

2014 NATIONAL RICE R&D HIGHLIGHTS

TECHNOLOGY MANAGEMENT and
SERVICES DIVISION

TABLE OF CONTENTS

Executive Summary	Page
Technology Management and Services Division	1
I. Packaging & Re-packaging of Specialized & Customized Training Courses for Commercialization	1
II. Development and Testing of Technology Promotion Modalities for Sustainability and Upscaling	10
Abbreviations and acronymns	26
List of Tables	28
List of Figures	29

TECHNOLOGY MANAGEMENT and SERVICES DIVISION

Division Head: Ruben B. Miranda

Executive Summary

Nucleus estate type extension is being eyed as PhilRice's principal approach to doing technology promotion. This was strengthened during the 59th Board of Trustees (BOT) meeting where branch stations mandate was redefined from specialized to broad-based, systems oriented technology development centers and shall serve as nuclei of a nucleus-estate technology incubation, transfer, and enterprise development system to serve as catalyst for rural transformation and progress. Additional farming components shall be tested to enhance productivity, profitability, sustainability, resource-use efficiency, value adding, and mechanization in the rice environment. The outcome will be more easily and immediately deployed to the surrounding communities thus creating a ripple effect, and they become additional nuclei for technology dissemination to farther communities.

To support this movement, special studies in support to nucleus-state extension system such as packaging and re-packaging customized training courses, mass-based technology promotion, and courseware and module development is necessary to accelerate the introduction and delivery of these recent updates and strategies.

I. Packaging & Re-packaging of Specialized & Customized Training Courses for Commercialization

Project Leader(s): RAPineda and AVAntonio

Training and education is very important strategy in technology promotion. Since PhilRice is not the training arm of the Department of Agriculture, funds are limited and mostly are for research and some for development projects. However, PhilRice has to continue serving the farmers, extension workers and other stakeholders who are seeking for their direct training expertise by offering customized training courses with a minimal fee. This is to help them increase their knowledge and skills resulting to increase in productivity and income.

Highlights:

- Packaged eleven training courses for farmers, extension workers and other professionals with average gained in knowledge of 29.54 %. This is 220% accomplishment from the five-targeted customized training course.

- Gained in knowledge is also above the set target, which is 20%.
- 823 farmers, extension workers, and other professionals were trained/ technically updated on rice and rice-based technologies (Table 1).
- Resource persons were rated based on the criteria: mastery of subject matter (a), effectiveness of teaching method used (b), use of audio-visual aids (c), clarity of presentation and explanation (d), willingness and ability to answer questions (e), class participation and involvement (f), ability to adjust topics to participants' level (g), & rapport w/ participants (h). The average rating given to them based on these criteria was excellent (Table 2).
- Results showed that the courses conducted were rated as "very good" (49%) and "excellent" (47%). Only 3.9% rated the training course as "Good" (Table 3).

Table 1. Customized training courses conducted for CY 2014.

Date	Title of Training Course	Category	No. of Participants	% Gain in Knowledge
February 3-4	Rice Production Updates for Selected Farmers under the Farmer-to Farmer-Extension Approach as part of the implementation of JICA TCP5, "Rice-Based Farming Technology Extension Project for the Autonomous Region in Muslim Mindanao "	farmer	26	N/A
February 10-14	Farm Machinery Operations and Safety, cum PalayCheck System for Young Farmers	farmer	20	54.14
April 2	Lakbay- Aral for Universal Harvester Inc. Farmer (Batch 1)	farmer	123	N/A
May 13-15	Training Course on the PalayCheck System for DuPont Technical Staffers	Other professional	31	32.40
June 23-24	Training Course on the Retooling Training cum Field Exposure for Agricultural Extension Workers (AEW's)- Rice in Region 5- Batch 1	AEW	21	20.53
June 25-26	Training Course on the Retooling Training cum Field Exposure for Agricultural Extension Workers (AEW's)- Rice in Region 5- Batch 2	AEW	31	23.75
July 2-3	Training Course on the Retooling Training cum Field Exposure for Agricultural Extension Workers (AEW's)- Rice in Region 5- Batch 3	AEW	21	16.87
September 24-25	Lakbay-Aral/ Rice Science and Technology Updates for Universal Harvester Inc. Farmer Beneficiaries	farmers	137	N/A
February 19-21	Training Course on Seed Testing and Quality Assurance in Hybrids (for Bayer CropScience Personnel)	Other professional	10	13.7
March 18	Seminar on Organic Rice Production for UMFI Staff	farmers	12	N/A
December 8-11	Training Course on Seed Testing and Quality Assurance in Hybrids for Bayer CropScience Personnel	Other professional	5	N/A
Other Trainings Conducted				
May 1-8	Training on Rice and Rice-based Technologies for Areas Affected by Typhoon Yolanda (1st Batch-UEP, Catarman, N. Samar)	Other professional	42	46
May 20-27	Training on Rice and Rice-based Technologies for Areas	Other professional	43	49

Table 2. Summary of Resource Person (RP) evaluation from the customized training courses conducted.

Course Title	A	B	C	D	E	F	G	H
Farm Machinery Operations and Safety, cum PalayCheck System for Young Farmers	4.73	4.60	4.72	4.61	4.68	4.56	4.65	4.68
Training Course on Seed Testing and Quality Assurance in Hybrids (for Bayer CropScience Personnel)	4.60	4.47	4.56	4.60	4.63	4.63	4.50	4.43
Training Course on the PalayCheck System for DuPont Technical Staffers	4.90	4.83	4.82	4.84	4.90	4.83	4.85	4.84
Training Course on the Retooling Training cum Field Exposure for Agricultural Extension Workers (AEW's)-Rice in Region 5- Batch 1	4.71	4.62	4.78	4.68	4.81	4.68	4.71	4.68
Training Course on the Retooling Training cum Field Exposure for Agricultural Extension Workers (AEW's)-Rice in Region 5- Batch 2	4.76	4.78	4.84	4.78	4.78	4.74	4.86	4.80
Training Course on the Retooling Training cum Field Exposure for Agricultural Extension Workers (AEW's)-Rice in Region 5- Batch 3	4.66	4.48	4.52	4.59	4.59	4.45	4.48	4.45
Training on Rice and Rice-based Technologies for Areas Affected by Typhoon Yolanda (1st Batch-UEP, Catarman, N. Samar)	4.81	4.79	4.85	4.77	4.75	4.73	4.75	4.77
Training on Rice and Rice-based Technologies for Areas Affected by Typhoon Yolanda (2nd Batch-VSU, Baybay City, Leyte)	4.83	4.67	4.8	4.71	4.79	4.76	4.77	4.80
Training Course on Seed Testing and Quality Assurance in Hybrids for Bayer CropScience Personnel	4.88	4.88	4.88	4.80	4.88	4.88	4.88	4.88
Training Course on Seed Testing and Quality Assurance in Inbred Production for PhilRice Staff	4.96	4.78	4.76	4.93	4.91	4.81	4.88	4.91
Average	4.78	4.69	4.75	4.73	4.77	4.70	4.73	4.72

Legend

Legend (Criteria):

- a. Mastery of the subject matter d. Clarity of presentation and explanationg. Ability to adjust topics to participants' level
b. Effectiveness of teaching method used e. Willingness and ability to answer questions
h. Rapport with participants
c. Use of audio-visual aids f. Class participation and involvement

Legend (Rating):

- a. Poor (1.00 – 1.50) c. Good (2.51 – 3.50) e. Excellent (4.51 – 5.00)
b. Satisfactory (1.51 – 2.50) d. Very Good (3.51 – 4.50)

Table 3. Participants' overall rating for the customized training courses conducted.

Course Title	Fair	Good	Very Good	Excellent
Farm Machinery Operations and Safety, cum PalayCheck System for Young Farmers	0	10	40	50
Training Course on the PalayCheck System for DuPont Technical Staffers	0	10	54	36
Training Course on the Retooling Training cum Field Exposure for Agricultural Extension Workers (AEW's)- Rice in Region 5- Batch 1-3	0	5	65	30
Training Course on Seed Testing and Quality Assurance in Hybrids (for Bayer Crop Science Personnel)	0	0	89	11
Seminar on Organic Rice Production for UMFI Staff	0	3	54	43
Training on Rice and Rice-based Technologies for Areas Affected by Typhoon Yolanda (1st Batch-UEP, Catarman, N. Samar)	0	0	28	72
Training on Rice and Rice-based Technologies for Areas Affected by Typhoon Yolanda (2nd Batch-VSU, Baybay City, Leyte)	0	0	44	56
Proficiency Examination for Laborers Technical Briefing for PhilRice CES Laborers	0	0	4	96
Training Course on Seed Testing and Quality Assurance in Hybrids for Bayer Crop Science Personnel	0	3	54	43
Training Course on Seed Testing and Quality Assurance in Inbred Production for PhilRice Staff	0	8	58	33
Average Rating	0	3.9	49	47

Others

- Six other training courses were conducted under the project. (Table 1.)
- Profile of all the training participants conducted by TMSD were properly encoded and included in the training databases to ensure proper documentation of all training activities conducted by the division. Detailed information about the participants is being documented, thus, providing a better access to complete data requirements.
- A Post Evaluation Survey for the training participants who attended the Training on Rice and Rice-based Technologies for Areas Affected by Typhoon Yolanda was sent thru email to

assess whether they have used the training in finding their jobs since they are newly graduates of agriculture-related courses. However, only fourteen responded.

Enhancing Technology Awareness and Learning through Mass- based Technology Promotion

CGAbadilla

Mass-based technology promotion strategies such as science and technology updates and field day have proven to be effective in disseminating technologies to extension workers and other end-users. The S&T Update for farmers and extension workers is a half-day activity gathering of farmer and extension workers to learn the latest cost reducing and yield enhancing technologies through consultation and sharing of ideas and experiences with PhilRice experts and scientist. S&T update for legislators and Sangunian Bayan Members include PhilRice programs and latest technologies to let them know and understand what PhilRice is doing in the community, and therefore, they can legislate laws that can help PhilRice carry on development projects in their provinces or municipalities while Farmer's Field Day and Forum is conducted to reach as many farmers and other rice stakeholders as possible in just a short period of time to showcase to the farmers the performance of the different technologies being developed and promoted by PhilRice.

Highlights:

- Eighteen batches of Science and Technology Updates for farmers and Agricultural Extension Workers (885 participants), Sangunian Bayan Members (46 participants), and other professionals (81 participants), were successfully conducted (Table 4).
- Nine batches of Farmers' Field Day and Forum also called "Lakbay Palay" were successfully conducted under the project to help and create awareness of our technologies being promoted to farmers. A total of 7,175 farmers, students, extension workers, researchers, and other stakeholders attended the activity (Table 5).
- Evaluation after the field day showed that the activity was rated "very good" from the coordination and management, field tour, technologies showcased, , open forum, and reading materials (Table 6). This was based on the evaluation of around 1,014 participants (Students – 198; PhilRice Staff -117; farmers – 491; Palayabangan Farmers – 138; and other stakeholders - 70) who attended the activity.

Table 4. Science and Technology Updates for Agricultural Extension Workers, Farmers, and Sangunian Bayan Members Conducted CY 2014.

Date/Place	Number of Participants
<i>S and T Updates for Legislators</i>	
July 21, 2014/ Dipaculao, Aurora	12
August 6, 2014/ Magalang, Pampanga	10
August 18, 2014/ Victoria, Tarlac	12
August 27, 2014/ Baler, Aurora	12
TOTAL	46

Date/Place	Number of Participants
<i>S and T Updates for Farmers and AEW</i>	
Feb. 19, 2014/ Bataan	37
May 20, 2014/ Nueva Ecija	55
July 24, 2014/ Subic, Zambales	100 + 8 AEW
July 25, 2014/ San Antonio, Zambales	100+5 AEW
July 31, 2014/ Bamban, Tarlac	60+4 AEW
August 5, 2014/ Baler, Aurora	80+7
Dipaculao, Aurora	70+4
August 15, 2014/ Bustos, Bulacan	80+6
August 18, 2014/ Orani, Bataan	60+3
August 28, 2014/ Victoria, Tarlac	60+4
August 29, 2014/ Mabalacat, Pampanga	80+4
September 5, 2014/ Magalang, Pampanga	55+3
TOTAL	885

Date	Location	Number of Participants
March 12	PhilRice CES (students)	427
April 1	PhilRice CES (PhilRice Staff)	427
April 2	PhilRice CES (farmers)	756
April 3	PhilRice CES (other stakeholders)	861
April 4	PhilRice CES (farmers)	971
September 30	PhilRice CES (PhilRice Staff)	560
October 1	PhilRice CES (students)	719
October 2	PhilRice CES (farmers)	590
October 3	PhilRice CES (farmers)	1864
TOTAL		7,175

Table 5. Field Days Evaluation CY 2014.

Date	Coordination and Management	Field Tour	Technologies Showcased	Open Forum	Reading Materials
March 12 (students)	3.78	3.87	3.67	3.75	3.17
April 1 (PhilRice Staff)	3.62	3.58	3.71	3.71	2.54
April 2 (farmers)	3.75	3.84	3.94	3.91	3.83
April 2 (Other stakeholders)	3.92	3.85	3.89	3.79	3.74
April 4 (Palayabangan)	3.49	3.56	3.35	3.46	3.47
September 30	4.23	4.21	4.18	4.10	3.59
October 1	4.34	4.21	4.30	4.10	3.91
October 2	3.67	3.79	4.00	3.97	4.06
October 3	3.74	3.75	3.78	3.74	4.00
Average	3.83	3.85	3.87	3.84	3.62

Legend (Rating):

- a. Poor (1.00 – 1.50)
- b. Satisfactory (1.51 – 2.50)
- c. Good (2.51 – 3.50)
- d. Very Good (3.51 – 4.50)
- e. Excellent (4.51 – 5.00)

Module and Courseware Development and Utilization*LdRAbaoag*

Training modules are important in every conduct of a training course. They serve as reference material of the training participants. They are very useful by providing content information thus facilitate learning and understanding of individual participants at their own pace and their own time. Training courseware are equally important tools in information dissimulation and in facilitating learning among trainees.

Highlights:

- Two new modules was developed and pre-tested in the Appreciation Course for Non-Technical PhilRice Staff and Crash Course on Tour Guiding).
- Also six learning activities, and one new assessment and evaluation tool were developed and updated correspondingly under the project and used in the trainings conducted by PhilRice.



Figure 1. Training on Rice and Rice-based Technologies for Areas Affected by Typhoon Yolanda (Catarman, N. Samar; May 1-8, 2014).



Figure 2. Training Course on the PalayCheck System for DuPont Technical Staffers (PhilRice CES, May 13-15, 2014).



Figure 3. Training Course on the Retooling Training cum Field Exposure for Agricultural Extension Workers (AEW's) – Rice in Region 5 (Nabua, CAmarines Sur, June 25-26, 2014).

II. Development and Testing of Technology Promotion Modalities for Sustainability and Upscaling

Project Leaders: AM Corales, RG Corales, JV Pascual, GS Rillon, RB Mlase, GDMartin, and VLD DeGuzman

Collaborative Partnership as a Strategy for Enhancing Community Livelihoods
AMCorales, GDMartin, and VLDDeGuzman

Highlights:

- Conducted monitoring of farms demonstrating the benefits of using MOET as basis in applying fertilizer. The demo farms numbering 31 covering 44 farmers were established in Nueva Ecija, Pangasinan, Tarlac, and Isabela this 2014 DS. The use of MOET is one of the key areas of collaboration between TSPI and PhilRice.
- Conducted a Specialized Training Course on Pest and Nutrient Management for 34 TSPI farmer-clients and agricultural account officers in Pili, Camarines Sur on February 27 to 28, 2014. The training aimed to provide awareness in the correct identification of the common pests and nutrient problems in the area so that the participants can come up with the correct solutions.

- For DS 2014, the average yield achieved in the MOET demo farms was 4.89t/ha distributed as follows: Nueva Ecija - 4.95t/ha, Tarlac - 4.23t/ha, and Isabela - 5.48t/ha. The yield is 18.5% lower than the yield achieved in 2013 DS because of some water stress and disease (neck rot) problems encountered in the area particularly on PSB Rc82.

Community-Based Approach to Increasing Farm Productivity through Effective Pest Management Strategies and Integrated Rice Based Farming Systems

AMCorales, GSRillon, RBMalasa, GDMartin, and RGCoraes

Highlights:

- After two years (WS 2012 to WS 2014) of promoting synchronous planting in Diaat and Malasin, Maria Aurora, planting schedule has been more or less defined in the project site as follows: one crop of corn or rice from January to April; another crop of rice from May to September; and a third crop of short duration rice or cash crop from October to mid-January were the agreed planting schedules.
- Thirty farmers attended the technical briefings on the production of corn, mongo, and mushroom, and vermicomposting. The following served as resource speakers during the training: Dr. Sofronio Kalaw, Director of the Center for Tropical Mushroom R&D, CLSU led the mushroom lecture, Mr. Wilson Candelario, High Value Crops Development Program Coordinator of LGU-Ma. Aurora on mongo production, and Ms. Rowena Calip, Corn Program Coordinator, LGU-Ma. Aurora on corn production. The seminar on vermicomposting was conducted by Engr. Florentino Castañeda of the Office of the Provincial Agriculturist-Aurora.
- For DS 2014, the following average rice yields were achieved in the project site: mongo - 0.33 t/ha; corn - 4.32t/ha; rice- 5.30t/ha. During the WS of 2014, rice yield was reported at 4.11 t/ha. The rice yields were increased by 16.8% and 7.7% for wt and dry seasons, respectively.
- Conducted Farmers' Field Day and Forum on Corn last May 9, 2014. About 200 farmers coming from neighboring barangays, officials from PhilRice, NIA, DA-RFO3, ASKI, and LGU-Maria Aurora attended the activity. Neighboring farmers were surprised that the whole area of Diaat was almost all planted to corn after several years of planting rice only.

- One FFS on vegetables conducted by LGU, facilitated by PhilRice. This project won Best Paper under the Technology Dissemination and Extension Category during the 44th CSSP Scientific Conference held on May 12 to 16, 2014 in Cebu City.

Empowering Farmers' Cooperatives through Sustainable Promotion of High-yielding Rice Production Technologies for a Progressive Rural Economy

JVPascual

The study started in DS 2014 with Lagare Multi-Purpose Coop in Cabanatuan City, Nueva Ecija as the main project partner. It aimed to demonstrate the importance of cooperatives in modernizing agriculture in the country with the promotion of high yielding rice production technologies utilizing agricultural cooperatives as medium. Due to favorable results obtained in Cabanatuan City, the study was expanded the following year to include Barangay Aquino Development Cooperative (BADECO) in Licab, Nueva Ecija.

Key production practices and problems in farming were gathered through baseline data gathering and focus group discussion before the start of the project. The project concept was presented in order to gain the support of the cooperative members. Also a training needs assessment was conducted among the officers and members as a guide for the development of training modules.

Highlights:

A. Cabanatuan City, Nueva Ecija

- Capacity enhancement activities such as Rice S&T Updates, Cooperative Management, and Season-long Training Course on the PalayCheck System of Rice Production were conducted for cooperative members and officers in order to help them increase farm productivity and profitability. Similarly, an S&T Update for LGU Agricultural Technologists was conducted to enhance their knowledge and skills related to rice technology promotion. The following season (WS 2014), a season-long training course was also conducted for the other farmer-members of the cooperative. The training supported the formation of farm guidance team (pool of farmer-technicians) who will supervise the farming activities of its members. The learning modules used during the training was also based on the PalayCheck System following its key checks, importance, recommendations and assessment.

- Specialized topics focusing on rice-based farming systems and other entrepreneurial activities were also conducted for the farmers. These included organic farming, crop diversification and intensification, Effective Microorganism (EM) technology, mushroom production, and use of rice hull gasifier stove. The importance of farm mechanization and having a custom service facility was also promoted among the cooperative members. Among the farm machineries introduced were: mechanical rice transplanter, reaper and combine harvester-thresher.
- Forty-two (42) participating farmers graduated from the training course after two cropping seasons of lecture, field practicum and exposure trip.
- A coop-managed learning field cum technology demonstration farm was established in the project site. The demo farm had several technology components such as adaptability trial of newly released inbred varieties, PalayCheck demo field, fertilizer demo showcasing the Rice Crop Manager (RCM), the MOET and LCC, and drum-seeded field. The demo on newly- released varieties in WS 2014 showed that NSIC Rc222 achieved the highest yield of 6.87t/ha, followed by NSIC Rc300 with 6.42t/ha, NSIC Rc308 at 6.33t/ha, NSIC Rc302 at 5.93t/ha, and NSIC Rc304SR at 3.28t/ha. On the fertilizer management trials, the demo plots following the rice crop manager (RCM) out yielded the plots following the MOET/ LCC recommendations by 0.86t/ha, that is, 5.60t/ha for the RCM and 4.74t/ha for the MOET and LCC. On the other hand, the direct-seeded plot using NSIC Rc302 yielded 5.8t/ ha.
- For DS 2014 cropping season, participating farmers achieved a yield ranging from 5.24 to 11.22t/ha or an average of 6.95t/ ha. During WS 2014 cropping, participating farmers achieved yields at the range of 3.55 to 6.43t/ha or an average of 5.02t/ ha. Comparing the results with the WS 2013 baseline yield of 4.24t/ha, an average of 0.78t/ha yield increase was obtained in WS 2014.
- Considering the DS 2013 baseline income of participating farmers at an average of PhP 28,100.00/ha, there was a remarkable increase in profit during DS 2014 at an average of PhP 73,000.00 per hectare. One contributing factor in the increased income was the high price of palay ranging from PhP 19.00 to 21.00/kg fresh weight at harvest time.

- Majority of the technologies and practices promoted by the project were utilized by cooperative members as indicated by the adoption score of 82.30 (83.13% adoption) with a mean score value of 2.49 equivalent to high adoption level of technologies.

B. Licab, Nueva Ecija

- A training course on Rice S&T was organized for Barangay Aquino Development Cooperative (BADECO) in Aquino, Licab, Nueva Ecija in DS 2015. From 220 cooperative members, 35 participants were identified as the training group who will later serve as farmer-technicians of the organization. A season-long training course was designed for these farmer-technicians to enhance their knowledge and skills on rice and rice-based farming systems through participatory lectures and hands-on activities.
- The BADECO farmer-members also established a technology demonstration field in DS 2015. Five newly released inbred rice varieties were established: NSIC Rc222, Rc300, Rc302, Rc304 SR and Rc308. The demo field served as learning field during the season-long training of the coop-members and the produce will be used for the community seed-banking project of the members.

Technology Assessment and Mature Technology Identification

LdR Abaog, JV Pascual, FD Garcia, AM Jose

This project aims to develop and implement the institutional system for the evaluation and identification of PhilRice matured technologies to ensure the appropriateness and acceptability before promotion and commercialization of the developed technologies.

Technology assessment in PhilRice also consolidates the efforts in identifying, assessing, and evaluating the readiness and or maturity of Institute's research outputs.

Highlights:

Classification of technologies developed by PhilRice

Classified the technologies produced by PhilRice on different categories such as:

- Product – this type of technology is in the form of physical goods. These include farm machineries/equipment, fertilizers, bio-control products and the like.

- Process – these technologies are not tangible and may refer to systems in doing things or systems for improved production and postproduction. These may also be models or strategies for efficient utilization, conservation, and management of resources, marketing and distribution system, seed production system, etc.
- Service – provides complementary activities or services/extension services to enhance existing government programs and policies.
- Information – research findings or information that may indicate valuable socio-economic and technical databases for policy formulation and follow-up R&D activities.
- Diagnostic/Decision-making tools – tools and/or technologies that assesses farm/field conditions thus helping the farmers on giving immediate solution and make improvements on the farming management.
- Rice-based products – products that contains rice as the major ingredient. It can be food, beverage, perfumes and the like.
- Newly released varieties – rice varieties either inbred or hybrid seeds that suffice the location-specific seed requirement of the country's different farming conditions.

List of identified PhilRice technologies to be assessed

- Prepared a listing of available PhilRice technologies that needs to be assessed for the commercialization.

Coordination with Technology generators/Creation of multi-disciplinary team

Coordinated with Rice Engineering and Mechanization Division (REMD)

- Set the criteria (endurance, performance, capacity, design, and ease of use) on evaluating performance of engineering products.
- Proposed to have a separate classification like: "agricultural machineries" or "household equipment" under the "product" category since REM products count most on the list.
- According to one of the REMD staff, if clients bought their

product, it is considered matured because they won't buy it if it will not be useful for them.

- REMD proposed that all machineries procured should be followed by technology assessment right away because close/regular monitoring and immediate feedback is necessary.

Coordinated with Rice Chemistry and Food Science Division (RCFSD)

- Before commercializing the rice-based products, RCFSD staff agreed that it should undergo technology assessment for the assurance that there will be product takers.
- On every product, a market research should be conducted to determine the preferences of the consumers that would help the generators on improving the ideal product.

Coordinated with Plant Breeding and Biotechnology Division (PBBD)

- Settled that regarding rice varieties, there is no need on validating the process on releasing new varieties. However, it is necessary that there would be adaptability trials to determine the location-specificity of the variety.

Coordinated with Climate Change Center (CCC)

- The assessment team will conduct field validation on the technology during the on-going study of the MOET Application Mobile Tool (MOET App)
- PhilRice stations would also set up a MOET App trial for the field validation, assessment and promotion of the diagnostic/decision-making tool technology.

Identification of potential partners/stakeholders for the validation

- Various divisions such as PBBD, RCFSD, CCC and REMD were the identified initial potential partners for validation. IRRI and PhilRice Branch stations are also identified as stakeholders on this project. In validation processes, farmer-cooperators and LGU's Agricultural Extension workers in Region III are also tapped.

Technology validation (table and field validation)

Field validation of Rice Husk Gasifier Stove (RHGS)

- Conducted pre-test questionnaire evaluation of RHGS during the Farmers' Field day (see attached questionnaire)
- Conducted performance evaluation of RHGS on selected household users in Cabanatuan City. It was lend to the

respondents so they can experience, observe and evaluate the household equipment after using it.

- This household user evaluation process is still on-going and based on the initial interview on the users they find the RHGS as a good and cheap alternative for LPG stove. However, the respondents said that it would be better if the reactor is bigger so it can hold more rice hull for longer usage.
- The questionnaire used on the pre-test evaluation on the field day was improved for the on-site evaluation questionnaire

Field validation of MOET App

- Conducted pre-testing of MOET App questionnaire and evaluation of MOET App's fertilizer recommendation calculator in Zambales through administered interview with AEW's and farmer-cooperators involved in the field demonstration of the technology.
- According to the primary result of evaluation MOET App:
 - o Results are accurate wherein the target yield calculated by the MOET fertilizer recommendation calculator (FRC) is close with the result of the actual yield.
 - o The tool gives the right amount of fertilizer application based on the data gathered from the MOET set-up
 - o Production cost can be reduced because MOET FRC gives options of fertilizer amount depending on the economic capability of the farmer
 - o For some farmers, setting-up the MOET original first is laborious and inconvenient since they have to wait for 45 days before putting the biomass data on the MOET Application tool
- Developed a protocol for PhilRice stations-- Multi-location Field validation of the MOET App. It aims to validate the the MOET App's accuracy and determine the acceptance level of farmers/Agricultural Extension workers (AEW's) on using the MOET Kit and MOET App. (see attached protocol)
- Under PhilRice CES, two (2) sites were identified in Cabanatuan City and one (1) for the on-station's field validation (TMS Learning Center's field) of MOET App's recommendations. MOET set-up was already established on site including the seedbed for the demonstration trials.

- MOET App's study in Aurora province by the CCC team will also be considered as part of the field validation of the technology.

Field validation of Nutri Rice Milk

- Conducted field validation of Nutri Rice Milk using survey questionnaire
- According to the primary result of the Nutri Rice Milk validation:
 - o Most of the respondents agreed that the taste, packaging, nutrition/health benefit were excellent
 - o Criteria that needs to be improved are the shelf life of the product and labeling because the product expires after 10 to 15 days

Field validation of newly released rice varieties

- Developed an Adaptability Trial protocol that will serve as a guideline of PhilRice Branch stations and partners for their own establishment of rice adaptation and identifying the location specificity of the newly released varieties.
- The adaptability trial protocol also aims to demonstrate the performance of newly released rice varieties thereby, ensuring quick delivery of improved genetics in the farmer's field and eventually rapid adoption of released varieties.

Clean, Green, Practical and Smart On-farm LEARNING CENTER

FD Garcia, VC Garcia and RB Miranda

Component 1 – Relay Planting to Showcase Growth Stages of the Rice Plant Establish and maintain relay rice planting to showcase the major growth stages of the rice plant intended for training and re-evaluation of agronomic and yield performance of NSIC Rc222 at different planting dates.

Highlights:

- Established 14 successive crops (wet and dry season) every 21 days to show the different growth stages of the rice plant in a given time.

Table 6. Establishment of 14 successive crops.

Crop	Date of Planting	Harvest	Remarks
*First Crop	January 9, 2014	2.5 bags	
*Second Crop	January 30, 2014	5.0 bags	
*Third Crop	February 20, 2014	4.5 bags	
*Fourth Crop	March 13, 2014	3.0 bags	
*Fifth Crop	April 03, 2014	-	Flow under due high infestations of stemborer and RBB
*Sixth Crop	May 15, 2014	-	Flow under due high infestations of stemborer and RBB
**First Crop	June 10, 2014	2.0 bags	Yield loss due to birds
**Second Crop	July 02, 2014	4.5 bags	
**Third Crop	July 23, 2014	2.0 bags	Yield loss due to stemborer
**Fourth Crop	August 13, 2014	2.5 bags	Yield loss due to stemborer
**Fifth Crop	September 03, 2014	1.0 bag	Yield loss due to stemborer
**Sixth Crop	September 23, 2014	1.0 bag	Yield loss due to stemborer
**First Crop	October 21, 2014		Heading Stage, damaged by stemborer and RBB
**Second Crop	November 11, 2014		PI Stage, infested with RBB
**Third Crop	December 02, 2014		
**Fourth Crop	December 23, 2014		

* area=768 m²

** area=336 m²

- The set-up was showcased during the conduct of the Lakbay Palay DS2014 on April 1 to 4 and Lakbay Palay WS2014 on September 30 to October 3.
- Used as observation, practicum, and AESA field of the following trainings:
 1. Training Course on Towards Capacitating Agricultural Extension Workers led by ATI in collaboration with PhilRice (June 3-5, and June 9 to 11, 2014).
 2. Rice Boot Camp for New Graduates of Agriculture, and Rice and Related Sciences (Batch 1: May 5 to 16, 2014 and Batch 2: November 17 to 28, 2014)
 3. Philippine Rice Information System (PRISM) Component A An Implementers Training conducted by Climate Change Center (May 4 to 9, September 8 to 12, September 15 to 19, 2014) - they conducted actual field monitoring, measuring of plant height, planting distance, water depth and bund height, getting leaf area index (LAI), recorded crop establishments dates of the different stages of the planted rice, taking photos of the area and its surroundings.

4. Appreciation Course on Rice S&T for PhilRice Non-Technical Staff Members (June 5 to July 10).
5. Appreciation Course on Rice S&T for PhilRice' R and D Staff Members (November 20, 27, and December 4).
6. Learning field of OJTs for the period of Dec 2, 2013 to Feb 24, 2014 and June 30 to September 30, 2014.
7. Seed Testing and Quality Assurance of Hybrids for Bayer Crop Science Personnel (December 8 to 10, 2014) and for BDD Coordinator of PhilRice (December 16 to 18, 2014) - they conducted actual field monitoring and rouging exercises. Seed Testing and Quality Assurance of Hybrids Due to pest pressures like stemborer attack in the 4th, 5th, and 6th crop, and infestation of rice black bug on the 7th crop, the 8th planting was suspended in the original area. Smaller plots are now being established for easier management.

Component 2 – Maintenance of Plots for Practicum on Methods of Tillage, Seedling Establishment and Methods of Crop Establishment.

The area was used for an actual demo on Seedbed preparation and seed sowing for both wetbed and modified dapog method of raising seedlings for the following training:

- Training Course on Inbred Rice Seed Production and Certification for Seed Growers (March 13, 2014).
- Training Course on Inbred Rice Seed Production & Certification for Prospective Seed Growers (September 18, 2014).
- Refresher Training Course on Inbred Rice Seed Production and Certification (August 13, 2014).
- Refresher Training Course on Inbred Rice Seed Production and Certification (August 19, 2014).
- Refresher Training Course on Inbred Rice Seed Production and Certification (October 2, 2014).
- Rice Boot Camp for New Graduates of Agriculture, and Rice and Related Sciences (Batch 1: May 5 to 16, 2014 and Batch 2: November 17 to 28, 2014).

- Appreciation Course on Rice S&T for PhilRice Non-Technical Staff Members (June 5 to July 10).
- Appreciation Course on Rice S&T for PhilRice' R and D Staff Members (November 20, 27, & December 4).
- Trng Course on Farm Machineries cum PalayCheck for Young Farmers conducted by DevCom (Feb 3 to 6, 2014).
- Training Course on Farm Machinery Operations cum PalayCheck System for Young Farmers (Feb 10 to 14, 2014).
- Climate Change and Rice Production conducted by DevCom (June 16 to 20 and June 23 to 27, 2014).

Component 3 – Establishment of Technology Demonstration plots for PalayCheck System and Palayamanan Plus, and Palayabangan: 10-5 Challenge Highest Yelder

- Established the 1000m² planted with mungbean after rice.
- Developed the 2000m² into a vegetable garden planted with squash, okra, gabi, eggplant, and pole sitaw.
- Planted upland varieties like Malido Red, Black Rice, and Dinorado.
- Planted papaya along the embankments of the tilapia pond.
- Harvested 44 bags at the seed production area and 26 bags for the ORB-MPC Demo plot.

Component 4 – Development and Maintenance of Tilapia Pond on Pond Refuge

- Rehabilitated two pond refuge and stocked with tilapia fingerlings on March 28, 2014. One pond was stocked with 1000 heads and the other was with 500 heads. Stocking rate was 5 heads per m².

Component 5 – Establishment of Learning Shed for reception and briefing area

- Requested materials for the area. Not materialized during the year. SPO failed to deliver the needed/requested materials. Waiting for the design of the shed by the PPD.

Component 6 – Practicum Area for Method Demonstration and Use of Farm Machinery

Selected plot assigned for practicum area shall be left idle to be available whenever there's a training. Practicum area is sizeable to warrant machinery operation and without obstruction, less productive and free of hazards for trainees safety. Trainers, skilled laborers and facilitators must at all times present during hands-on training. Hands-on materials and machinery for demonstration and testing must always be available and in good running condition. Used as hands-on activity area on the operation of handtractor, 4-wheel tractor, mechanical seeder and mechanical transplanter during the training on:

- Training of Farmer Trainers on Farmer-To-Farmer Approach under the National Irrigation Sector Rehabilitation and Improvement Project (NISRIP) (4 batches).
- Appreciation Course on Rice Science and Technology PhilRice Non-Technical Staff Members (June 5 to July10).
- Trng Course on Farm Machineries cum PalayCheck for Young Farmers conducted by DevComm (Feb3 to 6, 2014).
- Training Course on Farm Machinery Operations cum PalayCheck System for Young Farmers (Feb 10 to14, 2014).
- Appreciation Course on Rice S&T for PhilRice' R and D Staff Members (November 20, 27, and December 4)
- Training Course on Towards Capacitating Agricultural Extension Workers led by ATI in collaboration with PhilRice (July 22 to 24, and 29 to 31, 2014).
- NISRIP Refresher Course for NISRIP AgriSupoport Ricetech (August 13 to 14, 2014)
- PRISM Component B Training on Crop Health led by DA-RFU III (August 13 to 14, 2014)
- PRISM Philippine Rice Information Training Component A

Implementers led by PhilRice (Sept 8 to 12, 2014)

- *They conducted actual field monitoring, LAI determination and Rice and non-Rice (RnR) validation through the use of smartphones.

Component 7 – Capacity Enhancement of Training Staff

- Conducted the Appreciation Course on Rice Science and Technology PhilRice Non-Technical Staff Members (June 5 to July10)
- Appreciation Course on Rice Science and Technology for PhilRice' R and D Staff Members (November 20, 27, and December 4)
- Two Batches of Rice Boot Camp for the New Graduates of Agriculture and other Related Sciences. (Batch 1: May 5to 16, 2014 Batch 2: November 17 to 28, 2014

Expert's Dispatch

AVAntonio and RBMiranda

PhilRice was created and mandated to help develop high yielding, cost-reducing, and environment friendly technologies so farmers can produce enough rice for all filipinos. This mission is accomplish through research and development work at the Central Experiment Station and seven branch stations, coordinating with a network that comprises 58 agencies and 70 seed centers strategically located nationwide. To help farmers achieve holistic development, PhilRice pursue the following goals in 2010 - 2020 attaining and sustaining rice self-sufficiency, reducing poverty and malnutrition; and achieving competitiveness through agricultural science and technology. The institute have a wide array of talents that can respond to any agricultural assistance requiring the services of field experts, scientists, researchers, economists, development workers planners and team builders.

This project was conituously being implemented due to numerous requests for field interventions, training of field personnel, planning workshops, scientific conventions, resource persons in many related field sciences requested mostly by DA-Bureau's and attached agencies, Local Government Units, Non-Government Organizations and Farmer's Groups/Associations. The project aim to respond more precisely and effectively by sending the best fit experts to serve the requesting party.

The project generally aims to serve requisitions with utmost integrity, effectively and efficiently for the services rendered for the general welfare of the rice industry.

PhilRice CES - AVAntonio, Supervising SRS

Nineteen trainings and technical briefings were attended by PhilRice CES technical staff where they delivered lectures on special topics and answer questions in their area of specialization. Most of the training was conducted inside PhilRice compound (53%). Requesting parties were the Agricultural Training Institute (68%), Department of Agriculture –Regional Field Office (21%), NGO (5%), and National Irrigation Administration (5%). A total of 705 farmers and extension workers were the recipients of the training. Most of the trainees were male (68%) while 32% are female. Experts were staff from TMSD, CPD, ASPPD, BDD and CCC. Topics were mostly on PalayCheck System, Integrated Pest and Nutrient Management, Palayamanan System, and Seed production.

Table 7. List of trainings conducted in 2014.

Requesting Party	Nature of Assistance Requested	Date Needed	Venue	Client's Category (Farmer; AEW; others)	Number of persons served (M or F)	Expert's Dispatched/ Division/Unit	Assistance Provided/ Topics Discussed
Agricultural Training Institute (ATI)	Resource Person	April 7-11	NIA-UPRIIS, Cabanatuan City	Farmers	24 (21M/3F)	TMSD	As resource persons in rice and rice-based technologies
ATI	Resource Person	April 21-25	NIA-UPRIIS, Cabanatuan City	Farmers	21 (20M/1F)	TMSD	As resource persons in rice and rice-based technologies
ATI	Resource Person	April 28-May 2	NIA-UPRIIS, Cabanatuan City	Farmers	32 (27M/5F)	TMSD	As resource persons in rice and rice-based technologies
ATI	Resource Person	June 3-5	PhilRice CES	AEW	23 (10M/13F)	TMSD; CPD; CCC	As resource persons in rice and rice-based technologies
ATI	Resource Person	June 9-11	PhilRice CES	AEW	21 (8M/13F)	TMSD; CPD; CCC	As resource persons in rice and rice-based technologies
ATI/NSQCS	Resource Person	March 4-6	RCPC	Farmers	62 (56M/6F)	TMSD, BDD, CPD	As resource persons in rice seed production technologies
ATI/NSQCS	Resource Person	March 10-14	RCPC	Farmers	34 (28M/6F)	TMSD, BDD, CPD	As resource persons in rice seed production technologies
Agricultural Training Institute (ATI)	Resource Person	July 22-24	PhilRice CES	AEW	28 (16M/12F)	TMSD, CPD	Resource persons: IPM topics
ATI	Resource Person	July 29-31	PhilRice CES	AEW	20 (11M/9F)	TMSD, CPD	Resource persons: IPM topics
ATI	Resource Person	August 5-7	Baler, Aurora	AEW	23 (11M/12F)	TMSD, CPD	Resource persons: IPM topics
ATI/NSQCS	Resource Person	August 12-14	PhilRice CES	Farmers/Seed Growers	58 (47M/11F)	TMSD, ASPPD, CPD, BDD	RP: Rice production/S

Abbreviations and acronymns

ABA – Abscicic acid	EMBI – effective microorganism-based inoculant
Ac – anther culture	EPI – early panicle initiation
AC – amylose content	ET – early tillering
AESA – Agro-ecosystems Analysis	FAO – Food and Agriculture Organization
AEW – agricultural extension workers	Fe – Iron
AG – anaerobic germination	FFA – free fatty acid
AIS – Agricultural Information System	FFP – farmer's fertilizer practice
ANOVA – analysis of variance	FFS – farmers' field school
AON – advance observation nursery	FGD – focus group discussion
AT – agricultural technologist	FI – farmer innovator
AYT – advanced yield trial	FSSP – Food Staples Self-sufficiency Plan
BCA – biological control agent	g – gram
BLB – bacterial leaf blight	GAS – golden apple snail
BLS – bacterial leaf streak	GC – gel consistency
BPH – brown planthopper	GIS – geographic information system
Bo - boron	GHG – greenhouse gas
BR – brown rice	GLH – green leafhopper
BSWM – Bureau of Soils and Water Management	GPS – global positioning system
Ca - Calcium	GQ – grain quality
CARP – Comprehensive Agrarian Reform Program	GUI – graphical user interface
cav – cavan, usually 50 kg	GWS – genomwide selection
CBFM – community-based forestry management	GYT – general yield trial
CLSU – Central Luzon State University	h – hour
cm – centimeter	ha – hectare
CMS – cytoplasmic male sterile	HIP - high inorganic phosphate
CP – protein content	HPL – hybrid parental line
CRH – carbonized rice hull	I - intermediate
CTRHC – continuous-type rice hull carbonizer	ICIS – International Crop Information System
CT – conventional tillage	ICT – information and communication technology
Cu – copper	IMO – indigenous microorganism
DA – Department of Agriculture	IF – inorganic fertilizer
DA-RFU – Department of Agriculture-Regional Field Units	INGER - International Network for Genetic Evaluation of Rice
DAE – days after emergence	IP – insect pest
DAS – days after seeding	IPDTK – insect pest diagnostic tool kit
DAT – days after transplanting	IPM – Integrated Pest Management
DBMS – database management system	IRRI – International Rice Research Institute
DDTK – disease diagnostic tool kit	IVC – in vitro culture
DENR – Department of Environment and Natural Resources	IVM – in vitro mutagenesis
DH L– double haploid lines	IWM – integrated weed management
DRR – drought recovery rate	JICA – Japan International Cooperation Agency
DS – dry season	K – potassium
DSA - diversity and stress adaptation	kg – kilogram
DSR – direct seeded rice	KP – knowledge product
DUST – distinctness, uniformity and stability trial	KSL – knowledge sharing and learning
DWSR – direct wet-seeded rice	LCC – leaf color chart
EGS – early generation screening	LDIS – low-cost drip irrigation system
EH – early heading	LeD – leaf drying
	LeR – leaf rolling
	lpa – low phytic acid
	LGU – local government unit

LSTD – location specific technology development	PI – panicle initiation
m – meter	PN – pedigree nursery
MAS – marker-assisted selection	PRKB – Pinoy Rice Knowledge Bank
MAT – Multi-Adaption Trial	PTD – participatory technology development
MC – moisture content	PYT – preliminary yield trial
MDDST – modified dry direct seeding technique	QTL – quantitative trait loci
MET – multi-environment trial	R – resistant
MFE – male fertile environment	RBB – rice black bug
MLM – mixed-effects linear model	RCBD – randomized complete block design
Mg – magnesium	RDI – regulated deficit irrigation
Mn – Manganese	RF – rainfed
MDDST – Modified Dry Direct Seeding Technique	RP – resource person
MOET – minus one element technique	RPM – revolution per minute
MR – moderately resistant	RQCS – Rice Quality Classification Software
MRT – Mobile Rice TeknoKlinik	RS4D – Rice Science for Development
MSE – male-sterile environment	RSO – rice sufficiency officer
MT – minimum tillage	RFL – Rainfed lowland
mtha ⁻¹ - metric ton per hectare	RTV – rice tungro virus
MYT – multi-location yield trials	RTWG – Rice Technical Working Group
N – nitrogen	S – sulfur
NAFC – National Agricultural and Fishery Council	SACLOB – Sealed Storage Enclosure for Rice Seeds
NBS – narrow brown spot	SALT – Sloping Agricultural Land Technology
NCT – National Cooperative Testing	SB – sheath blight
NFA – National Food Authority	SFR – small farm reservoir
NGO – non-government organization	SME – small-medium enterprise
NE – natural enemies	SMS – short message service
NIL – near isogenic line	SN – source nursery
NM – Nutrient Manager	SSNM – site-specific nutrient management
NOPT – Nutrient Omission Plot Technique	SSR – simple sequence repeat
NR – new reagent	STK – soil test kit
NSIC – National Seed Industry Council	STR – sequence tandem repeat
NSQCS – National Seed Quality Control Services	SV – seedling vigor
OF – organic fertilizer	t – ton
OFT – on-farm trial	TCN – testcross nursery
OM – organic matter	TCP – technical cooperation project
ON – observational nursery	TGMS – thermo-sensitive genetic male sterile
OPAg – Office of Provincial Agriculturist	TN – testcross nursery
OpAPA – Open Academy for Philippine Agriculture	TOT – training of trainers
P – phosphorus	TPR – transplanted rice
PA – phytic acid	TRV – traditional variety
PCR – Polymerase chain reaction	TSS – total soluble solid
PDW – plant dry weight	UEM – ultra-early maturing
PF – participating farmer	UPLB – University of the Philippines Los Baños
PFS – PalayCheck field school	VSU – Visayas State University
PhilRice – Philippine Rice Research Institute	WBPH – white-backed planthopper
PhilSCAT – Philippine-Sino Center for Agricultural Technology	WEPP – water erosion prediction project
PhilMech – Philippine Center for Postharvest Development and Mechanization	WHC – water holding capacity
PCA – principal component analysis	WHO – World Health Organization
	WS – wet season
	WT – weed tolerance
	YA – yield advantage
	Zn – zinc
	ZT – zero tillage

List of Tables

	Page
Table 1. Customized training courses conducted for CY 2014	3
Table 2. Summary of Resource Person (RP) evaluation from the customized training courses conducted	4
Table 3. Participants’ overall rating for the customized training courses conducted	5
Table 4. Science and Technology Updates for Agricultural Extension Workers, Farmers, and Sangunian Bayan Members Conducted CY 2014	7
Table 5. Field Days Evaluation CY 2014	8
Table 6. Establishment of 14 successive crops	19
Table 7. List of trainings conducted in 2014	25

List of Figures

	Page
Figure 1. Training on Rice and Rice-based Technologies for Areas Affected by Typhoon Yolanda (Catarman, N. Samar; May 1-8, 2014)	9
Figure 2. Training Course on the PalayCheck System for DuPont Technical Staffers (PhilRice CES, May 13-15, 2014)	9
Figure 3. Training Course on the Retooling Training cum Field Exposure for Agricultural Extension Workers (AEW's) – Rice in Region 5 (Nabua, Camarines Sur, June 25-26, 2014)	10



PhilRice Central Experiment Station, Maligaya, Science City of Muñoz, 3119 Nueva Ecija • Tel: (44) 456-0277 • Direct line/Telefax: (44) 456-0112

Email: prri.mail@philrice.gov.ph • PhilRice Text Center: 0920-911-1398 • Websites: www.philrice.gov.ph; www.pinoyrkb.com

PhilRice Agusan, Basilisa, RTRomualdez, 8611 Agusan del Norte • Tel: (85) 343-0778 • Tel/Fax: 343-0768 • Email: agusan.station@philrice.gov.ph

PhilRice Batac, MMSU Campus, Batac City, 2906 Ilocos Norte • Tel/Fax: (77) 670-1887; 670-1867 • Email: batac.station@philrice.gov.ph

PhilRice Bicol, Batang, Ligao City, 4504 Albay • Cell: 0905-7352078, 0918-9467493 • bicol.station@philrice.gov.ph

PhilRice Isabela, Malasin, San Mateo, 3318 Isabela • Tel: (78) 664-2954, 2280 • Tel/Fax: 664-2953 • Email: isabela.station@philrice.gov.ph

PhilRice Los Baños, UPLB Campus, Los Baños, 4030 Laguna • Tel: (49) 536-8620 • 501-1917 • Email: losbanos@philrice.gov.ph

PhilRice Midsayap, Bual Norte, Midsayap, 9410 North Cotabato • Tel: (64) 229-8178 • Tel/Fax: 229-7242 • Email: midsayap.station@philrice.gov.ph

PhilRice Negros, Cansilayan, Murcia, 6129 Negros Occidental • Cell: 0928-506-0515 • Email: negros.station@philrice.gov.ph

PhilRice Field Office, CMU Campus, Maramag, 8714 Bukidnon • Tel/Fax: (88) 222-5744

Liaison Office, 3rd Floor, ATI Bldg, Elliptical Road, Diliman, Quezon City • Tel/Fax: (02) 920-5129, Cell: 0920-9069052