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Assessment and field validation of the farmers field school (FFS) as a training platform for farmer-beneficiaries of the rice competitiveness enhancement fund (RCEF)

Jhimcelle V. Salvador*, Victoriano Casco

Isabela State University, Echague, Philippines

Key words: Farmer field school, Rice competitiveness enhancement fund, Yield and income, Palay check system

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Abstract

This study assessed the effectiveness of the Farmer Field School (FFS) as a training platform under the Rice Competitiveness Enhancement Fund (RCEF) in improving rice yield, income, and the adoption of good agricultural practices among farmer-beneficiaries in Region II, Philippines. A total of 279 farmers participated in a survey and a supporting field experiment that evaluated the performance of seven nutrient management strategies. Results showed that a majority of the respondents consistently implemented key checks in rice production, with 15 out of 21 parameters rated as "always practiced." Yield data revealed a significant shift toward higher productivity: the number of farmers harvesting less than 5 tons ha^{-1} dropped from 60.15% to 24.81%, while those exceeding 8 tons ha^{-1} increased from 18 to 50 farmers. Income levels improved correspondingly, with a 192.68% increase in farmers earning over ₱100,000 after training. The field trial further validated the benefits of FFS-recommended practices, identifying the Soil Analysis with Leaf Color Chart (T5) as the most effective treatment with a yield of 4,781 kg ha^{-1}. High levels of satisfaction with the FFS training (98.93%) and strong implementation rates (77.06% always practicing) underscore the program's success. Future training needs identified by farmers include pest and disease management, digital agriculture, and the establishment of techno-demo farms. Overall, the FFS program demonstrated a substantial positive impact on farmer productivity and livelihood, supporting its continued implementation and enhancement.

* **Corresponding Author:** Jhimcelle V. Salvador ✉ jhimcellesalvador@rocketmail.com

Introduction

Rice is the staple food for most Filipinos, yet the Philippines continues to rely on rice imports every year because local production cannot keep up with the growing demand. Although the country is among the world's top rice producers, increases in production have been slow, and population growth has further widened the gap between supply and demand. From 2018 to 2022, while the population grew by over 5%, the land area for rice farming and rice yield per hectare showed only slight increases. This imbalance has led to a significant rise in rice imports, highlighting the ongoing challenge of achieving rice self-sufficiency (Vertudes *et al.*, 2020).

To address these challenges, the Philippine government launched the Rice Competitiveness Enhancement Fund (RCEF) under the Rice Tariffication Law. The RCEF program provides rice farmers with critical support, including farm machinery, improved seeds, access to credit, and training through Farmer Field Schools (FFS). These efforts aim to boost farmers' productivity and income while promoting sustainable agricultural practices (Vertudes *et al.*, 2020). The FFS platform, in particular, plays a vital role in equipping farmers with the knowledge and skills needed to apply new technologies and improve rice yields.

The government, through the Agricultural Training Institute, also offers educational grants to agricultural extension workers to strengthen their capacity to assist farmers effectively. Evaluating the impact of these programs, especially the FFS training under the RCEF, is essential to understand how well they help rice farmers increase yield and income, ultimately contributing to national food security and economic stability (Davis *et al.*, 2012; Godtland *et al.*, 2004; Van den Berg and Jiggins, 2007).

This study aimed to assess the demographic profile of the farmers participating in the FFS, evaluate the yield and income benefits they gain from adopting new technologies, determine their satisfaction with the training, identify future training needs, and analyze the performance of different nutrient management strategies taught in the program. The findings provide valuable insights to improve rice farming support programs and help the Philippines move closer to rice self-sufficiency.

Materials and methods

Research design

Mixed methods were used in the experiment. The descriptive data was used first component of the study while the Randomized Complete Block Design (RCBD) was used in the actual field trial.

Survey study

The descriptive component of the study involved a survey to gather baseline data from farmer-respondents. Frequency counts and descriptive statistics were employed to analyze categorical and continuous data, such as farm size, years of farming experience, and other socio-demographic information. The survey served as both a standalone data collection tool and a means of contextualizing the field validation results.

A 5-point Likert Scale was utilized to measure attitudes and perceptions, where responses were coded as: 5 – Always, 4 – Often, 3 – Sometimes, 2 – Rarely, and 1 – Never. The responses were tabulated, and mean scores were computed to determine overall trends and levels of agreement. The scale interpretation was adapted from Pimentel (2010), ensuring consistency in the evaluation of respondent perceptions.

Research locale

The study was conducted across selected barangays in the provinces of Isabela, Cagayan, Nueva Vizcaya, and Quirino in Region II, Philippines. These areas were chosen due to the extensive implementation of Farmer Field School (FFS) training programs conducted by TESDA Region 2 in partnership with local Farm Schools.

Respondents of the study and sampling scheme

A total of 279 farmer-respondents from the aforementioned provinces participated in the study.

These respondents had completed FFS training with the aim of enhancing agricultural productivity and household income. Respondents were selected using purposive sampling, targeting those with direct experience in the training interventions under evaluation.

Data gathering procedure

Data were collected using a structured interview questionnaire administered during scheduled interviews. Coordination with Local Government Units (LGUs), Farm Schools, and Barangay Officials was crucial in organizing common venues for interview sessions to optimize participation and efficiency. Prior to each interview session, the purpose and objectives of the study were clearly explained to respondents. Clarifications were provided, and informed consent was obtained. The interview proper commenced only after ensuring that respondents fully understood the survey process.

Efforts were made to ensure respondent comfort and safety, including conducting interviews only during daylight hours. The presence of Agricultural Extension Workers (AEWs) and barangay officials added credibility and support during the sessions.

Accommodations for respondents with special concerns

To ensure inclusivity, verbal translations were provided as needed. For respondents who were illiterate or had difficulty writing, thumbmark authentication was accepted. Special care was taken to accommodate any physical or cognitive limitations to ensure all willing participants could take part meaningfully. Participation was strictly voluntary, and additional time was devoted to encouraging involvement by explaining the study's relevance.

Data protection and confidentiality

The data collected is considered confidential and is the property of the researcher, Agricultural Training Institute (ATI), and Isabela State University. Any use beyond the current study requires prior authorization from these entities. All data were encoded in Microsoft Excel, used solely for statistical analysis by the researcher, and securely stored on an external drive accessible only to authorized personnel.

Research instrument

A structured survey questionnaire was the primary research instrument. It covered topics such as the socio-demographic profile of respondents, adoption of technologies learned during FFS training, and indicators related to yield improvements and perceived program impacts.

Statistical treatment and data analysis

The data gathered were encoded in an Excel spreadsheet, as it facilitates the summation of information. To ensure the integrity of the data collected, data cleaning was utilized.

Methods of data and statistical analysis

The data collected from the survey were initially encoded and organized using Microsoft Excel to facilitate efficient data management and ensure accuracy. A thorough data cleaning process was performed to address any inconsistencies or errors and to uphold the integrity of the dataset. Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed to summarize the socio-demographic characteristics of the respondents and their responses to key survey items. To analyze relationships between variables, the Pearson correlation coefficient was employed. This statistical measure was used to determine the strength and direction of linear associations between quantitative variables, such as the level of technology adoption and various influencing factors. Furthermore, Analysis of Variance (ANOVA) was applied to assess whether there were statistically significant differences in the perceptions of respondents across different groups based on predefined parameters. For these analyses, the Statistical Package for the Social Sciences (SPSS) version 28 was utilized for survey data, while the field experimental data were analyzed using STAR software version 2.0.1. These statistical tools ensured a rigorous and systematic approach to data

interpretation, allowing for meaningful conclusions to be drawn from both the survey and experimental components of the study.

Field experiment

To support and validate the data obtained from the survey study, a field experiment was conducted to assess the effectiveness of the nutrient management techniques taught during the Farmer Field School (FFS) training. The experiment was statistically analyzed to provide empirical evidence of the training's impact on rice production.

Site selection

The field trial was conducted on a 300-square-meter rice field located in Purok 4, Villa Marcos, Ramon, Isabela. The site was selected for its leveled topography and access to continuous irrigation, making it ideal for rice cultivation and ensuring uniform conditions across treatments.

Securing seeds

Certified NSIC Rc 222 inbred rice seeds were sourced from an accredited supplier to guarantee varietal purity, seed quality, and consistency in the experimental results.

Soil sample and analysis

Soil samples were collected randomly from the experimental site following the standard procedures outlined in the Minus One Element Technique (MOET) kit. The samples were analyzed for essential nutrients including nitrogen, phosphorus, potassium, sulfur, zinc, and copper prior to fertilizer application. These results were compared with recommendations from other diagnostic tools such as the Rice Crop Manager Advisory Services (RCMAS), Soil Analysis, Abonong Swak, and Farmers' Practice to validate nutrient management approaches.

Land preparation

The field was prepared using conventional methods suitable for lowland rice farming. This included one round of plowing followed by two rounds of harrowing to ensure a well-leveled seedbed that supports uniform germination and plant stand.

Seedling production

The inbred rice seeds were soaked for 24 hours and incubated for 36 hours to enhance germination. A fertilized seedbed was used to raise healthy seedlings. Proper irrigation, pest and disease management, and nutrient application were carried out throughout the seedling phase. Shallow water levels were initially maintained and gradually increased as seedlings grew taller to support their development.

Experimental layout

The field was divided into three blocks, each measuring 13 meters by 22.8 meters. Each block was further subdivided into seven plots, each 3 meters by 4 meters in size. A distance of 1.5 meters was maintained between plots and 1 meter between blocks to avoid cross-contamination between treatments and to facilitate easier data collection.

Experimental treatments

The following seven fertilizer treatment strategies were evaluated in the field trial:

T1 – Farmers' Practice
T2 – Soil Analysis Base Fertilizer Recommendation
T3 – Rice Crop Manager Advisory Services
T4 – Minus One Element Techniques (MOET)
T5 – Soil Analysis with Leaf Color Chart (LCC)
T6 - Balanced Fertilization Strategy (BFS) (Abonong Swak) (7-8kg/ha)
T7 - Balanced Fertilization Strategy (BFS) Abonong Swak (5-6kg/ha)

Transplanting of seedlings

Seedlings were transplanted 18 to 21 days after sowing. Special care was taken during pulling to avoid damage to roots and stems, ensuring a higher survival rate. Two seedlings per hill were transplanted using a 20 cm x 20 cm spacing to achieve uniform plant distribution. Replanting was carried out one week after transplanting to replace missing hills.

Care and management

Throughout the crop's growing period, standard agronomic practices were meticulously followed to ensure optimal plant growth and yield. Irrigation was maintained at a consistent depth of 3 to 5 centimeters, which was sustained up to the dough stage of the rice plants. Two weeks prior to harvest, the field was drained to facilitate proper grain maturation and ease of harvesting. Weed control was performed manually through hand-pulling to eliminate competition for nutrients, water, and light, thereby promoting healthier crop development. Pest and disease management was also an integral part of the care regimen. The application of appropriate pesticides was carried out only when visible signs of pest infestation or disease occurrence were observed, in order to minimize unnecessary chemical use and promote environmentally responsible farming practices. These care and management strategies were uniformly applied across all treatments to ensure that differences in outcomes could be attributed primarily to the nutrient management techniques being evaluated.

Harvesting, threshing, and drying

Harvesting was done when approximately 85% of the grains per panicle reached maturity. Grains from each treatment plot were threshed separately and sun-dried until they reached a moisture content of 14%, ensuring proper post-harvest handling and accurate yield measurement.

Research instruments

To accurately record experimental data, a variety of field instruments were used. These included field notebooks for observations, data recording sheets for plant growth and yield metrics, a meter stick for plant height measurements, a weighing scale for grain weight, and a moisture meter for determining post-harvest grain moisture content. All instruments were calibrated and verified for accuracy before use to ensure the reliability of data collected.

Results and discussion

Respondents' implementation of the key checks in rice nutrient management

The respondents' adherence to the Key Checks in rice nutrient management is summarized in Table 1. A total of 279 farmer-respondents participated in the survey. Using a 5-point Likert scale, mean scores were calculated to reflect the frequency of practice for each parameter under the nine key checks. The results indicate that out of the 21 parameters assessed, 15 were consistently implemented by the respondents, with mean scores ranging from 4.523 to 4.803, suggesting a high level of compliance. However, some practices were observed less consistently. For instance, Alternate Wetting and Drying (AWD) had a mean score of 4.039, Integrated Pest Management (IPM) scored 3.943, and the non-application of insecticide between 30 to 45 days after planting received a mean of 3.677, all falling into the "often practiced" category. The lowest mean score, 3.079, was recorded for yield loss due to pests, indicating that farmers sometimes experience pest-related reductions in yield. The relatively lower adherence to AWD could be attributed to the irrigation conditions in the study areas, where the presence of continuous water flow across adjacent farm plots makes water level management challenging. Similarly, pest incidence remains a common issue among rice farmers, contributing to occasional yield losses despite the implementation of management strategies.

Yield impact of the farmers' field school (FFS) training

The yield impact of the Farmers' Field School (FFS) training is presented in Table 2. Prior to participating in the FFS, the majority of respondents (160 out of 266, or 60.15%) reported rice yields of less than 5,000 kg per hectare. However, following the training, only 66 respondents (24.81%) remained within this yield range—a notable decrease of 58.75%, indicating a substantial improvement in productivity attributable to the adoption of practices learned during the FFS.

Table 1. Respondents' compliance to key checks in rice nutrient management

Key check	Technology	Mean scores	Description
1	Used Quality Seeds	4.799	Always
1	20-40/40-60 kg Seeding Rate	4.710	Always
2	Well levelled Field before Planting	4.799	Always
2	Stubbles decomposed/incorporated with soil	4.803	Always
2	Rest field for 30 days	4.803	Always
3	Synchronous Planting	4.724	Always
4	Use of Healthy Seedlings	4.763	Always
4	Use of 400 sq.m. Seedbed	4.624	Always
4	Transplanted 18 - 21-day-old Seedlings	4.799	Always
5	Sufficient Nutrients at Tillering, Early PI, and Flowering	4.778	Always
5	Used Recommended Amount and Timing of Fertilizer Application	4.735	Always
6	Managed drought and excess water	4.523	Always
6	Practiced Alternate Wetting and Drying (AWD)	4.039	Often
7	Yield Loss Due to Pests	3.079	Sometimes
7	Use of IPM	3.943	Often
7	No Insecticide at 30-45 days of the Rice Plants	3.677	Often
7	Drained the Field 1 - 2 Weeks Before Harvest	4.771	Always
8	Timely Harvesting	4.803	Always
9	Properly Dried, Cleaned, and Stored the Harvest	4.097	Often
9	Produced Own Seeds	1.910	Rarely
9	Use of Farm Machinery	4.720	Always

Table 2. Yield impact of the farmers field school training

Yield range (kg/ha)	Before training	After training	% Increase/ Decrease
<5000	160	66	-58.75
5000 - 5500	51	45	-11.76
5501 - 6000	9	38	322.22
6001 - 6500	14	18	28.57
6501 - 7000	4	24	500.00
7001 - 7500	4	19	375.00
7501- 8000	6	6	0.00
>8000	18	50	177.78
No response	13	13	
Total	279	279	

Significant gains were also observed in higher yield categories. The number of farmers achieving yields between 5,501 and 6,000 kg ha^{-1} rose from just 9 before the training to 38 after a 322.22% increase. Moreover, while a majority of the respondents (211 or 79.32%) initially recorded yields of up to 5,500 kg ha^{-1}, this figure dropped to 111 respondents (41.73%) post-training, further underscoring a shift toward higher productivity.

Notably, the number of farmers achieving yields in the range of 6,000 to 7,500 kg ha^{-1} nearly tripled, increasing from 22 to 61 respondents after the training. Those reporting yields exceeding 8,000 kg ha^{-1} also rose significantly, from 18 to 50 respondents, marking a 177.78% increase. These results clearly demonstrate the positive impact of the FFS training on rice yield, reinforcing the value of hands-on, knowledge-based interventions in improving farm-level productivity.

Table 3. Income Impact of the farmers field school training

Income range	Before training	After training	% Increase/ Decrease
20000 and below	34	13	-61.76
20001 - 30000	32	13	-59.38
30001 - 40000	20	19	-5.00
40001 - 50000	23	20	-13.04
50001 - 60000	28	21	-25.00
60001 - 70000	29	16	-44.83
70001 - 80000	28	17	-39.29
80001 - 90000	20	17	-15.00
90001 - 100000	19	18	-5.26
>100000	41	120	192.68
No response	5	5	
Total	274	274	

Income impact of the farmers' field school (FFS) training

The income impact of the Farmers' Field School (FFS) training is summarized in Table 3. Prior to attending the training, 34 out of 274 respondents (12.41%) reported earning ₱20,000 or less. After the training, this number dropped significantly to 13 respondents (4.74%), representing a 61.76% reduction, which suggests that many farmers

experienced an increase in income following the adoption of FFS-recommended practices. Similarly, the number of respondents earning between ₱20,001 and ₱30,000 decreased from 32 to 13, reflecting a 59.38% decline, and indicating an upward shift in income brackets.

This general trend of income improvement is consistent across multiple income categories. Most notably, there was a substantial increase in the number of respondents earning more than ₱100,000, rising from 41 before the training to 120 after, representing a 192.68% increase. These figures demonstrate a significant positive impact of the FFS training on farm income, affirming the effectiveness of the program in enhancing not only productivity but also the economic well-being of participating farmers.

Demographic profile of the respondents

The demographic characteristics of the respondents are presented in Table 4. In terms of gender, the distribution was nearly balanced, with 145 respondents (51.97%) identifying as male and 134 (48.03%) as female. This suggests that both men and women are actively participating in rice farming and are beneficiaries of the Farmers' Field School (FFS) training programs.

Regarding age, the majority of respondents were within the middle-aged to older adult categories. Specifically, 51.25% were aged 45 to 64 years, while 34.05% were between 25 and 44 years. Respondents aged 65 and above accounted for 11.11%, and only a small proportion (3.58%) were within the 18 to 24 age group. These figures indicate that over 60% of the farmer-participants were at least 45 years old, reflecting an aging farming population with valuable experience in agriculture.

In terms of educational attainment, 11.47% of respondents had either attended elementary level or graduated from elementary school. A total of 5.38% chose not to disclose their educational background. The highest percentage of respondents, 27.24%, were high school graduates, followed by 23.30% who were college graduates. Additionally, 17.92% had reached the college level without completing a degree, 7.53% had attended but not completed high school, and 6.81% had completed a vocational course. These data suggest that the respondents had varying levels of educational attainment, with a significant proportion having completed secondary or tertiary education.

As for land tenure, the majority of respondents (57.35%) were landowners, while 35.48% were tenants. A smaller proportion, 20.17%, worked as agricultural laborers. This distribution indicates that while most respondents have control over the land they cultivate, a significant number rely on tenancy arrangements or labor opportunities within the rice farming sector.

Table 4. Demographic profile of respondents

Parameters	Frequency	%
Gender/Sex		
Male	145	51.97
Female	134	48.03
Age		
18- 24	10	3.58
25–44	95	34.05
45–64	143	51.25
65 and above	31	11.11
Educational attainment		
Elementary level	8	2.87
Elementary graduate	24	8.60
High school level	21	7.53
High school graduate	76	27.24
Vocational course	19	6.81
College level	50	17.92
College graduate	65	23.30
Post graduate	1	0.36
No response	15	5.38
Land ownership		
Owned	160	57.35
Tenant	99	35.48
Laborer	20	20.17

Number of respondents by province

Table 5 shows the number of respondents per province. More than half (53.41%) were from Isabela, 29.03% were from Cagayan, 10.04% from Nueva Vizcaya, and 7.53% from Quirino province.

Table 5. Number of respondents by province

Province	No.	%
Isabela	149	53.41
Cagayan	81	29.03
Quirino	21	7.53
Nueva Vizcaya	28	10.04
Total	279	

Success factors contributing to the achievement of key checks

Table 6 presents the respondents' perceptions of the success factors that contributed to the effective achievement of the key checks. The results indicate that technical assistance from the Local Government Unit (LGU) was considered the most significant factor. This was followed by the strict observance of the key checks. While less influential, seed selection and pest and nutrient management were also recognized as important contributors to success.

Respondents' satisfaction with their FFS training experience

Table 7 shows that a majority of respondents (52.69%) were very satisfied with the FFS training they attended, while 46.24% reported being satisfied. Interestingly, although only a small number, two respondents (0.72%) indicated dissatisfaction. Additionally, one respondent expressed a neutral stance regarding their training experience.

Table 6. The 10 most common success factors that contributed to successful achievement of the key checks

Success factor	Rank	Frequency	%
Technical Assistance from the LGU	1	46	16.49
Strict observance of the key checks	2	38	13.62
Attendance to the FFS training	3	33	11.83
Close monitoring of the farm	4	28	10.04
Availability of water and good weather condition	5	26	9.32
Capital and Availability of Resources	6	24	8.60
Continuous guidance from trainers	7	22	7.89
Follow instructions from trainers	8	18	6.45
Resources were ready and ideal location	9	15	5.38
Seed Selection, Pest and Nutrient Management	10	13	4.66
Others		16	5.73
Total		279	100

Table 7. Respondents' satisfaction on their FFS training experience

Success factor	Frequency	%
Very satisfied	147	52.69
Satisfied	129	46.24
Very dissatisfied	2	0.72
Neutral	1	0.36
Total	279	100

Most valuable part of the training as identified by the respondents

Table 8 presents the respondents' views on the most valuable part of the training. Nearly three-fourths (73.12%) did not specify which aspect they found most valuable. Meanwhile, 14.34% identified all key checks as the most valuable part of the training. Additionally, 8.96% highlighted the Agro-Ecosystem Analysis (AESA) as most valuable, while 3.58% pointed to seed selection and pest and nutrient management.

Table 8. The most valuable part of the training as identified by the respondents

Most valuable part	Frequency	%
All key checks	40	14.34
Seed selection and pest and nutrient management	10	3.58
Aesa	25	8.96
Not specified	204	73.12
Total	279	100

Respondents' extent of implementation of practices taught in the FFS training

As shown in Table 9, the majority of respondents (77.06%) reported that they always implemented the practices taught during the FFS training. Additionally, 12.19% stated they often applied the key checks, while 8.96% implemented them only sometimes. A small proportion of respondents reported rarely (0.72%) or never (1.08%) implementing the practices.

Table 9. Respondents' extent of implementation of the practices taught in the FFS training

Response	Frequency	%
Always	215	77.06
Often	34	12.19
Sometimes	25	8.96
Never	3	1.08
Rarely	2	0.72
Total	279	100

The most common future training needs identified by respondents

Table 10 presents the most frequently mentioned future training needs according to the respondents. Topping the list is pest and disease management, cited by 23.30% of respondents. This reflects their prior experiences with pest- and disease-related crop damage, which they view as a major concern. The second most requested area is new farming technologies (15.41%), with specific interest in digital agriculture and the establishment of farm business schools. Finally, a notable number of respondents expressed interest in hydroponics and aquaponics, possibly indicating a growing desire for diversification in farming practices.

Respondents' recommendations to enhance training content

Table 11 outlines the respondents' recommendations for improving training content. The top priority identified is the establishment of Techno-Demo farms, which suggests that respondents value seeing real-world, on-farm applications of the practices taught during Farmer Field School (FFS) training. This hands-on approach likely helps reinforce learning and build confidence in adopting new techniques. Although less frequently mentioned, accurate financial record-keeping was also noted as a recommendation, indicating a recognition of its importance despite being a lower priority.

Table 10. The most common future training needs suggested by respondents

Training need	Rank	Frequency	%
Pest and disease management	1	65	23.30
New technologies in farming	2	43	15.41
Digital agriculture at pest and nutrient management	3	33	11.83
Efficient irrigation techniques/ Water management	4	28	10.04
Establish farm business school	5	24	8.60
Hydroponics/Aquaponics	6	10	3.58
Others		76	27.24
Total		279	100

Table 11. Respondents' recommendations to enhance training content

Recommendation	Rank	Frequency	%
Establish techno demo farm for inbred and hybrid rice	1	52	18.64
Farm Visit and Machinery Operations	2	47	16.85
Flexible resource person	3	33	11.83
How to add value to rice products such as packaging and branding	4	25	8.96
Longer duration of hands-on activity especially in assessing rice diseases	5	22	7.89
More hands-on activities on managing the farm	6	20	7.17
More machineries/or equipment	7	16	5.73
More Reading materials	8	14	5.02
More toolkits about rice farming	9	12	4.30
More training on maintaining accurate financial records of budgeting	10	9	3.23
Others		29	10.39
Total		279	100

Conclusion

The findings of this study clearly demonstrate the positive impact of the Farmer Field School (FFS) training under the Rice Competitiveness Enhancement Fund (RCEF) on the yield and income of rice farmers in Region II, Philippines. A significant proportion of the 279 respondents consistently implemented key agronomic practices, as evidenced by high mean scores across most parameters. Yield improvements were substantial, with the number of

farmers producing less than 5 tons per hectare dropping from 60.15% to 24.81% after the training. Concurrently, those achieving yields above 8 tons per hectare nearly tripled. Income data mirrored this positive trend, with a 192.68% increase in the number of farmers earning over ₱100,000, alongside notable reductions in the lower income brackets.

The field experiment validated these findings, with Treatment 5 (Soil Analysis with Leaf Color Chart) emerging as the most effective nutrient management strategy in terms of yield. Satisfaction with the training was high, with over 98% of participants expressing positive feedback, and a majority always applying the techniques learned. However, pest and disease management, along with modern technologies and hands-on learning through techno-demo farms, were identified as key areas for future training.

These results affirm the effectiveness of FFS as a capacity-building platform for rice farmers, highlighting its role in enhancing productivity, income, and sustainable agricultural practices. To sustain and amplify these gains, continued support in technical training, modern tools, and practical applications is essential. The integration of farmers' feedback into program design will be vital in ensuring relevance, adaptability, and long-term success.

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