

The ATI-RTC 8 staff, extension force of the LGU and IA members of the study sites also contributed to the success of the said project component objectives.

VI. RECOMMENDATION

The Farmers' Field School (FFS) on Palay Check Systems for farmers should be institutionalized in the Local Government Units and should be included in the Annual Investment and the Municipal Agricultural Development Plans. This will ensure the sustained use of technologies by the farmers and provide an avenue to provide farmers with updates on new or appropriate technologies.

The Land Bank of the Philippines and other financial institutions in collaboration with the Department of Agriculture should design an effective mechanism to provide farmers easy access to financing. A zero interest maybe can be provided to the farmers just like what has been practiced in other countries if the government would really like to address this perennial problem.

The National Irrigation Authority should enhance their services in providing water systems and support to the farmers in increasing their rice production especially to the Irrigators Association.

A continuous budget allocation for capability building on rice production should also be provided to the Agricultural Training Institute to train the LGU extension workers. The Local Government Units Chief executives, however, should also allow and provide support to the extension workers to attend trainings for them to be able to update their farmers' knowledge and skills.

APPENDICES

Table 1. Number of respondents per municipality/city

Municipality	Frequency	Percent
Matalom (Leyte)	26	11.8
Kananga (Leyte)	36	16.3
Tanauan (Leyte)	10	4.5
Carigara (Leyte)	26	11.8
Ormoc City (Leyte)	1	0.4
Mayorga (Leyte)	18	8.1
Calbayog city (Samar)	29	13.1
Sta. Margarita (Samar)	15	6.8
Rosario (N. Samar)	24	10.9
San Jose (N. Samar)	22	10.0
Basey (Samar)	14	6.3
Total	221	100.0

Table 2. Age category of the respondents

	Frequency	Percent
22 to 45	61	27.6
46 to 59	81	36.7
60 and above	73	33.0
No response	6	2.7
Total	221	100.0
Mean	53.12	

Table 3. Educational attainment of the respondents

	Frequency	Percent
College graduate	18	8.1
College level	29	13.1
Elementary graduate	44	19.9
Elementary level	26	11.8
High School graduate	45	20.4
High School level	38	17.2
No response	21	9.5
Total	221	100.0

Table 4. Household size of the respondents.

	Frequency	Percent
Up to 3	41	18.6
4 to 6	95	43.0
7 to 9	45	20.4
10 or more	13	5.9
No response	27	12.2
Total	221	100.0
Mean	5.54	

Table 5. Respondents' number of children

	Frequency	Percent
Up to 3	85	38.5
4 to 6	69	31.2
7 to 9	29	13.1
10 or more	8	3.6
No response	30	13.6
Total	221	100.0
Mean	4.46	

Table 6. Area cultivated by the respondents

	Frequency	Percent
Below 0.5 ha	31	14.0
0.5 to 0 .99 ha	50	22.6
1.0 to 1.49 ha	63	28.5
1.5 to 1.99 ha	25	11.3
2.0 ha and above	44	19.9
No response	8	3.6
Total	221	100.0

Table 7. Area cultivated, yield per cropping (baseline), actual yield/ cropping, average income and gross margin

	Hectares cultivated	Baseline yield per cropping (T/HA)	Yield/cropping after training (after) (T/HA)	Ave. income/ cropping	Gross Margin (per HA)
Mean	1.3122	2.7296	3.026	23192.9447	28305.8557
Median	1.0000	2.7300	3.000	12800.0000	25920.3600
No response	7	176	78	22	0
Number of respondents	214	45	143	199	221

Table 8. Respondents' understanding about IRPEP

Understanding about IRPEP	Frequency	Percentage
A program that will help farmers and will give financing to the farmers	10	4.5
About rice farming program	1	0.4
Training of farmers to increase rice production	15	6.7
I don't know the meaning	2	0.9
Improve the organization and the members	1	0.4
Increased knowledge in farming	3	1.3
Integrated Rice production Enhancement Project	3	1.3
International organization giving funding for agricultural development	1	0.4
Non-government organization	1	0.4
Plant vegetables	1	0.4
Production and demonstration of fertilizer/ foliar fertilizer	5	2.2
Provided assistance on irrigation, seeds and technology	4	1.8
Training on Palaycheck system (selection of quality seeds, land preparation, crop establishment, pest management, fertilizer management, nutrient management, water management and harvesting	111	54.2
Taught us many things to increase income	5	2.2
Training on organic farming and other techniques	1	0.4
No response	47	21.1
Total	221	100

Table 9. Respondents' perception on the usefulness of the IRPEP

Perception on the usefulness of the IRPEP	Frequency	Percentage
Learned/gained knowledge about Palay Check system (land preparation, seed selection, fertilizer application, IPM, water management), new methods of farming	104	46.6
Able to organize association	4	1.8
Avail of the training, technology, seeds, seedlings, fertilizer	21	9.4
Learned about farming and improved well-being	3	1.3
Increase farmers' income while ensuring environment safety	2	0.9
Increase rice production and harvest	8	3.6
Help the farmers in improving rice farming	3	1.3
Provide assistance on irrigation/rehabilitation of the canal system	20	9.0
No response	56	25.1
Total	221	100.0

Table 10. Consultation on the project with the beneficiaries

	Frequency	Percent
Yes	202	91.4
No	7	3.2
No response	12	5.4
Total	221	100.0

Table 11. Key Checks adopted/practiced (%)

Key Checks	Percent
Key Check 1 Use certified seeds of a recommended variety	83.7
Key Check 2 No high or low soil spots after final leveling	90.5
Key Check 3 Practice synchronous planting after a fallow period	86.0
Key Check 4 Sufficient number of healthy seedlings	66.1
Key Check 5 Sufficient nutrients from tillering and early panicle initiation and flowering	57.5
Key Check 6 Avoided excessive water or drought stress that would affect growth and yield of the crop	63.3
Key Check 7 No significant yield loss due to pests	78.3
Key Check 8 Cut and threshed the crop at the right time	83.7

Table 12. Number of Key Checks adopted by the respondents.

Number of Key Checks adopted	Frequency	Percent
2	11	5.0
3	10	4.5
4	17	7.7
5	28	12.7
6	39	17.6
7	44	19.9
8	68	30.8
Total	221	100.0
Mean	6.20	

Table 13. Respondents' reasons for adopting Key Check 1: Use certified seeds of a recommended variety

	Frequency	Percent
Good quality planting materials and rice quality	20	9.0
Higher yield and income	74	33.5
Availability of technician to survey and provide assistance	3	1.4
Better plant growth and harvest	14	6.3
Higher disease tolerance	6	2.7
No response	104	47.1
Total	221	100.0

Table 14. Respondents' reasons for not adopting Key Check 1: Use certified seeds of a recommended variety

	Frequency	Percent
They produced and used their own seeds	1	0.4
No permanent water supply	2	0.9
The seeds won't germinate	2	0.9
Seed quality is not good/suitable to the area	5	2.3
Borrowed seeds from neighbor	1	0.4
No certified seeds available	2	0.9
They don't know	1	0.4
No response	207	93.7
Total	221	100.0

Table 15. Respondents' reasons for adopting Key Check 2: No high or low soil spots after final leveling

	Frequency	Percent
Easy water management	22	10.0
Even distribution of water and nutrients/fertilizer	42	19.0
Better plant growth and harvests	18	8.1
Part of the preparation prior to planting	3	1.4
Weed Control	6	2.7
Suggestion of the technician	1	0.4
Pest and diseases Control	3	1.4
No response	126	57.0
Total	221	100.0

Table 16. Respondents' reasons for not adopting Key Check 2: No high or low soil spots after final leveling

	Frequency	Percent
Insufficient water supply	2	0.9
Rice field not leveled due to topography	1	0.4
Rice field was not leveled properly	2	0.9
No response	216	97.7
Total	221	100.0

Table 17. Respondents' reasons for adopting Key Check 3: Practice synchronous planting after a fallow period

	Frequency	Percent
Pest and disease Control	70	31.7
Because it is the right thing to do	7	3.2
Because it is better to do synchronize farming	9	4.1
No response	135	61.1
Total	221	100.0

Table 18. Respondents' reasons for not adopting Key Check 3: Practice synchronous planting after a fallow period

	Frequency	Percent
Insufficient capital	1	0.4
Source of irrigation water is insufficient	8	3.6
No response	212	95.9
Total	221	100.0

Table 19. Respondents' reasons for adopting Key Check 4: Sufficient number of healthy seedlings

	Frequency	Percent
Just enough number of healthy seedlings/lesser number of seedlings is better	8	3.6
Because it's the right thing to do	2	0.9
Equal distribution of sunlight and nutrients	1	0.4
So that the fertilizer applied will be enough	1	0.4
High yield and equal seed growth	4	1.8
To maximize the area and avoid overcrowding	2	0.9
To achieve same plant height/proper growth level	15	6.8
To ensure it will survive and to avoid re-sow	6	2.7
To improve cropping	1	0.4
No response	181	82.0
Total	221	100.0

Table 20. Respondents' reasons for not adopting Key Check 4: Sufficient number of healthy seedlings

	Frequency	Percent
Use of inbreed seeds	1	0.4
Time constraints	5	2.3
No/insufficient capital	1	0.4
The laborer didn't know how to plant or did not follow instructions	26	11.8
No response	188	85.1
Total	221	100.0

Table 21. Respondents' reasons for adopting Key Check 5: Sufficient nutrients at tillering to early panicle initiation and flowering

	Frequency	Percent
Needed by plants	1	0.4
To achieve maximum number of tillers	1	0.4
To increase yield	15	6.8
To minimize wastage of fertilizer	2	0.9
To promote proper growth of plants	11	5.0
To ensure the same fruiting time	1	0.4
To provide enough amount of fertilizer/nitrogen	10	4.5
No response	180	81.4
Total	221	100.0

Table 22. Respondents' reasons for not adopting Key Check 5: Sufficient nutrients at tillering to early panicle initiation and flowering

	Frequency	Percent
Unfavorable weather condition	2	0.9
Expensive fertilizer resulted in less amount of fertilizer given	35	15.8
Insufficient funds/lack of capital	4	1.8
Not a priority	2	0.9
Plenty of pest such as kuhol	3	1.4
Lack of technical know-how	1	0.4
Use organic fertilizer	1	0.4
No response	173	78.3
Total	221	100.0

Table 23. Respondents' reasons for adopting Key Check 6: Avoided excessive water or drought stress that would affect growth and yield of the crop

	Frequency	Percent
For better plant growth and harvest	17	7.7
To control weeds	5	2.3
To control pests	3	1.4
To prevent damage of rice grains and death of plant	2	0.9
To provide enough water to plants	17	7.7
No response	177	80.0
Total	221	100.0

Table 24. Respondents' reasons for not adopting Key Check 6: Avoided excessive water or drought stress that would affect growth and yield of the crop

	Frequency	Percent
It is difficult to manage water due to damage of water canals	1	0.4
Lack of water supply for irrigation	43	19.5
Lack of capital	1	0.4
No response	176	79.6
Total	221	100.0

Table 25. Respondents' reasons for adopting Key Check 7: No significant yield lost due to pests

	Frequency	Percent
To minimize yield loss	1	0.4
For better plant growth	3	1.4
Use Integrated Pest Management (IPM)	15	6.8
Approach to preserve beneficial insects	3	1.4
To minimize cost for pesticide use and labor that comes with it	4	1.8
To prevent damage from pests and diseases	19	8.6
No response	176	79.6
Total	221	100.0

Table 26. Respondents' reasons for not adopting Key Check 7: No significant yield lost due to pests

	Frequency	Percent
Laborious since some bio-organic inputs are not readily available	9	4.1
Plants are still of good condition	1	0.4
Spray pesticide right away	3	1.4
We can't harvest	1	0.4
They don't believe in hot chili	1	0.4
No response	206	93.2
Total	221	100.0

Table 27. Respondents' reasons for adopting Key Check 8: Cut and threshed the crop at the right time

	Frequency	Percent
To aid in harvesting	1	0.9
To harvest at the right time	8	3.6
To improve quality of rice	5	2.3
To increase income	1	0.4
To prevent damage from pests	2	0.9
To prevent yield losses	33	15.0
To reduce postharvest losses	2	0.9
No response	169	76.5
Total	221	100.0

Table 28. Reasons for not adopting Key Check 8: Cut and threshed the crop at the right time

	Frequency	Percent
Dependent on the availability of thresher	15	6.8
Not harvest time yet	1	0.4
Plenty of stray chicken	1	0.4
No response	204	92.3
Total	221	100.0

Table 29. Relationship between selected demographic variables and adoption of key Checks

Demographic variables			Total Key Checks adopted
Spearman's rho	Age	Correlation Coefficient	-.022
		Sig. (2-tailed)	.754
		N	211
	Years @ school	Correlation Coefficient	.178(*)
		Sig. (2-tailed)	.013
		N	196
	Household Size	Correlation Coefficient	-.060
		Sig. (2-tailed)	.409
		N	190
	No. of Children	Correlation Coefficient	-.104
		Sig. (2-tailed)	.157
		N	187
	No. of other Household members	Correlation Coefficient	-.128
		Sig. (2-tailed)	.420
N		42	

* Correlation is significant at the 0.05 level (2-tailed)

Table 30. Relationship between adoption of Key Checks and farming variables (Hectares cultivated, average yield/cropping, average income)

Variables			Total Key Checks adopted
Spearman's rho	Hectares cultivated	Correlation Coefficient	.216(**)
		N	209
	Ave Yield/cropping	Correlation Coefficient	.413(**)
		N	204
	Ave. income/cropping	Correlation Coefficient	.361(**)
		Sig. (2-tailed)	.000
		N	195

Table 31. Perceived usefulness/relevance of the Farmers' Field School on PalayCheck System by the respondents.

Degree of usefulness	Frequency	Percent
Not useful	1	.5
Slightly useful	36	16.3
Useful	175	79.2
No response	9	4.1
Total	221	100.0

Table 32. Degree of adequacy on the services provided by the different agencies

Level of Adequacy	LGU –OMA (provided counterpart on manpower, cost, infrastructure, others)		NIA (Institutional component trainings, irrigation)		ATI (conduct of TOT, provide budget and supplies for FFS)		NFA (market linkage and price support)		DA-RFO (Provision of buffer stock seeds)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Adequate	122	55.2	72	32.6	121	54.8	47	21.3	95	23.0
Average	83	37.6	90	40.7	70	31.7	60	27.1	79	35.7
Inadequate	12	5.4	48	21.7	20	7.7	95	43.0	27	12.2
No response	4	1.8	11	5.0	13	5.9	19	8.6	20	4.1
Total	221	100.0	221	100.0	221	100.0	221	100.0	221	100.0

Table 33. Problems encountered by respondents in their farms related to rice production

Rice Production Problem ^a	Responses	
	Number	Percent of Cases
Lack of Capital	162	73.3
Infertile land/soil	4	1.8
Inadequate Seeds	49	22.2
Inadequate Water/irrigation	110	49.8
Inadequate Fertilizer	44	19.9
Incidence of pests and diseases	161	72.9
Poor access to farm facilities, machineries and equipment	23	10.4
Lack of farm animals	5	2.3
Low buying price of palay	29	13.1
Natural disaster	25	11.3
Expensive commodities	2	.9
Lack of labor and high labor cost	3	1.4
No response		

^a Multiple responses, n = 221

Table 34. Inputs, assistance or factors critical to rice productivity as cited by the respondents

Inputs/Assistance/Factors ^a	Responses	
	Number of Cases	Percent of Cases
Land	13	11.8
Climate	62	56.4
Soil fertility	29	26.4
Fertilizer	65	59.1
Technical assistance	38	34.5
Marketing assistance	45	40.9
Irrigation	66	60.0
Seeds	62	56.4
Credit availability	47	42.7
Others	4	3.6

^(a) Multiple responses (n= 221)

Table 35. Perceived problems that you have encountered as a farmer?

Problems as Farmer ^a	Responses	
	Number	Percent of Cases
Lack of Capital	72	32.6%
Inadequate seeds	9	4.1%
Lack of water/irrigation	39	17.6%
Fertilizer	13	5.9%
Incidence of pests and diseases and its control	36	16.3%
Inadequate farm facilities, machineries and equipment	7	3.2%
Low buying price of rice	15	6.8%
Natural disaster	46	20.8%
Lack of transportation	15	6.8%
High labor cost	7	3.2%
Poor access to farm to market roads	18	8.1%

^a Multiple responses, n = 221

Table 36. Respondents' perception as to the improvement of their wellbeing through IRPEP

Response	Frequency	Percent
Yes	197	89.1
No	3	1.4
No response	21	9.5
Total	221	

Table 37. Respondents' responses as to acquiring support from other government institutions as to rice production

	Frequency	Percent
Yes	95	43.0
No	99	44.8
No response	27	12.2
Total	221	100.00

Table 38. Support from other government institutions for rice production

Support	Frequency	Percent
Farm inputs (capital, labor, seeds and fertilizer)	54	24.4
Water/irrigation	1	.5
Farm facilities, machineries and equipment	2	.9
Farm inputs and farm facilities, machineries and equipment	5	2.3
Technical support	2	.9
No response	157	71.0
Total	221	100.0

Table 39. Is there an assistance received by the respondents from the private sector

	Frequency	Percent
Yes	71	32.1
No	110	49.8
No response	40	18.1
Total	221	100.00

Table 40. Organizations providing assistance to the respondents from the private sector received by the respondents

Private Sector	Frequency	Percent
NGO	61	27.6
Others, specify: Farmers Organization	1	.5
No response	159	71.9
	221	100.0

Table 41. Respondents' assessment in terms of success of IRPEP. (Rating 1-10, 10 being the highest)

Mean	7.10
Median	7.00
Std. Deviation	1.836

Table 42. Reasons cited by the respondents indicating the success of IRPEP

Reason	Frequency	Percent
Gained learnings	21	9.5
Area (limited or wide)	1	.5
Irrigation	5	2.3
Support/assistance received	26	11.8
Increase production yield	33	14.9
Improved standard of living	2	.9
Time for other improvements (limited or enough)	3	1.4
Farm inputs	31	14.0
Programs (implemented or not implemented, enough or needs improvement)	7	3.2
Total	221	100.0

Table 43. Suggestions of respondents to further improve the implementation of IRPEP

Number	Suggestions	Frequency	Percent
1	<i>On Buffer stock</i> There should be available high quality and hybrid seeds to procure high quality seeds	42	23.5
2	Implement seed buffer stock/build a bodega/warehouse for seeds	10	4.6
1	<i>On Institutional Development</i> There should be capability building (leadership and technical) skills training for old and new members and other related trainings for our organization	25	11.3
2	There should be an assistance in the registration of the association for further development	7	3.2
3	There should be more field trips	6	2.7
1	<i>On Infrastructure</i> There should be any kind of assistance to build farmers organization center and provision of office supplies	7	3.2
2	There should be more assistance for irrigation and repair of damaged canals	13	5.9
3	Farm to market roads should be cemented	2	.9
1	<i>On Financial Assistance</i> There should be financial assistance to our farm for farm inputs, machineries and equipment	100	45.2

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