Philippine Rice R&D Highlights 2013

TECHNOLOGY MANAGEMENT AND SERVICES DIVISION

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TECHNOLOGY MANAGEMENT AND SERVICES DIVISION

Division Head – Lea dR. Abaoag

I. Accelerating Rice Production in the Philippines through Unified and Relevant Information, Training, and Technology Transfer Strategies

Project Leader – GY. Ilar

For many years, rice production in the country has not been able to keep pace with population growth and the gap between rice production and utilization is widening, thus, the Government has recognized the need to further increase local rice production to lessen the need for importation and move toward self-sufficiency. In 2008, the Government has called for a "Philippines' Rice Master Plan" which focuses on increasing provincial production. The goal is to achieve 100% rice self-sufficiency by 2013. This is further strengthened through the Food Staples Sufficiency Program (FSSP) crafted in 2012, which aimed to enhance agricultural productivity and global competitiveness.

The Department of Agriculture (DA) through the FSSP program, following the Agri Pinoy framework has identified several strategic components to further increase the total rice production in the country. There are now recent updates and advances in rice science and technologies that should be available to the farmers to further improve their agricultural productivity and profitability, thereby alleviating poverty and reducing the incidence of malnutrition in the rural areas. Among these technologies to increase yield and profit are better and high-yielding rice varieties; improved crop management practices (PalayCheck System); diversified farming systems (Palayamanan); and new harvest and postharvest technologies that reduce crop losses. However, in order for these technologies to reach the farmers, there is a need to accelerate the introduction and delivery of these recent updates coupled with the most appropriate logistical, and information and communication supports. Complementary to these is the need to develop and train new generation of rice specialists and Extensionists from the private and public sectors who can continuously develop and deliver these technologies to the rice farmers through dynamic and relevant approaches. Furthermore, more strategic technology demonstration trials must be established and managed at PhilRice-CES and its Branch Stations for the different stakeholders to see the performance of these technologies developed and being promoted by PhilRice.

For the first semester of 2013, the project was able to 1) enhance the capacities of hundreds of various rice stakeholders (AEW, farmers/farmer-leaders, researchers, students, and others) through the various customized and specialized training courses packaged and conducted, which include trainings rice and rice-based production technologies, and farm machinery operations and safety, among others; 2) inform and technically brief more than 2000 farmers, AEWs, legislators, and other rice stakeholders in a short period of time through the Rice S&T Updates and Farmer's Field Days conducted; 3) establish technology demonstration plots and participatory trials which served as learning fields of hundreds of training participants as well as to showcase the technologies to thousands of various PhilRice visitors; and 4) generate additional income for the Institute from the quality seeds produced in the training farm and the customized courses availed of by public and private organizations. Harvested quality seeds were all turned-over to BDD for processing and marketing.

Packaging and Re-packaging of Specialized and Customized Training Courses for Commercialization

MB Reyes, GY Ilar, LdR Abaoag, AV Antonio, RJP Dacones, MC dela Cruz, VC Garcia, EM Pagay, and RPs

PhilRice packaged and re-packaged its training courses to suit the identified training needs of the EWs, farmers, and other rice stakeholders. Because of the dwindling resources given by the government for R, D & E, the Institute explored effective ways on how it can continue to provide quality training services to its clientele given the meager resources. The TMSD has started collecting reasonable fee for its training courses to help defray its resources. Because of the positive response on this initiative, TMSD continued packaging and repackaging its training course for commercialization.

This study focuses on the packaging and re-packaging of training courses that are tailored to the needs of the requesting individual or organizations. To do this, a conceptual framework (Figure 1) was developed. It shows the process flow of different activities that the study conducts in continuum.

Figure 1. Conceptual Framework of the Study

Highlights:

- For the 1st semester of 2013, seven customized training courses were re-packaged and handled directly by the TMSD and one was done in coordination with PCPO. A total of three hundred thirty (330) trainees graduated from these training courses (Table 1). Based on participants' category, 78% were farmer-leaders/ extension workers and 22% were agriculture professionals. Table 1 shows the specific course title, date, number of participants, and number of batches on each training course:

Table 1. Customized Courses Packaged and Conducted for Various Stakeholders

Course Title	Requesting Party/ Collaborators	Date	No. of Pax
1. Training Course on Farm Machinery Operations cum PalayCheck System for Young Farmers	NAFC	March 3-9	14
2. Rice S&T Update cum Lakbay Aral at PhilRice for Farmer Beneficiaries of Universal Harvester Inc. (UHI)	UHI	May 17-18	62
3. Rice S&T Update cum Lakbay Aral at PhilRice for Farmer Beneficiaries of Universal Harvester Inc. (UHI)	UHI	June 6-7	135
4. Specialized Training Course on Farm Machinery Operations cum PalayCheck System for PhilRice Staff Members	ODED D	Jan 21-Apr 9	20
5. Training Course on PalayCheck System for DuPont Technical Staffers (CES)	DuPont	May 21-23	32
6. Training Course on PalayCheck System for DuPont Technical Staffers (Agusan)	DuPont	May 28-30	21
7. Rice S&T Updates for Farmer-Facilitators and AEWs of Region 3	DA-RFO3	Apr 23	20
8. Specialized Training Course on Rice Production for Farmer Extension Workers of ARMM	PCPO	Feb 11-12	26
			330

- Table 2 shows the average gain-in knowledge (GIK) of the different stakeholders on the different courses conducted. On the average, the GIK of all the courses except for the S&T updates is 154.38%, which is significantly higher than the set standard of 30%. Specific courses also show a very high GIK.

Table 2. Breakdown of Participants Gain-in Knowledge after the training Course

Course Title	Participants' Category		Gain-in Knowledge
	Farmer Leaders/ Extensionists	Other professionals	
1. Training Course on Farm Machinery Operations cum PalayCheck System for Young Farmers	14	-	226.02
2. Lakbay Aral at PhilRice for Farmer Beneficiaries of Universal Harvester Inc. (UHI)	62	-	n/a
3. Lakbay Aral at PhilRice for Farmer Beneficiaries of Universal Harvester Inc. (UHI)	135	-	n/a
4. Specialized Training Course on Farm Machinery Operations cum PalayCheck System for PhilRice Staff Members	-	20	133.2
5. Training Course on PalayCheck System for DuPont Technical Staff (CES)	-	32	211.7
6. Training Course on PalayCheck System for DuPont Technical Staffers (Agusan)	-	21	46.6
7. Rice S&T Updates for Farmer-Facilitators and AEWs of Region 3	20	-	n/a
8. Specialized Training Course on Rice Production for Farmer to Farmer Extension Workers of ARMM	26		n/a
Total	**257**	**73**	**617.52**
Percentage	**78**	**22**	**154.38**

- Training Course on Farm Machinery Operations and Safety cum PalayCheck System for Young Farmers - This training course was packaged in support to the National Agricultural and Fishery Council's (NAFC) endeavor of molding young and deserving farmers from the different regions of the country. These young farmers were sent to Japan as participants to the Young Filipino Farmers Training Program (YFFTP), an ASEAN commitment of the Japanese government to young farmers of the Philippines who have the potential to be key farmer leaders.

  This year's course was very different from the previous batches of YF trainings because it included the PalayCheck System. All Key Checks under the different management areas from Variety and Seed Selection up to Harvest and Postharvest Management were discussed to the 14 participants. The National Year of Rice (NYR) was also presented to create their awareness on responsible rice consumption.

  As a whole, PhilRice was able to save for training costs because NAFC shouldered all the costs incurred with a total of 107,385. PhilRice counterpart is just the technical assistance

extended by the Resource Persons and facilitators.

- Rice S&T Updates cum Lakbay-Aral at PhilRice-CES for Farmer Beneficiaries of Universal Harvester Inc. (UHI) - This activity was packaged for the farmer beneficiaries of Universal Harvester Inc. (UHI) for them to be updated on the recent technologies developed and implemented by PhilRice especially on Nutrient Management. Parts of the curriculum are topics on the Overview of the PalayCheck System, Overview of the Palayamanan System, Integrated Nutrient Management (INM), and the National Year of Rice (NYR). To expose them on the R&D activities of PhilRice, the group was toured at the different laboratories and facilities of PhilRice like the Gene Bank, Rice Chemistry and Food Sciences, Rice Engineering and Mechanization Center, Business Development Stop-Shop, and the Rice Museum.

  The first batch was conducted last May 17-18 with 62 participants from Quezon, Laguna, and Tarlac while the second batch was held last June 6-7 with 135 participants from Pangasinan, Nueva Vizcaya, and Camarines Norte. A total of 580,800 pesos were collected from UHI as payment for their lodging, food, hall rental, training kits, and other materials, which was paid directly to specific service providers.

  UHI is an ISO 9001:2000 established in 2003 which engages in direct manufacturing, local distribution, importation and exportation of quality fertilizers such as, Muriate of Potash (MOP), Sulphate of Potash (SOP), Hydrochloric Acid (HCl) and Sodium Hypochlorite (NaOCl). They were guided with their mission to safeguard the interest and welfare of their primary consumers (the farmers) by offering the best quality fertilizers at the most reasonable cost; to help make farming a noble and profitable endeavor; and to assist farmers in keeping abreast with the latest technology for maximum yield.

- Specialized Training Course on Farm Machinery Operations cum PalayCheck System for PhilRice Staff Members – This training was designed to enjoin PhilRice staffers to be effective and active partners in promoting PhilRice technologies among its various clienteles. Its general purposes were to enhance the participants' understanding, knowledge, and skills on rice production specifically on the principles of the PalayCheck® System and the different farm machinery developed and being promoted by PhilRice. Consequently, it will also help them become aware of the current issues and prospects

related to the Philippine rice industry. Twenty (20) staffers from TMSD (5), REMD (3), STD (3), GRD (2), PBBD (2), BDD (2), DevCom (1), CPD (1), and Library (1) participated in the training slated from January 29 to April 26, 2013. A 1-week intensive training was conducted on the concepts and principles of the PalayCheck System and a once week training followed after until April 26, 2013. Modules include the actual operations of the different machines from land preparation, crop establishment, and harvesting. This is to develop their competencies and proficiencies on the use of hand-tractor with different attachments, 4-wheel tractor with different attachments, drum seeder, mechanical transplanter, mechanical "korean" seeder, and the rice combine harvester. They were trained to be the future trainers of the Institute's Rice Academy.

- Training Course on PalayCheck System for DuPont Technical Staffers – This training was conducted in two-batches, one here at PhilRice-CES last May 21-23 and the other one in PhilRice-Agusan on May 28-30, 2013. It aims to enhance the knowledge and skills of the DuPont Technical Staffers on the new and relevant techniques in rice production using the PalayCheck System. Fifty-three (53) staffers attended the 2-batches of trainings which generated a gross income of 387,941 pesos.

  DuPont Far East Inc., in the Philippines is a subsidiary of E.I. DuPont de Nemours and Co. Inc., based in the U.S.A. Since 1973, DuPont has been delivering the miracles of science in the Philippines with main business which include automotive refinish products, architectural laminating sheets, advance fiber systems, flexographic printing plates, electronic materials, engineering plastics, flourochemicals, packaging and industrial polymers, nylon industrial, and polyester films and specialty chemicals. Relative to its mandate of helping the farmers and for sustaining its award of product leadership program on pesticide safe use, DuPont Crop Protection Philippines deployed technical staffers across the country. They are at the forefront of meeting the farmer customers in rice, vegetables, and sugarcane, among others. To live to that mission, it is a basic need that its technical field staffers be technically equipped in rice production.

- Rice S&T Updates for Farmer-Facilitators and AEWs of Region 3 – This update was conducted as support to the DA-RFO3 funded project with TMSD (620-J), which aims to provide

extension tools like the PalayCheck flipchart, instructional posters on useful organisms, harmful insects, and major rice disorders to the Farmer-Facilitators (FFs) and Agricultural Extension Workers (AEWs) of Region 3. These FFs are facilitating and conducting the PalayCheck Field Schools in their areas of assignment in tandem with AEWs in the LGUs. Topics presented during the activity were the Rice S&T Updates, the National Year of Rice (NYR), Fertilizer Materials and Computations, and the Reduced Tillage Technology.

- Specialized Training Course on Rice Production for Farmer to Farmer Extension Workers of ARMM – This course was actually just an educational trip with one-day technical briefing focused on the integrated nutrient management (INM) and integrated pest management (IPM) of rice. The farmer-to-farmer extension worker approach of ARMM is the same concept with the Local Farmer Technicians of DA. A visit to the Central Luzon State University (CLSU) and other DA attached Agencies was also part of their educational trip.

- Resource Persons' evaluation were also conducted to these various training courses to provide the training management team feedbacks to better serve its clienteles in the future. Results revealed that the overall rating of the RPs was "excellent". The RPs were all experts and very good in presenting their topics (Table 3). Most of them were able to adjust their topics to participant's level, thus, making the discussions more dynamic, lively, and participatory.

Table 3. Summary of RPs Evaluation from the Customized Courses Conducted

Course Title	RP Evaluations (Average)
1. Training Course on Farm Machinery Operations cum PalayCheck System for Young Farmers	4.79
2. Rice S&T Updates cum Lakbay Aral at PhilRice for Farmer Beneficiaries of Universal Harvester Inc. (UHI)	4.56
3. Specialized Training Course on Farm Machinery Operations cum PalayCheck System for PhilRice Staff Members	4.75
4. Training Course on PalayCheck System for DuPont Technical Staffers (CES)	4.50
5. Training Course on PalayCheck System for DuPont Technical Staffers (Agusan)	4.41
6. Rice S&T Updates for Farmer-Facilitators and AEWs of Region 3	4.30
7. Specialized Training Course on Rice Production for Farmer to Farmer Extension Workers of ARMM	4.29
AVERAGE	**4.51**

Legend: 1.00 – 1.50 (Poor), 2.51 – 3.50 (Good), 4.51 – above (Excellent), 1.51 – 2.50 (Satisfactory), 3.51 – 4.50 (Very Good)

- The training management was also evaluated if it is properly executed and if all the training support staff has been very competent and cooperative. Table 4 shows that the management of the course was "very good" with a rating of 38.9% and "excellent" with a rating of 37.6%.

Table 4. Participants' Overall Rating of the Training Management

Course Title	Fair	Good	Very Good	Excellent
1. Training Course on Farm Machinery Operations cum PalayCheck System for Young Farmers	0	0	31	69
2. Rice S&T Updates cum Lakbay Aral at PhilRice for Farmer Beneficiaries of Universal Harvester Inc. (UHI)	2	0	19	79
3. Specialized Training Course on Farm Machinery Operations cum PalayCheck System for PhilRice Staff Members	0	75	0	25
4. Training Course on PalayCheck System for DuPont Technical Staff (CES)	0	30	53	17
5. Training Course on PalayCheck System for DuPont Technical Staffers (Agusan)	0	45	55	0
6. Rice S&T Updates for Farmer-Facilitators and AEWs of Region 3	0	0	35	65
7. Specialized Training Course on Rice Production for Farmer to Farmer Extension Workers of ARMM	0	13	79	8
AVERAGE RATING	**0.3**	**23.3**	**38.9**	**37.6**

- Overall evaluation of the customized training courses conducted confirms that the training services offered by the TMSD are of great quality because 42% and 41% of the participants rated to be excellent and very good, respectively. Hence, the returns obtained are very valuable to these different rice stakeholders (Table 5).

Table 5. Participants' Overall Evaluation in terms of Course Content

Course Title	Fair	Good	Very Good	Excellent
1. Training Course on Farm Machinery Operations cum PalayCheck System for YF	0	23	8	69
2. Rice S&T Update cum Lakbay Aral at PhilRice for Farmer Beneficiaries of Universal Harvester Inc. (UHI) (Ave)	2	11	52	35
3. Specialized Training Course on Farm Machinery Operations cum PalayCheck System for PhilRice Staff Members	0	0	75	25
4. Training Course on PalayCheck System for DuPont Technical Staffers (CES)	0	14	38	48
5. Training Course on PalayCheck System for DuPont Technical Staffers (Agusan)				
6. Rice S&T Updates for Farmer-Facilitators and AEWs of Region 3	0	10	50	40
7. Specialized Training Course on Rice Production for Farmer to Farmer Extension Workers of ARMM	0	42	21	37
AVERAGE RATING	**0.3**	**16.7**	**40.7**	**42.3**

Enhancing Technology Awareness and Learning through Mass-based Technology Promotion

CG Abadilla, GYIlar, LdRAbaoag, AVAntonio, RBMiranda, MBReyes, and TMSD staffers

Mass-based technology promotion strategies have by far proven to be effective in disseminating technologies to the farmers and other end-users. These are the Mobile Rice TeknoKlinik (MRT), Farmers' Field Day and Forum, and the S&T Update or Technical Briefing. For the last six years, PhilRice through the Technology Management and Services Division spearheads these activities.

The MRT is a mass-based technology promotion strategy which aims to address field problems of many farmers and other stakeholders in different provinces and municipalities at a very short period of time. TeknoKlinik is derived from the word tekno (technologies) and klinik (clinic). MRT is an avenue wherein rice experts and scientist go to provinces and municipalities to create awareness and give solutions to the rice production problems of the farmers in the area. This is a half-day activity to enable the farmer participants to learn the latest cost- reducing and yield-enhancing technologies through consultation and sharing of ideas and experiences with PhilRice experts and scientist.

The S&T Updates for AEWs and legislators is a half-day briefing on the latest rice and rice-based production technologies developed by PhilRice. It also includes presentation of the different activities and projects of PhilRice so that the legislators will 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. Also they can appropriate funds for the conduct of activities during the project intervention such as provisions for snacks and other materials. On the other hand, the S&T update for the AEWs will enhance their capability on the technological requirements in rice production and other social technology they needed in carrying out their duties as development workers.

And lastly, the Farmers' Field Day and Forum is conducted to reach as many farmers and other rice stakeholders as possible in just a short period of time. This is done two weeks before harvest of every cropping season every year to showcase to the farmers the performance of the different technologies being developed and promoted by PhilRice. This activity is highlighted by field tours, viewing of exhibits, farmer testimonies, and open forum.

Highlights:

- Conducted (15) batches of Rice S&T Updates for Farmers and Agriculture Extension Workers (AEWs) with a total of 1,191 farmer and 85 AEWs participants. They were briefed on the PalayCheck System and the Reduced Tillage Technology (RTT). These activities were co-funded by their respective Local Government Units (LGUs) RTT project.

  - Batch 1: Maria Aurora, Aurora (February 1; 30 farmers; 2 AEWs)
  - Batch 2: DRT, Bulacan (February 28; 25 farmers; 4 AEWs)
  - Batch 3: Caranglan, NE (May 9; 50 farmers; 5 AEWs)
  - Batch 4: San Jose City, NE [May 21 (AM); 100 farmers; 9 AEWs]
  - Batch 5: SC of Muñoz, NE [May 21 (PM); 40 farmers; 4 AEWs]
  - Batch 6: Rizal, NE [May 22 (AM); 100 farmers; 7 AEWs]
  - Batch 7: LLanera, NE [May 22 (PM); 102 farmers; 4 AEWs]
  - Batch 8: Quezon, NE [May 24 (AM); 81 farmers; 7 AEWs]
  - Batch 9: Licab, NE [May 24 (PM); 54 farmers; 6 AEWs]
  - Batch 10: Talavera, NE (May 27; 104 farmers; 8 AEWs)
  - Batch 11: Sta. Rosa, NE [May 28 (AM); 102 farmers; 6 AEWs]
  - Batch 12: San Leonardo, NE [May 28 (PM); 100 farmers; 5 AEWs]
  - Batch 13: Guimba, NE [May 29 (AM); 100 farmers; 6 AEWs]
  - Batch 14: Talugtog, NE [May 29 (PM); 100 farmers; 5 AEWs]
  - Batch 15: Cabanatuan, NE (May 30; 103 farmers; 7 AEWs)

- No Rice S&T Updates for Sanguniang Bayan (SB) members is conducted but initial negotiation and scheduling was made thru the Municipal Agriculture Offices. Letters were prepared and delivered and these activities will be implemented to coincide with their board sessions. Municipalities targeted are DRT of Bulacan, Science City of Muñoz, Rizal, and Caranglan of Nueva Ecija. This will be conducted this second semester.

- Coordinated and facilitated the 2-day Lakbay Palay to cater to the huge number of participants who wanted to participate in the activity because it also coincided with the 1st National Hybrid Rice Congress and the launching of the reduced tillage technology (RTT). The first day was devoted to the participants of the hybrid rice congress and the farmer beneficiaries of the RTT, while the second day was devoted to other farmers and high school students.

Secretary Proceso J. Alcala delivering his message while PhilRice ED Dr. Rasco giving his welcome remarks during the opening program of the 2-day Lakbay Palay held last April 4-5, 2013

- In the first day, a total of 600 RTT farmer-beneficiaries and 319 congress participants and PhilRice staffers attended the activity. Secretary Proceso J. Alcala was the guest speaker with USec De Lima of DA and USec Parungao of DAR joining his entourage. Heads of other government agencies, SCUs, LGUs, NGOs, and POs also participated in the activity. In the second day, a total of 1,803 farmers and AEWs from Aurora, Bataan, Bulacan, Nueva Ecija, Pampanga, Tarlac, Zambales, Pangasinan, La Union, Isabela, Abra, and Aklan participated in the activity. Also, about 250 high school students from the Bayanihan National High School and the Maria Aurora National High School, both in Maria Aurora, Aurora attended the Field Day and participated in the forum.

The students and the farmers attentively listening during their field tours at the different experimental and demo plots

- Five hundred sixty two (562) participants were given evaluation sheets to measure the impact of the activity during the second day. Seventy one percent of the participants are farmers, 57% are males, 79% are married, and 81% attained high school to college education. Most (69%) of the attendees have not yet attended previous PhilRice Field Days and these came from the provinces of Aurora, Bataan, and Zambales. The case is the opposite in the provinces of Bulacan, Pangasinan, and Tarlac.

- Most (79%) of the participants who have attended other or previous PhilRice Field Days have tried the PhilRice technologies being promoted. In a likert scale of 1-5, 1 as the lowest and 5 as the highest, the participants were asked their ratings in terms of coordination/organization, field tours, technology showcase, open forum, and IEC materials given. Overall, the students gave the lowest score in all the parameters at 2.8. All the other groups signified that the Field Day exceeded their expectations. The Barangay Officials gave the highest satisfaction rating (3.85) followed by the AEWs (3.70), and the farmers (3.63). For all the parameters, the technologies that were showcased have the highest satisfaction rating (3.69) and followed by the IEC materials distributed (3.57).

- For the students, videos and PowerPoint presentations on the National Year of Rice (NYR), and rice conservation tips were shown and presented to them before the open forum. The students also took their pledged the "Panatang Makapalay" to take part in the rice conservation advocacy campaign of PhilRice and the country as a whole. Tryouts of the Agri-Games, Pinoy Rice Knowledge Bank, and the PhilRice Text

Center were also done by the students. A laboratory tour immediately followed after. Overall, this activity aims to create awareness on rice S&T and the rice industry as a whole among students.

Enhancing Awareness and Learning of Training Participants and Other Rice Stakeholders through Technology Demonstrations

RC Dacones (Jan-May); VC Garcia (June-Dec.), GYIlar, JCMacadamia, WFVillanueva, and Season-long Trainees

Demonstrations are considered to be the foundation stone of extension teaching. They are based on the basic principle of "seeing is believing". In a demonstration, an improved practice is presented in terms of its practical application under a specific situation. Successful demonstrations are very effective in convincing people. It is regarded as probably the most effective tool for technology transfer as it involves the three important processes of learning, which is seeing, hearing, and doing.

The Training Farm sought to enhance learning of training participants by providing practicum areas that cater the need for improved competencies on the technical and practical aspects of rice science and technology. Likewise, it was designed to provide a readily accessible venue for other rice stakeholders to see, learn, and experience for themselves the different technologies taught and promoted by PhilRice.

Highlights:

- Some 4,659 rice stakeholders (Figure 2) have utilized the different technology demonstration fields established this dry season of 2013. Majority (49%) of them were from the NGOs and other stakeholders, while 34% are farmers and extension workers. They have witnessed for themselves actual field performances of practical technologies that could keep them up-pace with the dynamic challenges in rice production. Technology Demonstrations were also visited by students and faculty staff (11%) during their educational tours and were used as learning fields by training participants (6%).

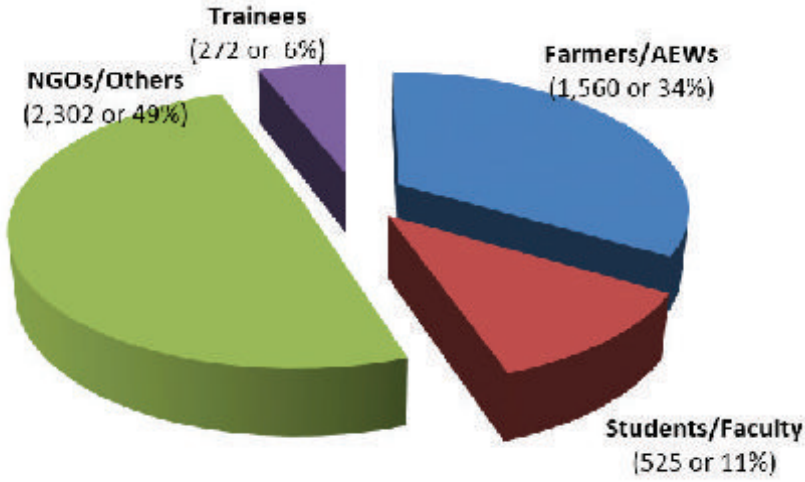

Figure 2. Number of Rice Stakeholders who have utilized the training and technology demonstration farm.

- The training farm also served as a learning site to a series of training courses conducted this season. A total of 272 training participants have had hands-on experience on practical technologies in rice farming. Results showed that gain-in-knowledge (GIK) were increased to an average of 154%, significantly higher than the set standard of at least 10% GIK for short courses and 30% GIK for season-long training courses.

- There were 5 technology demonstration conducted this dry season 2013. Among these include demonstrations on newly released varieties inbred and hybrid varieties; adaptability testing of newly-released and promising inbred and hybrid varieties; system of rice intensification (SRI); reduced tillage technology (RTT); and the 10-5 approach. These served as the learning farm for the participants of the Specialized Training Course on Farm Machinery Operations cum PalayCheck system for PhilRice Staff Members in which 20 staffers attended the training. These were also shown to various PhilRice visitors and the participants during the Lakbay Palay held last April 5, 2013.

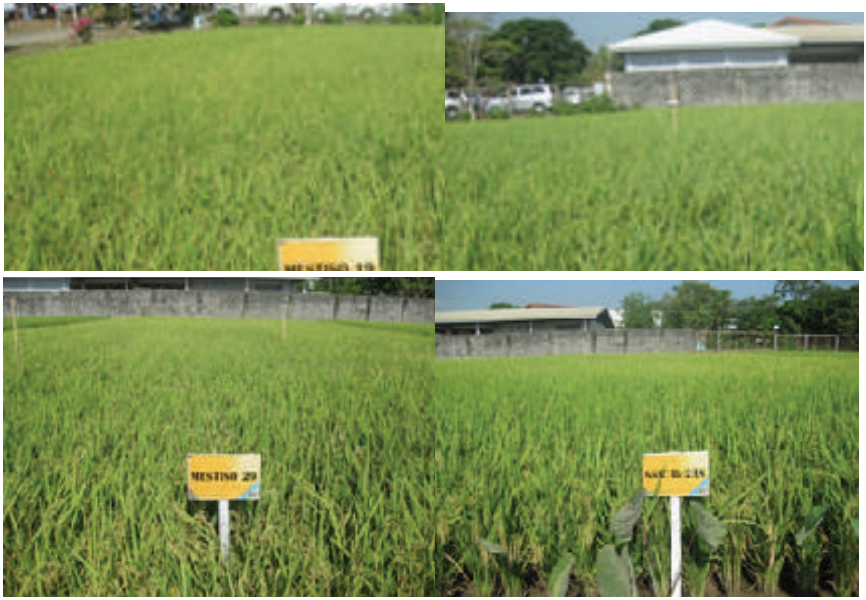

Figure 3. Newly-released varieties (M19,20,29 and NSIC Rc238) tested in TMSD demonstration farm for DS2013

- Yield data on the demonstration of newly-released PhilRice varieties for DS 2013 is shown in Figure 4. The results show that the treatment on M20 using wetbed raised seedlings had the highest yield with 10.35 t/ha. The other treatment on M20 using the modified dapog of raising seedlings produced a lower yield of 9.48 t/ha because it was attacked by stemborers. However, the difference between the M20 treatments is not significant. The lowest yield was produced by NSIC Rc240 with 7.58 t/ha. This is supported by the number of productive tillers of the variety with 240 tillers/m2 while M20 with the highest yield produced an average of 366 tillers/m^2.

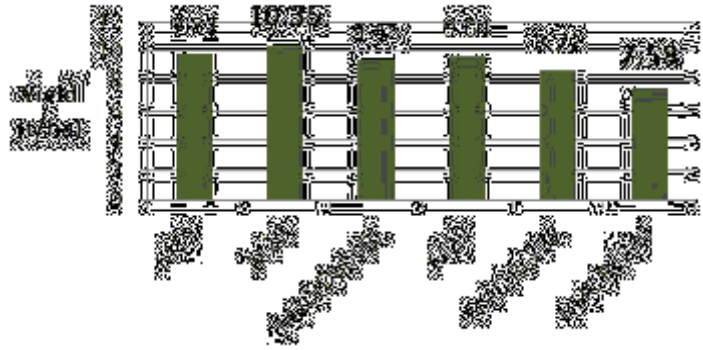

Figure 4. Crop cut yield data of newly released PhilRice varieties tested for DS2013

- Different varieties and promising lines from PhilRice and private companies were also tested in the station. Four lines and twelve promising varieties were selected and tested. Six of the varieties were developed by PhilRice and three among these are newly-released hybrids. The crop stand of some of the promising lines and varieties are shown in Figure 5.

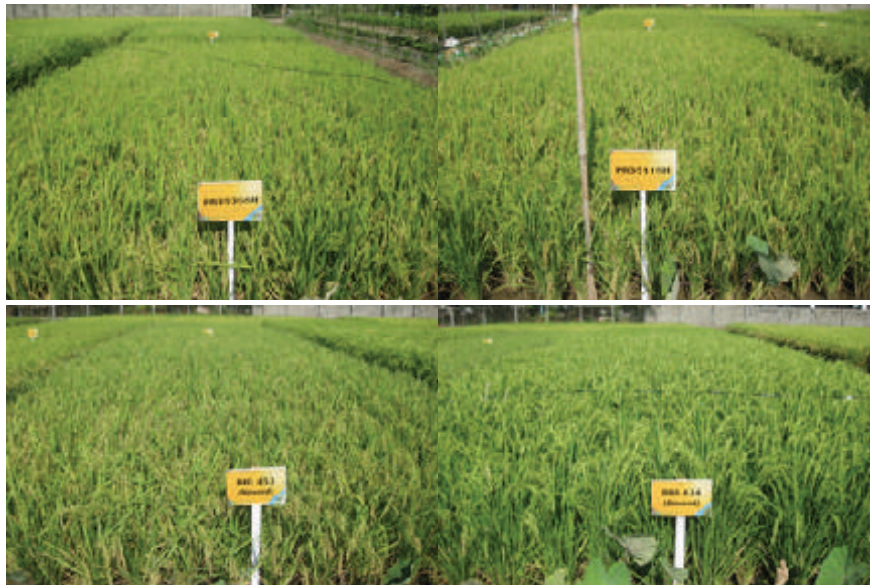

Figure 5. Crop stand of six promising lines and varieties tested at PhilRice CES this DS2013

- The yield data on the adaptability trial on promising lines and newly-released inbred and hybrid varieties is shown in Figure 6. The highest yielder among the hybrid varieties is M19 with 11.61 t/ha and the lowest yielding hybrid variety was M38 with 7.37 t/ha. For the inbred varieties, the highest yielder is NSIC Rc216 with 10.43 t/ha and the lowest was NSIC Rc240 with just 6.71 t/ha. INH10001 produced 11 t/ha which is the highest among the promising lines and the lowest is PR39388H with 8.21 t/ha.

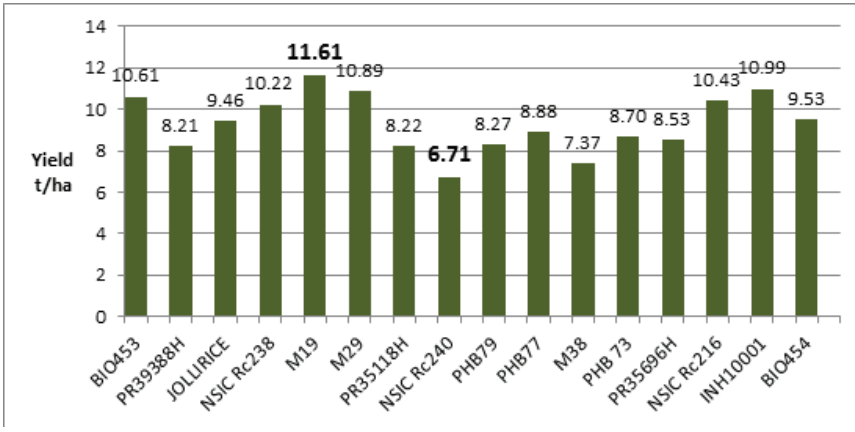

Figure 6. Yield data (t/ha) of the 16 promising lines and newly-released varieties tested this DS 2013

- The comparison of the Reduced Tillage Technology (RTT) and the conventional method of land preparation were also demonstrated using the variety used was NSIC Rc238. Conventional tillage produced higher yield with 8.72 t/ha compared to the RTT with 7.04 t/ha, a yield difference of 15% or 1.32 t/ha. Even if the RTT trial was able to reduce land preparation cost of at least PhP 4,500 per ha, still the yield difference of 1.32 t/ha will give a profit of PhP18,480 if it will be sold at PhP14 per kilogram. The amount of savings on the RTT would not be able to compensate for the difference of profit with the conventional land preparation using PalayCheck.

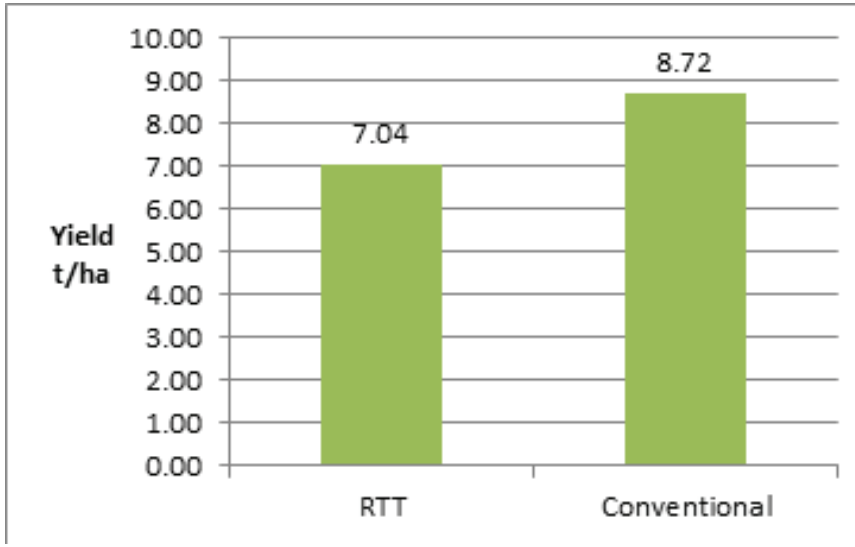

Figure 7. Yield comparison of NSIC Rc238 using the Reduced Tillage Technology and the conventional method of land preparation this DS2013

- Results in the SRI plots showed that both the SRI treatments produced higher yield than the PalayCheck System. SRI using 25-day old seedlings gained 13.56 t/ha compared to the PalayCheck with only 8.72 t/ha, a yield difference of 36%. For the 12-day old seedling used, the yield was only 11.57 t/ha still higher that the PalayCheck with a difference of 25%. The SRI plot which used younger seedlings must have produced higher yield but because the younger seedlings became late in the growth duration, it was attacked by stemborers which produced many whiteheads.

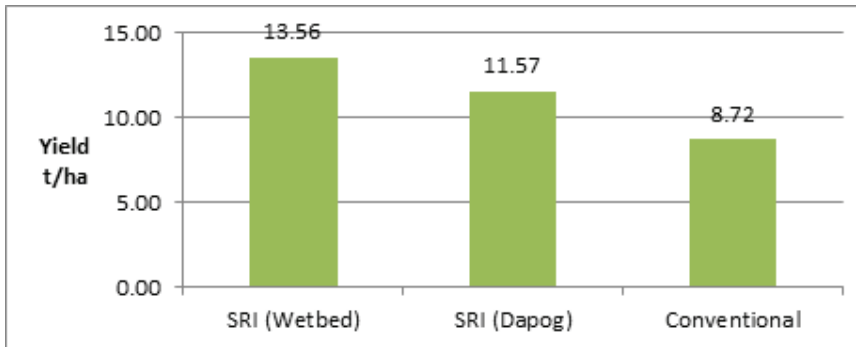

Figure 8. Yield comparison of SRI using wetbed and dapog methods of raising seedlings this DS 2

- The 10-5 approach produced 9.1 tons/ha significantly higher compared to the PalayCheck System with only 8.7 tons/ha, a yield difference of 4% (Figure 8). Since the input cost did not reach PhP50,000 per hectare, we can compute the ratio of the yield to the cost if all the targeted cost was spent on other yield-enhancing technologies. The result of the ratio is 10.9 tons/ha and we can say that it is possible to attain a 10 ton yield with spending just PhP5 per kilogram of rice produced, which is the aim of the 10-5 approach.

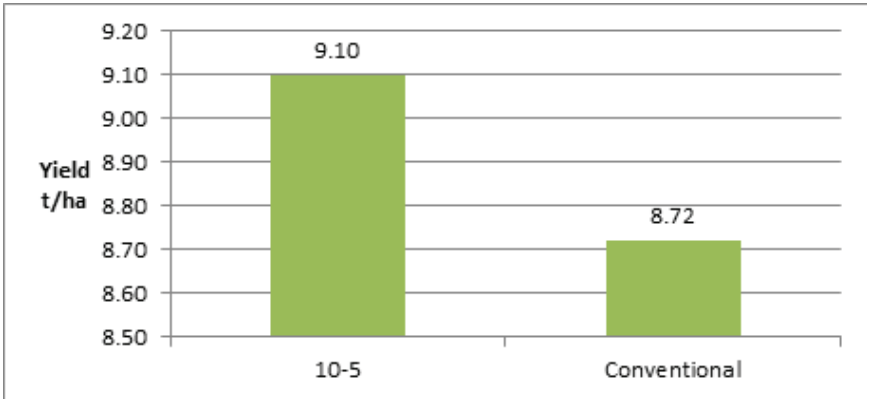

Figure 9. Yield comparison of the 10-5 approach and the PalayCheck System using NSIC Rc240 (DS 2013)

- A total of 5,634kg of rice seeds were harvested from the 9,264sqm effective area of the farm. This was immediately turned-over to the PhilRice Business Development Office (PBDO) for processing and marketing. Proceeds of palay seed sales/ distribution were generated by the PBDO amounting to PhP169,020 if it was sold at the price of certified seeds of PhP30 per kilogram.

II. Development and Testing of Modalities for Sustainability and Upscaling

Project Leader: Aurora M. Corales

Collaborative Partnership as a Strategy for Enhancing Community Livelihoods

AM Corales and VL De Guzman

Highlights:

- The GSR demonstration plot for WS 2013 was located in Barangay Rotrottooc, Mayantoc, Tarlac. It had a total area of about 2,300m2.

- Seminar on Seed Purification/Production and Nutrient Management was conducted on August 29, 2013.

- Farmers' Field Day & Forum was conducted on Sep. 20, 2013. With a rating of 2.99, GSR IRI 1 has the overall highest average rating according to tillering capacity, plant height, panicle length, number and length of grains, resistance to pests and diseases, resistance to lodging, less shattering, resistance to drought, and maturity or growth duration. It was closely followed by GSR IRI 5 (2.95), GSR IRI 8 (2.76), GSR IRI 12 (2.41), and the check variety, NSIC Rc 138 (2.36), respectively. (Legend of rating: 1 – not preferred; 2 – preferred; 3 – more preferred; 4 – most preferred)

Table 6. Computed yield per hectare per variety for WS 2013

Variety	Total land area	Actual Yield	Computed yield per hectare
GSR IRI 1	466.25 m^2	7 cav.	150.134
GSR IRI 5	437.10 m^2	6.5 cav.	148.71
GSR IRI 8	415.95 m^2	6 cav.	144.25
GSR IRI 12	516.78 m^2	7 cav.	135.45
NSIC Rc138	480 m^2	7 cav.	145.83

- Varieties transplanted for 2014 DS by the current GSR farmer-cooperators were GSR IRI 1, GSR IRI 5, GSR IRI 8, GSR IRI 12, and NSIC Rc138.

Table 7. Weight of samples of 300 hills per variety for DS 2014.

Variety	Wet weight (kg.)	Dry weight (kg.)
GSR IRI 1	9.25	2.8
GSR IRI 5	9.45	2.6
GSR IRI 8	9.25	2.4
GSR IRI 12	8.25	2
NSIC Rc 138	8.75	2.1

- Farm Walk Activity and Evaluation was conducted on Feb. 4, 2014. It was deduced that GSR IRI 1 has the overall highest average from the four GSR varieties that were evaluated according the same parameters used in the Farmers' Field Day & Forum. GSR IRI 1 garnered the highest score of 2.27, followed by GSR IRI 8 (2.17), GSR IRI 12 (2.11), and GSR IRI 5 (1.79), respectively. (Legend of rating: 1 – Preferred; 2 – More preferred; 3 – Most preferred)

Table 8. Computed yield per hectare per variety for DS 2014 is as follows

Variety	Land area	Actual yield	Computed yield per ha.
GSR 1	450 m^2	7 cav. @ 50 kg./cav.	7.8 tha^{-1}
GSR 5	450 m^2	6 cav. @ 50 kg./cav.	6.7 tha^{-1}
GSR 8	450 m^2	5 cav. @ 50 kg./cav.	5.6 tha^{-1}
GSR 12	450 m^2	4.5 cav. @ 50 kg./cav.	5 tha^{-1}
NSIC Rc 138	450 m^2	4.5 cav. @ 50 kg./cav.	5 tha^{-1}
TOTAL/ AVERAGE	**2250 m^2**	**27 cav. @ 50 kg./cav.**	**6 tha^{-1}**

Table 9. Yield results of nine kilos of hybrid rice (Mestizo 19) for DS 2014

No.	Name of farmer	Area planted ($m^{2)}$	Actual yield	Computed yield ($tha^{-1)}$	Remarks
1	Elmer Guting	2,523	24 cav. @ 51 kg./cav.	4.9	Low yield due to very low water supply in the area
2	Marlon Isidro	5,206	17 cav. @ 51 kg./cav.	1.7	Low yield due to very low water supply in the area
3	Marites Isidro	4,682	14 cav. @ 51 kg./cav.	1.5	Low yield due to very low water supply in the area
4	Conrado Esteban	2,817	17.5 cav. @ 49 kg./cav.	3	Low yield due to very low water supply in the area
5	Yolanda Santiago	3,810	24 cav. @ 50 kg./cav.	3.1	Low yield due to very low water supply in the area
6	Rolly Esteban	3,927	19 cav. @ 50 kg./cav.	2.4	Low yield due to very low water supply in the area
7	Pepito Esteban	2,144	31 cav. @ 51 kg./cav.	7.4	Typhoon Santi damaged 4 kgs. of the seeds
8	Victorio Abalos	2,316	41 cav. @ 50 kgs./cav.	8.9	
9	Teresita Isidro	5,210	18 cav. @ 49 kg./cav.	1.7	Low yield due to very low water supply in the area

Table 10. Yield results of farmers preferred GSR varieties (5 kilos)

No.	Name of Farmer	Variety	Area planted ($m^{2)}$	Actual yield	Computed yield	Remarks
1	Marlon Isidro	GSR 1	658	7 cav @ 47 kg./cav.	5	
2	Pepito Esteban	GSR 5	762	10 cav. @ 51.5 kg./cav.	6.8	Affected by Typhoon Santi
3	Marites Isidro	GSR 5	458	7 cav. @ 49 kg./cav.	7.5	3 kgs. transferred to Pepito Esteban
4	Elmer Guting	GSR 5	954	7 cav. @ 49 kg./cav,	3.6	
5	Conrado Esteban	GSR 8	848	4 cav. @ 49 kg./cav.	2.3	
6	Victorio Abalos	GSR 8	628	14 cav. @ 49 kg./cav.	11	
7	Teresita Isidro	GSR 8	534	9 cav. @ 49 kg./cav.	8.3	Some of the grains were stolen
8	Yolanda Santiago	GSR 12	513	8 cav. @ 49 kg./cav.	7.6	
9	Rolly Esteban	GSR 12	632	9.5 cav. @ 49 kg./cav.	7.4	

Table 11. Yield of other farmer's preferred GSR varieties

GSR IRI 1

No.	Name of farmer	Amount of seeds (kgs.)	Area planted ($m^{2)}$	Actual yield	Computed yield	Remarks
1	Elmer Ermube	20	N/A	N/A	N/A	No land to plant seeds on
2	S. Lorenzo	11	2,756	17 cav. @ 49 kg./cav.	3	Seeds were transferred from Aline Sumawang
3	Mario Santiago	40	5,989	23 cav. @ 47 kg./cav.	1.8	Seeds were transferred from Nelly Briones
4	Elmer Guting	40	2,460	7 cav. @ 51 kg./cav.	1.5	Only 20kg. were planted; Water supply is very low in the area

GSR IRI 5

No.	Name of farmer	Amount of seeds (kgs.)	Area planted ($m^{2)}$	Actual yield	Computed yield	Remarks
1	Allan Rodriguez	40	2,498	33 cav. @ 48 kg./cav.	6.3	Only 30kg were planted
2	Isabel Sumawang	10	1,378	10 cav. @ 47 kg./cav.	3	
3	Florentino Esteban	40	6,041	34 cav. @ 49 kg./cav.	2.8	
4	Raymundo Quides	40	4,734	63 cav. @ 51 kg./cav.	6.8	

GSR IRI 8

No.	Name of farmer	Amount of seeds (kgs.)	Area planted ($m^{2)}$	Actual yield	Computed yield	Remarks
1	Marites Isidro	40	N/A	N/A	N/A	No land to plant seeds on
2	Rolly Esteban	40	N/A	N/A	N/A	Area was planted with Mestizo 19 instead
3	Pepito Esteban	20	1,767	19cav. @ 49 kg./cav.	5.3	
4	Corazon Esteban	40	1,865	28 cav. @ 48 kg./cav.	7.2	Seeds were planted by her cousin

GSR IRI 12

No.	Name of farmer	Amount of seeds (kgs.)	Area planted ($m^{2)}$	Actual yield	Computed yield	Remarks
1	Victorio Abalos	40	3,398	29 cav. @ 49 kg./cav.	4.2	
2	Danilo Agpalasin	40	2,477	7 cav. @ 49 kg./cav.	1.4	Only 5kg. were planted
3	E. Bailon	11	2,578	11 cav. @ 47 kg./cav.	2	Seeds were transferred from Aline Sumawang
4	Robert Tabago	40	2,739	20 cav. @ 48 kg./cav.	3.5	
5	Ronnie Lorenzo	40	2,843	25 cav. @ 49 kg./cav.	4.3	
6	Robert Esteban	20	1,568	17 cav. @ 47 kg./cav.	5.1	Not all seeds were planted
7	Manuel David	40	7,438	58 cav. @ 49 kg./cav.	3.8	Seeds were transferred from Yolanda Santiago
8	Jerry Quides	40	1,266	25 cav. @ 48 kg./cav.	9.5	Only 20 kg were planted
9	Tomy Garma	50	10,000	85 cav. @ 51 kg./cav/	4.3	

ACTIVITY 2: Field Evaluation of Korean Varieties

Highlights:

- In WS 2013, there were three demonstration sites for Korean varieties, namely in: Concepcion, Tarlac, Sta. Ignacia, Tarlac, and San Manuel, Pangasinan.

- The farmer-cooperator in Sta. Ignacia, Tarlac harvested 5.7 tha-1 while the farmer-cooperator in San Manuel, Pangasinan harvested 7 tha-1.

- For WS 2013, varieties planted in Sta. Ignacia, Tarlac were Hangangchal, Dasanbyeo, and Milyang 23, while Dasanbyeo, Saegyejinmi, Hangganchal, Milyang 23, and NSIC Rc 222 were planted in San Manuel, Pangasinan.

- For DS 2014, there were a total of five farmer-cooperators for Korean Varieties; two in Sta. Ignacia, Tarlac, one in Paniqui, Tarlac, and another two in San Manuel, Pangasinan.

- Additional demonstration sites in San Manuel, Pangasinan, and Sta. Ignacia and Paniqui, Tarlac have been established in DS 2014.

- Varieties planted for 2014 DS in Sta. Ignacia, Tarlac were Milyang 23, Hangangchal, Dasanbyeo, and NSIC Rc 216, while the new farmer-cooperator in the same area has planted Milyang 23. Existing cooperator in San Manuel, Pangasinan has planted Milyang 23, Hangangchal, Saegyejinmi, and NSIC Rc 152, while the new cooperator in the same area has solely planted Dasanbyeo. Varieties planted in Paniqui, Tarlac, on the other hand, were Milyang 23, Hangangchal, Dasanbyeo, and Hanareumbyo.

- Pio Landicho of San Manuel, Pangasinan obtained the highest yield using Dasanbyeo at 7.76 t/ha.

Table 12. Yield data of Korean varieties per site.
Paniqui, Tarlac (F. Cleofas)

Varieties planted	Land area ($m^{2)}$	Actual yield	Computed yield (t/ha.)
Milyang 23	1,470	21 cav. @ 55 kg./cav.	7.857
Hangangchal	202	3 cav. @ 53 kg./cav.	7.871
Hanareumbyo	1,531	22 cav. @ 50 kg./cav.	7.184
Dasanbyeo	1,087	15 cav. @ 53.5 kg./cav.	7.383
TOTAL/AVERAGE	**4,290**	**61 cav. @ 53 kg./cav.**	**7.54**

Sta. Ignacia, Tarlac (S. Menor)

Varieties planted	Land area ($m^{2)}$	Actual yield	Computed yield (t/ha.)
Milyang 23	2,933	39 cav. @ 51 kg./cav.	6.781
Hangangchal	1,354	16 cav. @ 51 kg./cav.	6.026
Dasanbyeo	1,573	19 cav. @ 51 kg./cav.	6.160
TOTAL/AVERAGE	**5,860**	**74 cav. @ 51 kg./cav.**	**6.44**

Sta. Ignacia, Tarlac (R. Pontanilla)

Variety planted	Land area ($m^{2)}$	Actual yield	Computed yield (t/ha.)
Milyang 23	2,850	28 cav. @ 51 kg./cav.	5.011

San Manuel, Pangasinan (M. Landicho)

Varieties planted	Land area ($m^{2)}$	Actual yield	Computed yield (t/ha.)
Milyang 23	4,280	56 cav. @ 56 kg./cav.	7.327
Hangangchal	1,129	19 cav. @ 56 kg./cav.	9.424
Saegyejinmi	3,537	24 cav. @ 56 kg./cav.	3.799
Dasanbyeo	756	15 cav. @ 56 kg./cav.	11.111
TOTAL/AVERAGE	**9,702**	**114 cav. @ 56 kg./cav.**	**6.580**

San Manuel, Pangasinan (P. Landicho)

Variety planted	Land area ($m^{2)}$	Actual yield	Computed yield (t/ha.)
Dasanbyeo	1,083	15 cav. @ 56 kg./cav.	7.756

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

A Corales and GS Martin

Highlights:

Wet Season 2012

- Baseline gathering – 30 farmer-respondents
- Focus Group Discussions (FGD) was conducted in Diaat, Malasin and Sto. Cristo, Maria Aurora
- 23 farmer-cooperators
- Average yield - 3.92 t/ha

Dry Season 2013

- 24 farmer-cooperators
- Conducted a Refresher Course on PalayCheck for Farmers on March 7, 2013
- Average Yield - 5.71 t/ha

Wet Season 2013

- 31 farmer-cooperators
- Distributed 776 kg of certified seeds
- Conducted seminar on EM last September 23, 2013 in Diaat, Maria Aurora
- Average Yield - 4.75 t/ha
- Conducted 3 farmers' meeting
- Custom hiring services started
- PhP 40,000 farmers' counterpart paid
- Mechanical transplanter awarded by the LGU of Maria Aurora
- Operating guidelines implemented

Third Cropping 2013

- 31 farmer-cooperators
- Everybody planted rice
- Distributed 1000 kg of certified seeds
- Average Yield -4.34 t/ha
- Conducted 4 farmers' meeting

Dry Season 2014

- Conducted seminar on Mushroom, Corn, and Mongo Production last February 7, 2014 in Diaat, Maria Aurora.
- 18 farmer-cooperators planted corn and 10 planted mongo
- Conducted seminar on Vermi Composting last February 21, 2014 in Baler, Aurora
- Distributed 73 kg of mongo seeds to 12 farmers and 250 kg of corn seeds to 16 farmers
- Conducted 5 farmers' meeting

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

JV Pascual

Highlights:

- Started in the last quarter of 2013 whose aim is to promote high-yielding rice and rice-based technologies utilizing agricultural cooperatives as medium and help uplift the welfare of the farmer-members toward the empowerment of their organization in achieving development in the rural community.

- Identified the TCP3 Lagare MPCI as the partner-cooperative in collaboration with the City Agro-Industrial and Livelihood Management Office (CALMO) of Cabanatuan City for the

promotion of high-yielding rice production technologies and capacity enhancement on custom-services of farm machineries.


- Conducted FGD with the coop officers and farmer-members to identify the critical concerns and problems confronting the cooperative and its members especially on their farming activities.
- Conducted project briefing and gained support from the coop officers and members for the project implementation.
- Gathered baseline information and data among the coop's members to determine their current practices and most pressing problems in their farming activities.
- Conducted one-day technology updates for coop's officers, staff and farmer-members.
- Conducted lecture-demonstration of MOET and 25 coop's members established their own set-up to have their field analyzed before the start of the dry season cropping.

Rice Expert Dispatch
AV Antonio and LdR Abaoag

Although the Philippine Rice Research Institute (PhilRice) is mandated to do mostly rice research, no matter how successful the efforts are, they will all just be wasted if these new rice science and technologies will not reach the target clientele – the farmers.

In order to achieve rice self-sufficiency, these technological advances in rice farming must reach the farmers and other intended users. Among other technology promotion strategies, PhilRice uses training mainly

to transfer technologies, develop skills, and enhance the capacities of its clientele. However, due to limited budget and number of personnel, the training division of PhilRice can only conduct certain number of trainings per year, which are barely enough to fill the information and technical needs of all its clientele. Thus, the training experts of the division resorted to serving as technical experts to training programs and technical briefings being conducted by other agricultural agencies.

This projects aims to dispatch competent rice technical experts to various training programs of the Department of Agriculture and help transform participants into skilled and competent partners in rice and rice-based production and promotion.

Highlights:

- Twenty-nine trainings and technical briefings were attended by PhilRice technical staff in which they delivered lectures on special topics and served as resource persons on trainings or technical experts to answer questions in their area of specialization during technical briefings. This is around 181% accomplishment versus the target. Despite the accomplishment, there were few technical briefings from Pangasinan that were not attended due to late arrival of invitation letters.

- Eighteen batches of trainings (180% accomplishment) conducted outside PhilRice initiatives were attended by 26 PhilRice Staff from January to December 2013. They were given "very good to excellent" rating by the training participants.

- Eleven batches of technical briefings were also served by 3 PhilRice Staff (183 % accomplishment) for the year 2013. Around 1200 farmers attended the activity mostly on Usapang Palay. This were in collaboration with different agencies like the Bureau of Plant Industry, Department of Agriculture Regional Field Units, Office of the Provincial Agriculturists, Local Government Units, National Irrigation Administration, National Food Authority, and Agricultural Training Institute.

- Encoded seventeen batches (106% accomplishment) of trainings attended as resource persons by PhilRice staff. It was composed of 806 participants mostly farmers (73%) and extension workers (27%). Most of the participants are male (75%) and only 25 % are female.

Abbreviations and acronymns

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

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

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Department of Agriculture

PHILRICE

PHILIPPINE RICE RESEARCH INSTITUTE

We are a chartered government corporate entity under the Department of Agriculture. We were created through Executive Order 1061 on 5 November 1985 (as amended) to help develop high yielding, cost reducing, and environment friendly technologies so farmers can produce enough rice for all Filipinos.

We accomplish this mission through research and development work in our central and seven branch stations, coordinating with a network that comprises 57 agencies and 79 seed centers strategically located nationwide.

To help farmers achieve holistic development, we will 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.

We have the following certifications: ISO 9001:2008 (Quality Management), ISO 14001:2004 (Environment Management), and OHSAS 18001:2007 (Occupational Health and Safety Assessment Series).

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CERTIFICATION INTERNATIONAL
ISO 9001:2008 QSC 9526
ISO 14001:2004 EMS 10606
OHSAS 18001:2007 OHS 10608