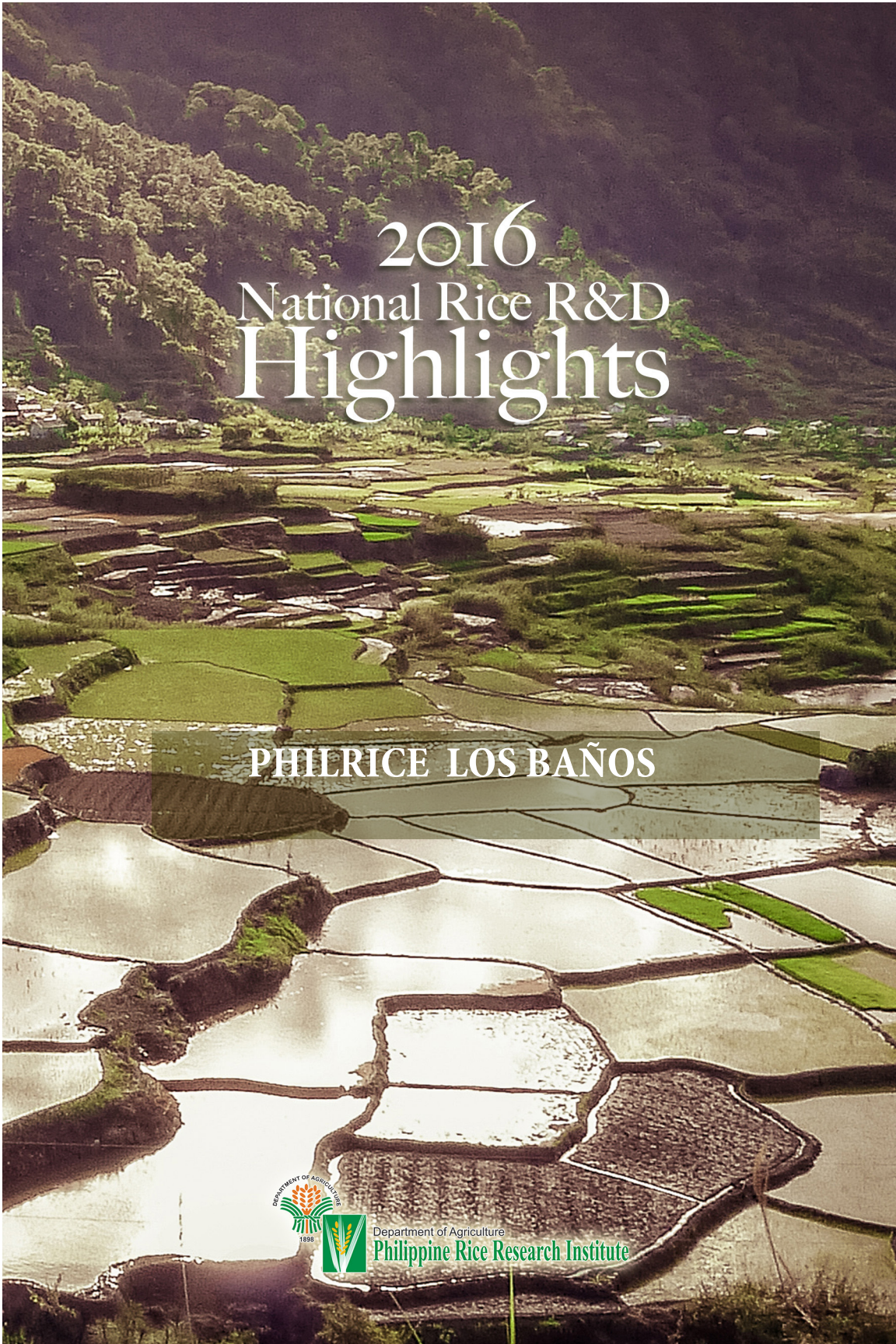


2016 National Rice R&D Highlights

PHILRICE LOS BAÑOS

Department of Agriculture
Philippine Rice Research Institute

TABLE OF CONTENTS

	Page
Executive Summary	1
I. Learning Center, Palayabangan, and Trainings – PhilRice LB	1
II. PhilRice Los Baños One-Stop Information Shop	11
III. Harnessing the rice garden in promoting and enhancing rice awareness and appreciation in the urban setting LBL-011-001	17
IV. Lakbay Palay (LBL-013-000a)	20
V. Intensified Rice Based Agri Bio System (PhilRice Los Baños IRBAS) LBL-014-000a	23
VI. PalaYamaNayon (LBL-015-000)	24
VI. Strengthening Resiliency of Romblon's Rainfed and Upland Rice Farming Communities to Climate Change	27
VIII. Knowledge Sharing and Learning for Rice Knowledge Intermediaries of CaLABaRZon	29
IX. Anthropological and Socioeconomic Characterization of Bicol's Agta Indigenous Peoples: Phase II of Enhancing the Capabilities of Bicol's Agta IPs through Palayamanan Approach 199A-RTF-031	38
Abbreviations and acronymns	42
List of Tables	44

PhilRice Los Baños

Branch Director: Caesar Joventino M. Tado

Executive Summary

The PhilRice Los Banos (PhilRice LB) station based at the University of the Philippines Los Baños (UPLB) was the cradle of PhilRice's operations before its transfer to Nueva Ecija. It was the Institute's principal office and became a branch station in March 1990. Situated in a prime science community, PhilRice LB has since served as the front-liner in developing and implementing projects in coordination with a scientific network that includes its research-giant neighbors, the International Rice Research Institute (IRRI) and UPLB.

In support of the national rice self-sufficiency targets of the national government, the station focuses its work on the development and packaging of location-specific technologies for rainfed and upland areas. It has activities on plant breeding, crop protection, agronomy and soils, rice chemistry and food science, and technology promotion and development. The station is also designated as in-charge of the hybrid nucleus and breeder seed production initiatives of PhilRice. It was instrumental in the diversification of the germplasm base of the rice breeding program by using wild rice species. The station's strong partnership with Los Baños scientific community and local government units brought about a number of location–specific technologies and innovations, the most popular being the Minus–One Element Technique, a diagnostic tool to determine soil nutrient deficiency

The station also oversees the development of PhilRice Mindoro satellite station as PhilRice's primary seed center in the entire Mindoro Island.

I. Learning Center, Palayabangan, and Trainings – PhilRice LB

Project Leader: CJM Tado

To address problems on food security and create opportunities for economic growth and development in the countryside, Philippine rice-based farms must be transformed into competitive, sustainable, and resilient agri-biological production systems. One key element to realize this is through integrated and diversified rice-based production systems wherein demonstrations and deployment of these technologies and systems will be carried out in an on-farm learning centers.

Such aims can be done through project key activities performed by each station of PhilRice. The station actively performed the project's three major components namely, 1) Establishment of a Farmers' Learning Center (FLC) in PhilRice Los Banos, showcasing modern technologies and best practices in rice production in various rice growth stages; 2) Enjoinment of private and public organizations and individuals to the challenge of improving rice yield while reducing production cost, 10-5 Palayabangan Challenge, through the use of technologies and best practices; and 3) Capacity enhancement of the the station staff through trainings, seminars, workshop, and exposure trips.

Learning Farm LBL-011-000a

CJM Tado, VD Ompad, JLO Canilao, and JE Leyte

Learning Farm is a simulated rice field showing actual rice plants of modern varieties at different growth stages, for the different rice-growing environments and for various consumers' needs and preferences. The study is envisioned to educate the general public about rice and its importance to Filipinos; spectrum from seeding to harvesting, and recent technological advancement that can improve rice farming and enhance the quality of life of the Filipino farmer. Furthermore, it will serve as venue for training with various government agencies, SUCs and farmer groups and students.

The demonstration farm is located in front of PhilRice Los Baños, Pili Drive, UPLB, Laguna. This showcased the technologies developed by Philrice such as the PalayCheck System, leaf color chart, alternate wettig and drying and minus one element technique. Inaddition, it includes the demonstration of farming operations such as proper land preparation and different crop stages from seedling until maturity (80-85%). To understand the technologies demonstrated, a monthly interval of planting/crop establishment was done to showcase the different phases of the rice crop. The demo farm's objective is to showcase and teach farmers, students and etc. about the different stages of the crop and location specific farming technologies and practicesin rice production. This in turn will enhance their knowledge in addressing issues in the farm and improve decision making skills in management. Moreover, students and other stakeholders will have awareness about the importance of rice as a daily staple and propose conservation measures to reduce wastage.

Activities:

- Field activities: Seeding (Dapog Method), land preparation, transplanting, weeding, controlling pests and harvesting.
- Accommodating walk-in and scheduled station visitors in the Learning Farm.

- Accepting schools for hands-on rice field activities such as manual transplanting and harvesting.

Results:

- The Learning Farm showcased the different rainfed varieties, namely: NSIC Rc354, NSIC Rc352, NSIC Rc158 and NSIC Rc14. These varieties are found to be the important part of the demo because it showcased the different growth phases of rice which are vegetative, reproducive and harvesting.
- The Learning Farm accomodated the tour and demo field acivity of the following schools, training and informediaries: University of the Asia and the Pacific, Manila in Figure 1A (50 students; 1 instructor); Agoncillo College Inc., Batangas (60 composed of students and teachers); Learning Links Academy, Sta. Rosa (8 students; 2 teachers); transplanting hands-on activity in Figure 1B (14 student of 2 to 10 yrs old; 10 parents and 2 teachers); Malabon National High School teachers in Figure 1C; Rice Knowledge Intermediaries compose of private and government sector in Fig. 1D (39 pax); Rice Boot Camp (39 pax), Ladies of Lourdes Hospital & Colleges of Caybiga, Inc. (60 composed of students and faculty staff). They performed hands-on activity such as harvesting and planting.
- Diversified farming was also established in the Learning Farm through showcasing Palayamanan System. The vegetables and herbs planted were as follows: tomato, pole sitaw, okra, eggplant, lemon grass, pepper mint, sweet basil and rosemary.
- With the goal of increasing the scope of knowledge the general public can acquire from Learnning Farm, the demo field was transformed into seven (7) lots, six (6) alloted for the six major growth stages of rice and one lot for the varietal demo of BDD seeds available for sale. PHB 77 is used in showcasing the six major growth stages while NSIC Rc160, NSIC Rc222, NSIC Rc18 and NSIC Rc218 were utilized in the varietal demo.

Palayabangan: The 10-5 Challenge in Los Baños (LBL-011-000b)
KCQ Saraos, FS Aguilar, and DG Ramos

The 10-5 Challenge aims to raise the rice production standard to 10t/ha yield at PhP5.00 input cost for every kilogram of palay produced. The participants are encouraged to use technologies and practices that can produce high yield at the same time low in production cost. Package technology will be used at PhilRice Learning Farms for showcase. The winner for the national level has a chance to promote their technology using the prize of PhP5,000,000. The competition is open to individual rice farmer, farmer's group, seed company, fertilizer company, NGO or CSO, and state university.

The objectives of the study are to 1) level up the rice production standard to 10-5, 2) introduce and promote technologies and best practices on improving rice yield while reducing the production cost, 3) boost the competitiveness of Filipino farmers; and 4) put together key players in the rice industry.

Activities:

- Monitoring and documentation of activities starting from Seedling Management to Harvesting Management.
- Data gathering for both socio-economic and technical from the competing and non-competing participants. Socio-economic data is used for the cost and return analysis while technical data is for the technology used by the company for verification and replication at the learning farm.
- Data were encoded using the Palayabangan online database. It will be directly transmitted to the Palayabangan monitoring team at PhilRice Nueva Ejica for data storage and processing.

Results:
Dry Season 2016

- There were three competing entries composed of two Seed Company (Bayer CropScience Inc. and DuPont Pioneer Hi-Bred) and one individual farmer (Mr. Ronnie Alonzo) from Tarlac City and one non-competing entry from PhilRice LB managed by Business Development Division (BDD).
- Based on the mechanics of the challenge, each participant is given a 2000sqm to showcase their technologies,

however seeds that were used for the PhilRice entry has a low germination rate and on other hybrid seed were available. Only 1081 sqm were planted with Mestiso 20 and the remaining plot is NSIC Rc222. It was decided by the management to continue the planting since Mestiso 20 is part of the demo for the field day.

- Mr. Ronnie Alonzo's entry showcased his technology using Arisetech in SL-8H and tried to plant in direct seeding with 1 TO 2 seeds per hill in 40cm X 40cm, however, due to mismanagement the seeds were attacked by birds. The remaining 400 g from his 1 kg seeds prepared for the entry were used for the establishment in transplanted method with 40 cm X 40 cm spacing; about 669 sqm were planted with SL-8H while the remaining plot were planted with NSIC Rc222.
- Presented at Table 1 is the technology used by the competing and non-competing entries for dry season 2016. All values were computed in per hectare basis.

Table 1. Technology Used by the Participants of Palayabangan DS 2016.

	Entries for Dry Season 2016			
	Ronnie Alonzo	Bayer CropScience Inc	DuPont Pioneer Hi-Bred Inc	PhilRice LB
Categories	Individual Farmer	Seed Company	Seed Company	PhilRice
Variety Used	SL 8H	Bigante Plus	PHB 77	Mestiso 20
Maturity		110-150 days	118-120 days	110 days
Type of Planting	Transplanted	Transplanted	Transplanted	Transplanted
Planting Distance	40 cm X 40 cm	20 cm X 20 cm	20 cm X 20 cm	20 cm X 20 cm
Age of Seedling at Transplanting	26 DAS	21 DAS	21 DAS	16 DAS
Fertilizer Applied	With Arisetech	110-34-79	115-35-65	114-35-65 with 60bags of Vermicast
Pesticides Used	Molluscide: NA Herbicide: NA Insecticide: NA	Molluscide: Bayluscide Herbicide: Machete, Nominee Insecticide: Bulldock, Nativo, Confidor, Rampage, Folicur, Vindex Plus	Molluscide: Trice Herbicide: Rice Star Extra, Nominee One Fungicide: Kocide	Molluscide: Niclos Herbicide: Machete Fungicide: Furadan
Yield per Ha at 14%MC (in kg)	5,298.36	6,842.57	7,190.02	5,380.39
Cost/kg (Php)	13.06	11.34	10.63	21.28
Yield Component				
Panicle Length	8.65	9.01	9.59	9.61
Panicle number per m²	168	260	258	369
Spikelet number per panicle	158	141	151	156
% Filled	65.53%	68.61%	72.97%	87.55%
% Unfilled	34.47%	31.39%	27.03%	12.45%
Grain Weight (kg/ha)	4,978.11	6,411.70	7,013.51	13,504.60

- The actual yield per harvested area with 14%MC of the Palayabangan entries are as follows: Ronnie Alonzo – 354.46kg 0.07 ha-, Bayer CropScience Inc. – 1368.51kg 0.20ha-, DuPont Pioneer Hi-Bred – 1,438kg 0.20ha-, PhilRice LB BDD - 581.62kg 0.10ha-.

Wet Season 2016

- There were four competing entries composed of two Seed Company (Bayer CropScience Inc. and DuPont Pioneer Hi-Bred), one individual farmer (Mr. Ronnie Alonzo) from Tarlac City, and one Chemical Company (Stoller Philippines Inc.) and one non-competing entry from PhilRice LB managed by Research and Development Division (R&D).

- DuPont Pioneer Hi-Bred Phils and the entry of Mr. Ronnie Alonzo was not able to harvest their produce. They were expected to harvest their produce on the second week of November, however, field technicians were not available during the week. Moreover, the weather condition in Los Baños for the whole month of October is rainy which cause the lodging of palay. However, the monitoring team were able to conduct the yield component of the study.

- Presented at Table 2 is the initial technology used by the competing and non-competing entries for wet season 2016 with initial results.

Table 2. Technology Used by the Participants of Palayabangan WS 2016.

	Entries for Wet Season 2016				
	Ronnie Alonzo	Bayer CropScience Inc	DuPont Pioneer Hi-Bred Inc	Stoller Philippines Inc.	PhilRice LB
Categories	Individual Farmer	Seed Company	Seed Company	Chemical Company	PhilRice
Variety Used	NSIC Rc 222	Bigante Plus	PHB 77	Bigante Plus	Mestiso 20
Type of Planting	Transplanted	Transplanted	Transplanted	Transplanted	Transplanted
Planting Distance	30 cm X 30 cm	20 cm X 20 cm	20 cm X 20 cm	20 cm X 20 cm	20 cm X 20 cm
Fertilizer Applied	For data processing				
Pesticides Used					
Yield per Ha at 14%MC (in kg)					
Cost/kg (Php)					
Yield Component					
Average panicle length	9.92	9.59	9.91	9.52	9.73
Panicle number per m²	157	238	317	304	440
Spikelet number per panicle	23	24	33	38	39
% Filled	78.92	81.99	70.18	67.17	58.3
% Unfilled	21.08	18.01	29.82	32.83	41.7
Grain Weight (kg/ha)	822.51	1,243.04	1,856.63	1,955.97	2,786.74

Training of PhilRice Los Baños Staff
JLO Canilao

An organization can be more productive if the staff is exposed to trainings, workshops and seminars. Latest technologies and issues on rice and rice-based farming should be consistently updated to PhilRice staff, involving researchers, development leaders, labor groups and the administrative staff. This study specifically aims to: 1) formulate specific objectives for various training/seminar/workshop for different station units; 2) evaluate the effectiveness of the trainings; and 3) formulate recommendations for the improvement of the trainings.

This year exposure of the staff to thematic quarterly seminar series, workshops on writing and statistical analysis will be facilitated by the training management team. Likewise, a Rice Boot Camp for new graduates of Agriculture and related sciences will be done to attract the youth to venture in the agricultural career industry.

Activities:

- Identification of training methods and development of course materials/ modules and schedules based on the Training Needs Assessment

- Development of modules/course materials through
  - Sourcing of topics and concomitant Resource Persons; and
  - Selection of training methodologies, activities, and setting of tentative schedules

- Analysis of evaluation results/assessment

- Conduct of training of PhilRice LB Staff through exposure to seminar series, workshops and training

Results:

- Conducted 1 R&D Writeshop, composed of 30 station researchers and development staff, on February 1 to 2, 2016. Overall evaluation ranking for the Resource Person and whole activity was “very good”.

- Successfully conducted quarterly seminar series with 16 topics (4 topics/speaker per seminar) for the year 2016. The seminars were attended by almost 400 participants composed of staff, students and faculty staff from UPLB, UST and LSPU, researchers and professional from various agencies. Invited

speakers come from the UPLB-Philippine Carabao Center, UPLB Institute of Biological Sciences, UPLB- College of Engineering and Agro-Industrial Technology, UPLB College of Public Affairs, Bureau of Fisheries and Aquatic Resources IV-A, Central Luzon State University, International Rice Research Institute, and PhilRice (Table 1).

- Rice Boot Camp: The Future Rice Leaders, conducted on August 8 to 18, with 20 graduates (newly graduates from UPLB). The Overall Evaluation Ranking for Resource Persons was Excellent and for the Training Management Team, Excellent.

- The top 3 Topics/Activity in the Rice Boot Camp, rated excellent were: 1. Rice Morphology (90%); 2. Palaymanan Plus; Intensified Rice-Based Agri Bio System (90%); and 3. Hands-on Farm Machineries (89%)

- Accommodated a total of 1,091 station visitors composed of 20 different groups with customized tours each. Visitors composition was 74% Students, 25% Farmers, and 1% Professional. The top 3 station tours were IRBAS, Azolla, and Learning farm. PhilRice campaigns highlighted were: 1) Be Riceponsible and brown rice and 2. Rural Transformation Movement. For January to June, excellent ratings were given to tour, audio visuals, and video showing and briefing. For July to December, excellent ratings were given to video showing and briefing, facilitator and function room. Lowest rating was given consistently to rest rooms. List of visitors is shown on Table 2.

Table 3. Details of the Quarterly Seminar Series of PhilRice Los Baños, 2016.

Date	Theme	Topics/Speakers	Overall Qualit Rating
April 6	**Exploring the Benefits of Diversified Rice-Based Farming for Food Security & Increased Income**	1. "Mushroom Production on Rice Straw Substrate by" Dr. Sofronio P. Kalaw, CLSU 2. "Tab taba", a cyanobacterium, as protein food from rice paddies: Challenge and Opportunities" by Dr. Mila Martinez-Goss, UPLB-IBS 3. "Rice-Prawn Farming System" by Ms. Virginia D. Panisales, BFAR 4. "Buffalo Dairying in Rice-Based Farming Systems – Boosting Farmers' Potential towards Productivity" by Mr. Jose C. Canaria, UPLB-PCC	Excellent
July 5	**Agricultural Mechanization for Competitive, Sustainable, and Resilient Rice-based Farming Communities**	1. "Overview of Mechanization of Rice Farming in the Philippines" by Dr. Maria Victoria L. Larona, UPLB-CEAT 2. "Biomass Energy Technologies for Rice Mechanization" by Engr. Alexis T. Belonio, PhilRice 3. "Mechanizing Harvesting and Threshing of Paddy in the Philippines" by Dr. Caesar Joventino M. Tado, PhilRice 4. "Custom Service Provision Centers for Rice Farm Mechanization" Dr. Silvestre C. Andales, PhilRice	Excellent
Oct. 5	**Genetic Engineering in Rice for Better Nutrition and Enhanced Productivity**	1. "Genetic Engineering: An Overview" by Dr. Evelyn Mae T. Mendoza, NAST/IPB-UPLB 2. "Engineering A C4 Photosynthetic Pathway into Rice" by Dr. Hsiang-Chun Lin, IRRI 3. "Golden Rice: A Potential Tool to Address Vitamin A Deficiency" by Dr. Reynante L. Ordonio, PhilRice 4. "Genome Editing by CRISPR: Advancement and possibilities" by Dr. Anindya Bandyopadhyay , IRRI	Excellent
Dec. 9	**What Works? Developing Diverse Agricultural Groups: Schemes and Opportunities in the New Millennium**	1. "Community Development for Agri- rural and Rurban Growth in the Philippines" by Dr. Josefina Dizon, UPLB-CPAF 2. "Customizing the "Palayamanan" for the Indigenous Peoples: the Mangyan of Mindoro and the Agtas of Bicol" by Mr. Mario Movillon, PhilRice 3. "Building Climate Resilient Farming Communities: The Tablas Island, Romblon Experience" by Ms. Imelda Olvida, PhilRice 4. "Programs, Mechanisms, and Status of Agricultural Development in the Province of Laguna" by Ms. Femina Leah Martinez, OPAg-Laguna	For collection

Table 4. List of station tours/ visitors in PhilRice Los Baños, January to December 2016.

No.	Group	Date
1	UPLB ChemSoc Kapnayan 2016 Education Tour Nationwide Participants from Various High Schools	January 21-22
2	FFS Farmers of Pakil, Laguna	February 5
3	University of Asia and the Pacific (UA&P) Outside Laboratory Activity in SC 102 (Environmental Science)	February 10
4	Occidental Mindoro State College (OMSC-Murtha Campus) Educational Tour	February 15
5	FFS Farmers of Liliw, Laguna	February 18
6	Agoncillo College Inc Educational Field Trip, Part of Crop Production Specialization Class	February 19
7	FFS Farmers of Padre Burgos, Quezon	February 24
8	LGU-Canaman from Camarines Sur	Mar 3
9	FFS Farmers from _____, Quezon	April 21
10	FFS Farmers from Brgy. Buenavista East Candelaria, Quezon *provided 1 kg of seeds each	April 28
11	Bulakin Farmers Association from Tiaong, Quezon *provided 1 kg of seeds each	April 29
12	Educational Tour of Learning Links Academy, whole day	May 20
13	VIPs: Dr Rey Villareal and Dr. O.P. Shringi of DCM Shriram LTd. In New Delhi, India on PhilRice programs and Seed production	May 25
14	Maria Makiling Playshop (ages 2-10 y.o.) Hands-On Activity at the Learning Farm	May 28
15	BAWP Team	June 14
16	Palsabangon Irrigators Association from Pagbilao, Quezon	July 21
17	University of Asia and the Pacific (UA&P) Outside Laboratory Activity in SC 102 (Environmental Science)	October 19
18	Sto. Tomas, Batangas Farmers, part of their "Climate Farmers Field School Training	October 19
19	University of Asia and the Pacific (UA&P) Outside Laboratory Activity in SC 102 (Environmental Science)	October 26
20	Lady of Lourdes Hospital & Colleges of Caybiga, Inc. (LLHCCI) requirement for Agricultural Management Course	October 28

II. PhilRice Los Baños One-Stop Information Shop

Project Leader: MM Movillon

The One-Stop Information Shop (OSIS) is dedicated to cater to the information needs of PhilRice Los Baños' stakeholders, primarily the students, researcher, and agricultural extension workers and by providing accessible, comprehensive, and updated information about Philippine rice. In doing so, the OSIS adopts a multi-strategy approach through its different components like Palay-Aklatan (mini-library), PhilRice database, and exhibits/ museum. All these components utilize the use of multi-media materials to increase the visitors' awareness on rice and appreciation of rice S&T.

OSIS will not be your ordinary information hub, it incorporates a mini-library set-up with exhibits and museum artifacts that can give the area a more modern and sophisticated feel. Visitors can access the collections in three ways. First is through the E-library system where visitors can key-in keywords of the publications they need. Second, an open access to the collections where they can directly check the shelves for publications. Lastly, online accessions provide access to information through PhilRice websites like www.philrice.gov.ph and www.pinoyrice.com.

The One-Stop Information Shop of PhilRice Los Baños was launched in December. Moreover, launching of mobile OSIS for each of the 3 selected schools in Laguna was conducted on the third quarter of 2016.

Project Component 1. Palay-Aklatan @ PhilRice Los Baños: One-Stop Philippine Rice Information Hub

JLO Canilao and JE Leyte

The Palay-Aklatan, a mini-library, is part of the One-Stop Information Shop. This section houses collections and facilities that the visitors can use to research and read. The collections are composed of books, technology bulletins, magazines, brochures, PhilRice publications, theses and manuscripts, and publications from other research and development institutions. The Palay-Aklatan aims to provide accessible, comprehensive and updated Philippine rice information to stakeholders; increase the number of stakeholders who want to research on rice; increase stakeholders' awareness about PhilRice; distribute PhilRice publications to libraries and reading rooms in Laguna; and update list of PhilRice publications and BS/MS/ PhD manuscripts of PhilRice staff.

Activities:

- Establishment and maintenance of the Mini-library or PalayAkalatan.
  - Collection of additional publications from PhilRice

Central Experiment Station and other agencies such as members of the Los Baños Science Community Foundation. Inc.
- Display of publications for reading, borrowing and distribution of free IEC materials.

- Establishment and launching of mobile OSIS in 3 selected schools in Laguna and at the station.

- Sourcing of bookshelves and other library furniture from partner agencies such as the International Rice Research Institute (IRRI).

- Printing of scientific journal e-books from legit and reliable sources as additional materials in the library.

- Preparation of borrowers' cards, library ID's and book cards.

- Conduct of "Libreng ID Project" for PhilRice station staff.

- Monitoring of visitors, borrowers, access to kiosk and distributed information materials.

Results:

- Increased book collection by 151%. Additional books and manuals consisting of 1,380 pieces from Los Baños Science Community Foundation, Inc. members contributed to the library's growing collection (Table 1). Thus, a proactive campaign in March to April 2016.

- Information, education and communications (IECs) materials produced in the station and collected from PhilRice CES were strategically distributed, estimated at 13,569 IEC copies.

- Created a database of station staff as a result of the "Libreng ID Project" last May. This also included laid out and printed borrower's cards and personalized IDs for staff.

- Twelve (12) new books and 1 tablet from PhilRice CES were used as additional resource material and equipment.

- The station's OSIS received 7 usable brown bookshelves from IRRI last June. The station also procured 2 sofa sets, 2 sets of library tables with chairs and a book shelf for OSIS.

- Successfully launched mobile OSIS at the following schools: 1) Nicolas Galvez Memorial National High School last September 23; 2) U.P. Rural High School last November 15; and 3) Laguna State Polytechnic University- Siniloan Campus last November 22; and launching at PhilRice Los Baños December 16.

Table 5. List of book agency donors and inventory, January – December, 2016.

Agency Source	Type of IEC material	No. of Pcs.
University of the Philippines Los Baños (UPLB) Library	Books and Journals	40
Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD)	Books, journals, brochures, leaflets	950
Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)	Books, articles, training modules	50
International Rice Research Institute (IRRI)	Books, journals, brochures, leaflets	*For counting*
Philippine High School for the Arts (PHSA)	High school science test books	140
PhilRice - Central Experiment Station	Leaflets, flyers, books, magazines	14,289
Unknown	Reaidng materials	*For counting*
Total		15,469

Project Component 2. Promoting Clean GPS for CSR through Exhibits
MM Movillon, JLO Canilao, JN Puerto, MSM Canilao, and VM Ompad

Information campaigns and exhibits serve as venues for knowledge and technology promotion for the public. When a topic, product or service becomes interesting and inviting through these types of promotion, individuals and organizations buy these ideas. Major campaigns conducted by PhilRice Los Baños include the "Be Riceponsible" and "PalayamaNayon" campaigns, El Niño and La Niña phenomena, and CleanGPS for CSR, which stands for "clean, green, practical, and smart technologies for competitive, sustainable, and resilient rice-based farming communities". Campaign activities were scattered throughout schools, agricultural offices, agri-related trainings for farmers, field days and for policy-makers through scheduled station tours and exhibits

Meanwhile, the exhibit area to be developed for the launching of the OSIS-LB in 2016 will be composed of display materials like miniature machines, posters, photos and paintings. From time to time, contents and theme of exhibit will be changed depending on the present advocacy of PhilRice.

Activities:

- Development of taglines, campaign banner, and themes in station events, exhibit invitations and station tour requests.

- Social marketing and advocacy as exemplified in Be Riceponsible, El Niño, and Clean GPS for RSD exhibits. This activity engaged the public through activities such as Panatang Makapalay Pledge and strengthening collaborations with various agencies.

- Collaboration and participation in exhibits and trade fairs conducted from January to June.

- Collaborations and partnerships made and strengthened with the LBSCFI agency-members, UPLB College of Development Communication, private institutions and other organizations.

- Tie-up with PhilRice Musuem in incorporating museum artifacts and paintings such as the "Colors of Life" murale in the station's OSIS

Results:

- Various exhibits staged from January to December, which promoted campaigns on Be Riceponsible, Brown Rice Advocacy, PalayamaNayon, El Niño and La Niña Phenomena, and agricultural farm machineries

- Shared information on the latest rice and rice technologies and campaigns to a roughly 30,000 exhibit participants from January to December.

- All (100%) IEC materials from PhilRice CES distributed to station visitors and exhibit participants.

  Participated in the following exhibits: Kapnayan of the UPLB Chemical Society, PAESTIGAN of the UPLB Engineering Society, Foundation Day at SciTech High School, SIPAG Fiesta at PCAARRD, PhilRice Los Baños Field Day April Exhibit, OPAg Fun Run at Sta Cruz, Laguna, and Syensaya Wonderama 2016 last July 25 to 29 at PCCAARRD, Sci-Match Fair at U.P. Rural High School, and PhilRice Los Baños' DS and WS field days.

- Customized and produced IEC materials by OSIS station staff to ensure IEC materials were sufficiently and well distributed to events and walk-in visitors. OSIS LB was able to customize posters on El Niño, Mang Juan Series, and Careers in Agriculture, and bookmarks on BE Riceponsible. Lastly, customized poster series for brown rice promotion for 2 group audiences, general youth and professionals, were done through management of 2 UPLB DevCom interns.

- High-level participation in the 2016 National S&T week under the UPLBSCFI's SyenSaya Wonderama last June 25 to 29, 2016 at the PCAARRD grounds, and the travelling Be Riceponsible exhibits staged during the Annual Ceremonial Harvesting at the Rizal Park, Metro Manila in November 2016.

- Masterlist/database of exhibit participants created.

Project Component 3. Development and Management of Database
JLO Canilao and JN Puerto

Information resource bases serve as storage and for management of knowledge products, videos, and images of an organization. To help in achieving the division's goal of promoting rice science for development, branch stations are now engaged in contributing to the development and management of databases of PhilRice. Station files could be easily accessed and shared to the central office and to within and among the other stations. Likewise, knowledge products could be distributed and tracked more efficiently to its recipients under the station's area of responsibility. Moreover, the database section of OSIS does not allow the visitors to directly access the files, unlike the Palay-Aklatan. To access the files, assistance shall be asked from the person in charge.

In summary, this study aims to: (1) manage resource bases for KPs, videos, and images, and (2) assist in the provision of quality and timely support of ICT-based services in the station.

Activities:

- Management of Resource Bases for KPs, Videos, and Images in the Station
  - Data generation and collection of information materials from CES, partner agencies and station projects.
  - Downloading of journal articles/ebooks from Science Direct and other sources to the database computer and PhilRice OSIS tablet
  - Regular storage and back-up of databases in the database desktop computer, external hard drive (1TB), internet storage application such as Dropbox and Googledrive and ebooks stored in the OSIS tablet.

- Provision of Documentation Support Services
  - Circulation and distribution of KPs to intended

clients within the station's AOR were done. KPs were distributed at exhibits, station tours, field days, other events. Likewise, inventory of recipients was produced.
- Photo and video documentation of the station's events, major activities and division and individual staff were done.
- Production/printing of KPs in the station using office equipment such as printers, laminating machines and ringbinders done.

- Production of PhilRice Los Baños IEC materials incluisng short AVPs customized from soft copy brochures and posters from CES and other references

Results:

- Resource management
  - Encoded additional book collection on E-lib system (plus e-books)
  - Soft copy IEC materials utilized for production (3,000+) for visitors, exhibits, staff and library collection
  - Brochure on machineries, produced
  - Brochure and tarps on Mang Juan Series customized
  - Brochure and tarps on Career Opportunities customized
  - Management of interns and outputs namely, PhilRice Los Baños map, 2 Brown rice poster series and 2 short AVPs on
  - Collected and consolidated Station Annual Report 2015
  - Mass production and printing of OSIS brochure and the latest brochure on Climate Change: El Niño and La Niña.

- Services
  - "Libreng ID Picture Project" conducted last May to create a photo and profile database of the station's 80 staff, submitted for filing to the Admin Office. Each was given printed 1x1 in and 2x2 inches printed photos.
  - Photo documentation of Knowledge Sharing and Learning Activity of IPAD, seminar series, field days, and exhibits conducted
  - Lamination and ring-binding services provided to staff

III. Harnessing the rice garden in promoting and enhancing rice awareness and appreciation in the urban setting LBL-011-001

MMMovillon, VDOmpad, KCQSaraos, JLOCanilao

The Rice Garden is a simulated field showing actual rice plants of traditional and modern varieties at different growth stages. Established in 2001, the Rice Garden aims to educate the general public about rice and its importance to Filipinos. The target audiences in particular are the youth, who are the country's future leaders and the general urban populace that are less knowledgeable about rice farming and are often most vocal during rice crises.

Rice is the staple food of over 90% of our population, with 70% of the population dependent on rice cultivation and marketing of their livelihood. Rice is also deeply embedded in the Philippine culture. It is part of many of our celebrations, rituals, beliefs and customs. However, as modernization sets in and as societies become affluent, many people are becoming less attached to rice. They are turning away from farming and are moving to offices and factories in the urban centers or migrating to foreign lands (Chanco, 2015). The wealth of the rice cultural heritage is not subsequently passed on to the next generation. These results in an increasing number of Filipinos growing old not knowing how our farmers grow rice, or worse, how a rice plant looks like. Government's spending on rice research, development and extension (RD&E) has likewise become limited. With its significant role in the life, culture and survival of the Filipinos, rice should have a special place in the hearts of the people.

It is for this reason that the Rice Garden was established at the Rizal Park in Luneta - a place accessible to urban dwellers and frequently visited by people from all walks of life. They will all benefit from seeing actual rice plants of traditional and modern varieties from learning about the role of research and development to culture, nourishment and economy. With the Rice Garden as a vital showcase, we help preserve the staple crop that has sustained generations of Filipinos and instill in our urban dwellers the love for rice.

Each year, an estimated 10,000 people do walk-in visits to the rice

garden. Each November, designated as the National Rice Awareness Month in the country, the Rice Garden hosts an annual Ceremonial Rice Harvesting where hundreds of students and teachers from various primary and secondary schools in Metro Manila are invited for fun learning rice activities and to experience actual rice harvesting.

Activities:

- Rice Garden field activities: Seeding preparation, Land preparation, transplanting, weeding, pest management and harvesting.
- Maintaining the Palayaman System Plus within the vicinity of Rice Garden.
- Accommodating walk-in and scheduled visitors in the Rice Garden.
- Assisting schools adopting the Rice Garden concept in their respective schools.
- Holding 2016 Rice Ceremonial Harvesting on November as National Rice Awareness Month.

Results:

- Rice transplanting activity for students.
  Phil Chen Kuang school elementary pupils and high school students had the opportunity to perform actual transplanting of rice seedlings at the Rice Garden.
- Forging a partnership between Institute of Plant Breeding – Pagkain ng Mag-anak na Nagsisikap (IPB-PAMANA) and PhilRice to promote urban gardening and the Palayamanan system of farming through the showcase of multiple crops such as kitchen herbs, indigenous vegetables, herbs and condiments.
- The Rice Garden idea was successfully adopted the by three schools namely: Phil Chen Kuang School, San Juan City; Tinajeros National High School, Malabon, Manila; and Key's School, Mandaluyong City.

  A) Phil Chen Kuang School student performed rice transplanting in the Rice Garden, B) Rice Garden at Key's School, Mandaluyong City; C) Vermiponics set-up IPB-PAMANA at the Rice Garden D) Potted herbs; E) Vegetables used as edible landscape

Annual Ceremonial Rice Harvesting

To celebrate the National Rice Awareness month this November, the Philippine Rice Research Institute (PhilRice) held its annual Ceremonial Rice Harvesting at the Rice Garden at Rizal Park, Manila last November 25 which aims to boost awareness and knowledge toward rice responsibility.

Around 300 teachers and students from all over Manila gathered at the Rice Garden to participate in the event. Students from various schools of Manila, participated in a range of activities and competitions aimed at conveying to the students the value of being a responsible rice consumer, as well as raising their knowledge and awareness towards the staple.

Among the highlight competitions were PalayBigkasan, a modified oral interpretation contest for high school students; and PalayIndakan, a Rice Dance contest for elementary pupils. Another competition was the Rice Quiz bee for elementary and high school held at Makati Science High School on November 19, 2016.

Also present in the Ceremonial Harvesting were PhilRice's Executive Director Sailila E. Abdula, PhD; PhilRice's Deputy Executive Director for Research Eduardo Jimmy Quilang; PhD; PhilRice's Deputy Executive Director for Development Flordeliza H. Bordey, PhD; PhilRice Los Baños Branch Director Caesar Joventino M. Tado, PhD; PhilRice Agusan Branch Director Abner T. Montecalvo; PhilRice Batac Branch Director Mary Ann U. Baradi, PhilRice Bicol Branch Director Isabela Helen R. Pasicolan; PhilRice Midsayap Branch Director Ommal H. Abdulkadil; PhilRice Negros Branch Director Edgar M. Libetario; PhilRice CMU Branch Director Mario Ramos; Florizza Buclatin, Head of Permit Division, National Parks andDevelopment Committee, and Mahalene Kristine Bajit, Be Riceponsible campaign staff.

IV. Lakbay Palay (LBL-013-000a)

KCQ Saraos, CJM Tado, and DG Ramos

Philippine Rice Research Los Baños (PhilRice LB) conducts field days and technology forums to update the rice farmers to the new technologies, campaigns and other R&D activities of the station. It serves as venues for the rice farmers and other stakeholders to meet with the experts and key persons under the rice industry. It was first time for PhilRice LB to conduct a region-wide dry season field day.

PhilRice LB serves the rice farmers from CALABARZON and MIMAROPA Regions. Participants for the dry and wet season Lakbay Palay are from CALABARZON. The theme of the activity was "Palayabangan: the 10-5 Challenge Farmers' Field Day and Technology Forum" during the dry season and "Pagsasaka. Negosyo. Asenso!" during the wet season. Technologies of how to increase the income of the farmers as well as decrease their cost in production were showcased during the event.

Activities:

Dry Season

- Preparation for the Lakbay Palay: The working committees were composed of about 80 R&D staff of PhilRice LB. Preparations were done 1.5 months before the main event including meetings and planning with the Palayabangan participants as sponsor and highlight of the activity. Field and stage set-up were done 1-day before the event.

- Lakbay Palay main activity:
  - The call-time for the staff is 6 o'clock in the morning since participants were expected to register starting 6:30am. The tour guides received the participants after the registration. Registration kits and snacks were distributed before field tour.
  - The field day started with the field tour in the Palayabangan demo plots with five stations. However, only four station managers were available for the activity since Mr. Alonzo, an individual farmer has other commitment.
  - The farmers proceeded to PhilRice LB station's Field Service Building for the technology forum, which focused on the different technologies offered by PhilRice and private companies in coping with climate change.

Wet Season

- Preparation for the Lakbay Palay: The working committees were composed of about 94 R,D&A staff of PhilRice LB. Preparations were done 2.5 months before the main event including meetings and planning of the activity. Field and stage set-up were done a week before the event.

- Lakbay Palay main activity:
  - The call-time for the staff is 5:30 in the morning since participants were expected to register starting 6:00 am. The tour guides received the participants after the registration. Registration kits and snacks were distributed before field tour.
  - The field day started with the field tour in the MET demo field, IRBAS, Azolla production, Palayabangan demo plots with five stations, and DU30 Paddy Art.
  - The farmers proceeded to PhilRice LB station's Field Service Building for the technology forum, which focused on the different programs offred by the government to help the farmers increase their income and productivity.

Results:

Dry Season

- The Palayabangan participants were encouraged to bring their farmer cooperators from CALABARZON, about 250 rice farmers from 10 municipalities in CALABARZON, namely: Calauan, Famy, Kalayaan, and Pagsanjan from Laguna Province, San Antonio, San Pedro, Sta. Maria, and Tiaong from Quezon Province. While, PhilRice LB invited the Office of the Provincial Agriculturist and AgriDoc participants from Regions III, IV, and V. The total number of participants and staff from PhilRice LB, Bicol, and Central Experiment Station is 416.

- The field tour is focused on the different technologies used by the Palayabangan participants. Representatives from Bayer CropScience Inc., DuPont Pioneer Hi-Bred, and PhilRice entry explained the technology used, however Mr. Alonzo was not available to showcased his entry.

- PalayCheck System, MOET, and LCC were used by PhilRice LB BDD in managing the entry. MAT Talavera explained the technology used and promoted the public varieties available. Mestiso 19 and 20 were highlighted during the field tour since it is suitable for CALABARZON.

- PhilRice LB Station's Field Service Building was used as venue for the technology forum. Different PhilRice videos (campaigns on Be Riceponsible and PalaYamaNayon, machinery developed by PhilRice and the corporate video) were played before the technology forum. Campaign and IEC materials were also distributed to the participants to increase their awareness on the programs and projects of PhilRice.

- El Niño was discussed by Dr. VC Lapitan during the forum and other the technology (Alternative Wet and Dry Technology, Reduce Tillage, etc) developed by PhilRice in coping with climate change.

- PhilRice LB also distributed 1kg of NSIC Rc 192 per farmer after the forum exchanged with the evaluation forms given before the closing remarks.

Wet Season

- Unlike the previous season, PhilRice LB managed the invitation to the farmers. About 285 rice farmers from 19 municipalities in CALABARZON, namely: Los Baños, Bay, Calauan, Victoria, Pila, Sta Cruz, Siniloan, Famy, Sta Maria, and Calamba from Laguna Province, Sialng and Carmona from Cavite Province, Lian and San Juan from Batangas Province, Candelaria, Sariaya, and Lucena from Quezon Province. The Office of the Provincial Agriculturist were also invited. The total number of participants, VIPs, exhibitors and staff from PhilRice LB, and Central Experiment Station is 417.

- The field tour started at 6:30 to 9:00 am, the tour is divided by two main stations with five stations, composed of 10-5 Palayabangan, Paddy Art, IRBAS, Azolla, and MET.

- PalayCheck System, MOET, LCC, and AWD were used by PhilRice LB R&D in managing the Palayabangan entry. BT Salazar explained the technology used during the field tour since it is suitable for CALABARZON.

- DU30 Paddy Art were conceptualized by the R&D staff to give something new during the field tour, however, it became popular and reached 77,481 people in social media, 693 likes and 563 shares in the first FB post of PhilRice LB page. It was featured at different FB page (JUAN THING, DYVR RMN ROXAS 657khz, The Visayan Daily Star, Brigada News FM National, FEDERAL Philippines, Balitang Pinoy, Trending Newsportal), front page of newspaper (Manila Bulletin and Philippine Daily Inquirer), websites (inquirer.net, Wheninmanila.com, and REUTERS), and media coverage (News5 and TV Patrol Southern Tagalog). The design of the paddy art were decided by PhilRice LB staff, lay-out by undergraduate students from the CEAT-UPLB, and planted by PhilRice R,D&A staff to ensure proper lining.

- Different PhilRice videos (campaigns on Be Riceponsible and PalaYamaNayon, machinery developed by PhilRice and the corporate video) were played before the technology forum. The forum was held at PhilRice LB Service Building. The technology forum has five topics, namely: Updates on New Varieties and Technology of PhilRice (PhilRice LB), Training Opportunities Offered by ATI (DA-ATI), Application Requirements and Benefits of Agricultural Cooperatives (CDA), NIA's Irrigation Services for Rice Farmers (NIA), Crop insurance Application Process and Services for Rice Farmers (PCIC).

- PhilRice LB also distributed 1kg of NSIC Rc 300 per farmer after the forum exchanged with the evaluation forms given before the closing remarks.

V. Intensified Rice Based Agri Bio System (PhilRice Los Baños IRBAS) LBL-014-000a

FS Aguilar, KCQ Saraos, DG Ramos, and RG Corales

Innovative farming systems and farm management practices has been continuously developing all throughout the country. Success of these prevailing farming systems would be depending on the locality, whether it is adopted or not, whichever the society it serves might take depending on several factors that would affect each farming systems (Corales, 2013). Crop diversification and crop intensification is one way of farming technique wherein farmers can venture into. Maximum utilization of land use for added income and on the other hand, will help increase food supply that would be needed by the farming household. Another strategy would be the utilization of rice biomass just like rice straw in which many farmers would just burning them in the field not knowing of its benefits when being incorporated in the soil or used as substrates in organic composting procedure and use as beddings of substrates in mushroom production. PhilRice program thrust, the "Intensified Rice Based Agri Bio System" or IRBAS, in which every station is mandated to be transform into one nuclei that will serve as the model in different crop management in diversification and intensification of rice based products as well as the maximum utilization of biomass such as rice straw

for use as substrates in mushroom and vermiculture and vermicomposting production as nucleus components in order to help farmers in improving rice and rice based productivity and income and at the same time alleviate their status of poverty.

Results:

- Established 1 (one) IRBAS model with mushroom; vermiculture / vermicomposting and crop component enterprise.
- Conducted mushroom and vermiculture / vermicomposting training and seminar workshop at Barangay Bignay 2 and Janagdong, Sariaya, Quezon; and during Rice Boot Camp at PhilRice LB.
- Drafting of customized "techno-gabay" on mushroom and vermiculture / vermicomposting on-going to be finalize in December.
- Toured farmers, extension workers and student visitors of the station on mushroom and vermiculture/ vermicast production area for technology demonstarion and hands-on training

VI. PalaYamaNayon (LBL-015-000)

KCQ Saraos, VD Ompad, FS Aguilar, and CJM Tado

The Rural Transformation Movement (RTM), with the tagline PalaYamaNayon, is an initiative of PhilRice that mobilizes various expertise, organizations, and resources to rally and catalyze rural transformation on rice farming community. It is a process that enables positive and relevant change in farmers' perceptions, attitudes, practices, and life chances with intensified, diversified, and integrated rice-based farming.

PalaYamaNayon carried out the KKK strategy, namely: The Mind-setting Campaign, Income Boost for Farm Rice-based Villages, and Enhancing Social Capital. Specifically, it will perform the following R&D activities: development and promotion of rice-based enterprises, production and distribution of agricultural inputs, product development and packaging, capacity enhancement, and conduct of market and socio-cultural research. The identified pilot community is the United Masaya-Puypuy Irrigators Association, Inc. (UMAPUY) which is composed of rice farmers from Brgy. Masaya and Puypuy, Bay, Laguna. Most of the farmers are practicing monocropping and rice farming is the only source of income.

Activities:

- The Mid-setting Campaign is composed of distribution of campaign materials, conducting of educational visits to successful farmers, and conducting PalaYamaNayon Leadership Training for NUESTRA Managers. The activities are focused on the information awareness of farmers and interest raising for the project.
- Activities under Income Boost for Farm Rice-based Village are identification of rice-based enterprise, conducting market scanning for the identified products, Implementation of rice-based enterprise identified, conducting training in the production, organizing business meetings with partners involved.
- Enhancing Social Capital is the establishment of NUESTRA with the support of the identified successful farmers last 2015 and the development of protocols.

Results:

- Campaign materials (shirts, field hat, and eco-bags) were distributed to rice farmers, experts, and stakeholders. The campaign was also promoted to the station visitors through video showing and brief explanation of the project. Intensified, diversified and integrated farming were also promoted outside Laguna rice farmers but in the region as well.
- Video documentation were done, highlighting the situation of UMAPUY Irrigators' Association before enterprise building. Videos on how farmers can benefit from value-adding and direct selling were also taken.
- Second baseline interview were done with the help of an intern student in partnership with College of Agriculture – University of the Philippines Los Baños.
- Two new partners were identified: Mr. Brian Amante Belen and Banca-banca Farmers Cooperative and two Memorandum of Understanding (MOU) were accomplished with Mr. Bernardino Villalobos and Ato Belen's Farm.
- Interest of the UMAPUY members in rice-based farming were raised through the Lakbay Aral conducted in Mang Dino's Farm in San Juan, Batangas and in Ato Belen's Farm in San Pablo, Laguna. The successful farmers were able to motive the

rice farmers to produce other crops not only rice and process it to increase their income. The farmers also learned the market scanning is important for them to penetrate the market and get a good price.

- Farmers were able to identify brown rice and black rice as their rice-based enterprise. Based on the planning workshop, they will also venture to vegetable production and vermiculture. Papaya area on their vegetable production site were established last October and the remaining vegetables will be established starting December during their fallow period and lean months on the following year.

- Since the farmers will also produce vegetables, Post-harvest Handling seminar for vegetables were conducted through partnership with UPLB-IPB-CSC. Proper handling, packaging, and transporting of goods were discussed during the seminar.

- Initial stakeholders' meeting were done last October 28, 2016, attended by the representatives from the Municipality of Bay, Laguna (Agriculture Office, Tourism Office, Engineering Office, Social Welfare and Development Office), Business Affairs Office of UPLB, Provincial Agriculturist office, and UPLB Credit and Development Cooperative. The agenda of the meeting is focused on the marketing aspect of the brown rice of UMAPUY Irrigators; Association.

- The product launching was scheduled on the last week of November in partnership with the UP Open University at the Techno Hub during their Farmers' Market.

- The marketing and selling of brown and black rice started last November 14, 2016. The product is promoted through the use of social media, flyers, and posters around UPLB since the target market of UMAPUY Irrigators' Association are the UPLB and Bay community.

- Brown rice were sold at PhP45.00 and black rice at PhP65.00. Free delivery is offered around UPLB campus at a minimum order of 10 kg.

- For the whole month of November (November 15 to 25), a total of 73kg of brown rice, 83kg of black rice, and 85kg of milled rice were sold. More than 400kg of brown rice is expected to be delivered to Tinajeros National High School on December 8, 2016 though the help of the Be RICEponsible Campaign conducted in their school activity.

- Since the supply of black rice is about half ton from the farmers, the supply is expected to last until the end of December 2016. However, marketing of brown rice is expected until February 2017.

- Direct selling of their produce is a great challenge for the UMAPUY farmers since all of the members sold their produce directly to the traders because of no available capital during the start of every cropping season. Through the help of the project, they were able to start to market their produce and start to raise funds for the revolving fund of the organization.

VI. Strengthening Resiliency of Romblon's Rainfed and Upland Rice Farming Communities to Climate Change

IDGOlvida, LGAlipioJr., JGLucidos, GAFlorendo, Jr., and GOSanValentin

Most rainfed and upland farmers live below the poverty threshold, located in marginal areas, and lack access to most services, and thus are considered highly vulnerable (Eriksen and O'brien, 2007). Unfortunately, their situation is further exacerbated due to the effects of climate change resulting in further entrenchment in the economic margins. Through its new program, PhilRice aims to contribute to attaining and sustaining rice self-sufficiency in the Philippines by developing climate-resilient farming systems and communities.

The end goal of this project is to develop the capacities of vulnerable farming communities towards climate-resiliency. These farming communities should be able to plan for, survive, recover, and even thrive (ECA, 2008) in crises brought by flood, drought, saltwater intrusion, temperature rise, and weather variability (Aydinalp and Cresser, 2008). A climate-resilient farming community is able to secure food and income for their households.
The project will identify, measure, and assess the levels of vulnerability of the farming communities. The baseline study will assess and measure the vulnerabilities of the communities and will provide basis for the development of the training modules to be implemented. Another study will be undertaken to investigate the strategies that the farmers' employ in order to cope with climate change. The developed training module will be pre-tested and evaluated through the conduct of two season-long farmer's field schools and demonstrations aimed at determining different development processes that will pave way to develop climate resilient communities.

Project Accomplishment Highlights from January to June 2016:

Activities:

- Conducted briefing and actual demonstrations of MOET in rainfed areas
- Established and maintained 3 Vegetable Demo and Learning Farms.
- Conducted FFS in 3 sites wherein various topics in rice-based technologies focused on organic farming were discussed and demonstrated.
- Conducted Farmers' Field Day/ Field Visit in Brgy. Tuguis, Looc, Romblon, participating farmers and AEWs from the 3 sites were attended the said event and non-participating farmers from other village were also participated.
- Requested and distributed rice varieties in different ecosystems to be planted in the varietal trials this upcoming WS 2016.

Results:

- In two rainfed sites, MOET were introduced and discussed in the group of farmers. Actual demonstrations were conducted, the participating farmers were experienced and learned on how to setup MOET. Actual evaluation and monitoring were also done in order to them to have right results hence, can give them a right recommendation.
- In three sites, Vegetable Demo Farms were established. This is to showcase to the participating and non-participating farmers. This demo farm also served as learning field, all management practices were done by the participating farmers from land preparation up to marketing their commodities. The production of high value crops and cash crops focused in organic farming.
- Various rice-based technologies were introduced and presented. Aside from presentation and discussion, the technologies also actual demonstrated to the group of farmers. Special topics were also discussed and imparted to the participating farmers.

- The field day was conducted in the best vegetable demo farm handled by the project. It was held last June 16, 2016 in Brgy. Tuguis, Looc, Romblon. There are four stations/ studies explained, all activities and technologies done in the farm were mentioned and discussed. Sharing of thoughts and ideas of the farmers were also included. The field tour is the highlight of the said event.
- In the preparation of WS 2016, the project prepared and distributed rice varieties to be used in the varietal trials and to be established in 3 sites. Rice varieties for different ecosystems will be planted to identify what are the rice suited in their locality.

VIII. Knowledge Sharing and Learning for Rice Knowledge Intermediaries of CaLABaRZon

IDGOlvida, AJMRoa

Private Seed growers, Microfinance institutions, Input Suppliers and Cooperatives from Region 4A and students from University of the Philippines Los Baños and Cavite State University were gathered to become rice extension intermediaries (REIs) in Project IPaD's nationwide Knowledge Sharing and Learning (KSL) activity held on 18 May, 18 Oct and 17 Nov at PhilRice Los Baños, Laguna, UPLB and CavSU .

The highlight of the activities were the commitment ceremony where each organization pledged on how they can better help the farmers. These intermediaries complement our government's rice extension system, and we envision them to be mediators of information for our farmers. KSL is a component of Project IPad being conducted by PhilRice, ATI, and IRRI with funding from the DA-National Rice Program through the Bureau of Agricultural Research.

There are more than two million farmers and barely 3000 full-time extension workers on rice. To enhance our reach, response time, and impact on agricultural productivity, we need to realign the existing (Provincial Agriculturists, Agricultural Productivity Coordinating Officers, Provincial Rice Focal Persons, R&D heads of Universities and Colleges) to the updated rice technologies, ICT-based resources and tools, n rice/agriculture being offered by PhilRice, IRRI and ATI so that they can serve as conduits in informing their stakeholders about these, and tap other extension intermediaries (Agricultural input providers, Seed Growers) as they are recognized as one of the primary sources of farm information of farmers, these groups must now be formally recognized for their role in the extension system. We must

engage and re-engage them in a more meaningful and productive manner so that they could help the government in providing timely science-based information and technology. The activity aims to give this group a broader perspective of the current and future challenges in agriculture being faced by the farmers who produce our food and the need to do more for our farmers to be more competitive.

Activities:

- Conduct of Knowledge Sharing and Learning Activity for Private Rice Knowledge Intermediaries in Calabarzon on May 18, 2016 at PhilRice LB station.

- Conduct of Knowledge Sharing and Learning Activity for Student Rice Knowledge Intermediaries at the University of the Philippines Los Baños on October 17, 2016.

- Conduct of Knowledge Sharing and Learning Activity for Student Rice Knowledge Intermediaries at Cavite State University on November 18, 2016.

Results:

- Station Tour:6 Stations were arranged for the participants to be introduced to PhilRice Los Baños' Activities. The tour consisted of six stations, which showcased the exhibition of PhilRice farm machineries, Learning Farm, Plant Breeding Activities, Azolla production, Rice chemistry Laboratory activities and tissue culture laboratory experiments.

- Rice Tekno Klinik on Climate-ready TechnologiesThe Participants were given a brief background regarding Climate change and its effects, and were updated on PhilRice's climate-ready technologies like the Intensified Rice-based Agri-Biosystems (IRBAS) project, Reduced Tillage Technology (RTT), Nutrient Management using the Minus One Element Technique (MOET) and the Leaf Color Chart (LCC), and Controlled Irrigation.

- Knowledge-Sharing and Learning ActivityThe Knowledge Sharing and Learning Activity showcased the various means by which extension intermediaries can link with agriculture agencies and avail of latest technologies and information support their effort in helping the farmers. The Agri-based ICT tools presented were the Rice Crop Manager (RCM), Farmers' Contact Center (FCC), MOET app, Rice Doctor (RD), PhilRice Text Center (PTC), Rice Knowledge Bank (RKB), Pinoy Rice Knowledge Bank (PRKB) and e-Extension. These resources were presented in an interactive format, and each topic featured an actual demo wherein the participants were taught and asked to experience exactly how the ICT-based resource can be accessed/used. The Resource person for each ICT tool were from PhilRice (PTC, PinoyRKB, MOET app v2.0) and from the partner agencies, ATI (e-Learning and FCC) and IRRI (RKB, RD and RCM).

Commitment Ceremony

After the discussions and hands-on lectures, the participants watched the final video where it was emphasized that being rice extension intermediaries, they have a big role in complementing existing government efforts. They were challenged to take on a more active role in rice extension in their own capacities. During the commitment ceremony, each organization presented their pledge on how they will help the farmers. This ceremony is very symbolic as it aims to inculcate into the mind and hearts of each participant that they have a big role to play as rice extension intermediaries and that they are now a part of the rice extension system.

Private Rice Knowledge Intermediaries, May 18, 2016

- Sorosoro Ibaba Development Cooperative – Will include learnings in KSL in their training curriculum for farmers.

- Planters Products Inc. –Will report all the topics discussed in their R&D department that have direct contact with farmers.

- Syngenta Philippines Inc – Will be teaching the new technologies, especially the apps to their farmers.

- Mabijon Enterprises – Will continue giving extension work on how to increase crop yield, and how to develop microbial environment to prevent crop losses.

- CARD SME Bank – Will give additional Financial need and Technical support to farmers; The participants from the company will share knowledge they gained in the KSL activity.

- SIKAP BIDANI – They will now share the new knowledge they learned to their clients in Magdalena, Liliw and Nagcarlan Laguna.

- Ahon Sa Hirap Incorporated (ASHI) – Will be sharing their

acquired knowledge to the farmers. They will also teach their farmers to be entrepreneurs, how to be successful businessmen and not to rely on middlemen/agents.

- Allied Botanical Corporation – Will give technical knowledge to the farmers and share new technologies learned specially the new info like LCC, MOET.
- BayangPinoy – Will serve as conduit of farmers' products to market.
- LGU Magdalena – Will re-echo learned technologies to farmers.
- 1M Agro fuel Development Cooperative – Will help famers through seeds and fertilizer subsidy.

Student Rice Knowledge Intermediaries of UPLB (October 17, 2016)

- Work as future extension officer/ worker #parassabayan.
- Bigyan sila ng impormasyon sa mga available na ICTs na ginawa para sa kanila.
- How to helpfarmers in a simple way: 1. Don't waste rice; 2. Repeat step 1 everyday.
- Using what ive learned in my DEVC courses once I join agricultural projects in the future.
- I will promote all the knowledge resources so they can be maximized and used by all.
- Promoting ICT- based tools and apps.
- Bridge the existing Gaps through DevCOm interventions.
- I will work/ take part in agriculture projects in the future.
- Kumain lang ng kanin na kayang ubusin. #Riceponsible
- I-communicate thru articles on material kung paano makakatulong sa farmers.
- Avocate participatory DEvCOm in farming communities to empower them.

- Be an intermediary for rice knowledge literacy. Tell my friends and family about what Ive learned today. Stop/void wasting rice.
- Give out farmers' contact center details to people who have connections to farmers
- Magiging riceponsible.
- Use social media to share rice issues esp those that directly affect farmers somorepeople especially the youth will know and care for our farmers.
- To share whait I have learned in this seminar to the farmers I encounter I the field.
- Share to farmers (relatives) thee ICTs and lessen rice leftovers.
- I promise to take/ eat only what I can finish.
- To expedite the distribution of lands for the farmers and to establish a transparency system to track the process of achieving their right.
- Hindi na ako oorder ng sobrang rice tapos di ko uubusin.
- I will commit myself to deliver the important information o farmers for them to acquire quality and high riceyield. I will popularize info with a heart.
- More educationaldiscussion on the current sit of farmers. " Magmulat and take action".
- Hindi magsasayang ng pagkain; Give back to the community after graduation; Apply my DevCom and technical knowledge to help the farmers.
- I commit to eat enough amount of rie. Ask others to do the sae. #NoToFoodWaste.
- Hindi ako magsasayang ng kanin/pagkain.
- Hindi ko sasayanin ang mga pagkain na kakainin ko.
- To listen to their voices, which cn help them solve their problems and contribute to the solution to their problems.

- Kukuha lang ng sapat na kanin and kakain na g bahaw.
- Start change through practice and share what I've learned.
- I will help our farmers in my own little way.
- I can help our farmers through being conscious in consuming rice in my everyday living. I'll also utilize the power of socialmedia in advocaion it among my networks

.

- I will help my farmer neighbors improve their yield by offering them help in accessing the mentioned online/mobile resources.
- Advocate and disseminate trueand factual information online.
- I will give them understandable and usable information.
- Pahalagahan ang lahat ng ginagawa ng mga magsasaka
-

Student Rice Knowledge Intermediaries of CavSU (November 18, 2016)

- I will help farmers commit and register in PhilRice text center to learn more about agricultura; technologies and farming practices.
- Mangalap ng information, IPAGKALAT ang information, TUMULONG sap ag unlad ng Agrikultura. To continually educate and inspire the new generation of future farmers and agriculturist to devote, share and educate the farmers to help and improve the lives of every filipino. -Jessie C. Perlando CVSU Professor.
- I will help farmers commit and register in PhilRice Center to learn more about agricultural technologies and farming practices Farah Faye V. Dela Cruz, CVSU Indang.
- Hindi mag aaksaya ng pagkain. Pagtulong sa pagtatanim. Pagkuha ng kursong Agrikultura. Pag aapply ng nalalaman sa farmer Romelson L. Rollo.
- More technology. Maging effective na Intermediary. Sherwin Balili.

- Give support and Finances for increasing rice production. Give information to my learning and knowledge. After 10-15 years, give my support to improve learning of farmers. Support Agriculture. Tuunan ng pansin ang mga mahihirap na magsasaka. Arnel D. Villanueva.
- I will encourage students to love agriculture, teach them well and train thm to become efficient agriculturist in the future.
- Ibahagi sa aking kakayahan amg ma kaalaman kong natutunan at matututunan pa saaking kapwa filipno lalong lalo na ang ating mga magsasaka. Ang ipaalala sa mga filipino ang halaga ng agrikultura't magsasaka't fisherfolks sa ating bansa.
- Magtatapos ako ng kurso ko at ibabahagi ko ang kaalaman ko sa mga magsasaka Justin Kyle Rivera.
- I will help farmers by giving them an idea like in the rice doctor so they will know some idea to their plants/ rice plant Heidi Sabel B. Amparo.
- Bilang isang agriculturist, maitutulong ko sa mga farmrs ang aking mga natutunan sa aking pag aaral at ang mga shinare ninyosa amin ngayong araw. Irene May Encapas.
- Bilang isang estudyante, tutulong ako sa farmers sa pamamagitan gn pag gamitng e-learning, rice knowledge bank at pagshare ng contacts 09209111398 Arlon Ersando.
- Share knowledge. Apply and Share Moriah.
- Share all the things that I've learned and experienced in taking up BAE as my course Maria Lorraine C. Garcia.
- Promoting sustainable agriculture and helping farmers by recommending proper and applying farm techniques. Mark Aljohn F. Landicho.
- I can help our farmers by simply not wasting food, if ever I can I will share my knowledge to them and use the apps that are introduced to us now. Erica Mae Bago.
- Commit to share everything I learned about ICT-based resources to farmers. Commit to promote agriculture to my friends by good impression.Commit to shre contact numbers for the farmers who needed if im not a professiona farmer or

agriculturist. Commit to promote a sustainable agriculture by what I learned in this activity. Commit to use what I learned to be a successful and professional farmer. Rovieanne C. Gacila.

- Educate and encourage the sudents to practice agiculture stay in the field Rollieson Peraldo.
- By sharing all my knowledge and the things that I know that will help our farmers in increasing their yield and proper way of controlling pest Vidallo Alexis V.
- Pangako ko sa mga kapwa ko agriculturist at farmers na akoy agriculturist at farmers na ako'y makaka graduate para makatulong sa kapwa at magplaganao ang pagmamahalan sa mundo Noel Makakulay.
- To become a successful agriculturist to help and share iformation nd inspire children to engage ingriculture Cyrus lontoc.
- I advocate all student to take the course of agriculture or any related courses.
- I share idea how to improve their work. And By giving and teaching them how to connect to our government for the support of agriculture.
- Help the farmers by promoting to them the new technologies that they can use like gadgets or any electronics that can help them from their farm works like the ICT tools or be excellent intermediary.
- I will share idea how to improve their work. And by giving and teaching them how to connect to our government for the support to agriculture.
- Encourage the next generation to choose agriculture. Lessen the use of inorganic fettilizer. Help to improve the technologies. Sharing some knowledge. Help to increase yielding. Lester C. Romelo.
- I will help promote agricoolture. I will not waste agricultural products Nica Chelsea.
- Alamin yung problema nila. Tapos mag search then yung nakuhang sagot ay ibahagi sakanila. Quin.

- Thru Knowledge. Focus on what matters Cha.
- Bilang estudyante, iagagalang, irerespetoat ipgmamalaki ko an gating mga farmers. Bilang agriculturists naman, tutulong ako sap ag unlad ng ating bayan. Sheila Baldoz.
- Bilang isang estudyante, tutlong ako sa mga farmers sa pamamagitan ng pag enourage/pagturo sa kanila upang gamitin an gaming mga natutunan; an mga ICT tools. T upng pahalagahan ang ating Agrikultura.ECAI.
- Give them some learnings, seminars, activities, program and technology from the government Rossniel M. Mojica.
- I will be a successful agriculturist so I can teach the farmers new technology Regin Marty M. Malvataan.
- Be an efficient Intermediary! Kenneth Casabal.
- Iseshare ang contact numbers. Share MOET app at iba pang websites about sa agriculture. Maing efficient intermediary. Guilmar N. Gilberto.
- I will help the small holder farmers through sharing my knowledge about agriculture Ira Miel Venidiano.
- I will help our farmers and agriculturists and become the very best Rey Vincent Agustin.
- I don't waste my food. Hindi ako magsasayng ng kanin. Dominic De Guzman.
- I will promote the agricultural courses. I will help farmers through planting trees.
- I will be a successful "agriculturist" and I will be better intermediary in all farmers that needs our help. #Kawanggawaparasamagsasaka.
- I am very proud of being (an) Agricultural Entrpreneurship (student) and I want to promote the agriculture for plants and others to all people and important for farmers.
- Through agricultural extension communication which I'v learned from my university to become a bridge to the farmers. What they can make for the improvement in planting rice.

- And through sharing those websites from the event held at CavSu main.
- Using organic feritilzer. Providing some technical skills about farming John Michael Gatdula.
- Help the farmers by sharing my knowledge and promote the new technologies Ezikiel Casama.
- Pangako ko mag aaral ako ng Mabuti at pagnatapos nako hindi ko makkalimutan an mga mahihirap na farmers na naghihirap ng mabti para sa bayan Diana Adon

IX. Anthropological and Socioeconomic Characterization of Bicol's Agta Indigenous Peoples: Phase II of Enhancing the Capabilities of Bicol's Agta IPs through Palayamanan Approach 199A-RTF-031

JLO Canilao, JNPuerto, GC Nunez, and MM Movillon

The on-going Phase II activities are conducted through the continued financial support of the Department of Agriculture Regional Field Office V (DA RFO-V). PhilRice Ligao is taking over the technical intervention while the social component and monitoring and evaluation are handled by PhilRice Los Baños researchers. The target sites prioritized this 2016 for the conduct of trainings and baseline surveys on the family dynamics is in Albay, Bicol. Seed distribution and training were also conducted in the two sites. The four-volume coffee table book are already printed and the coffee table book was launched this October 12, 2016 at Naga City, Bicol. Continuous training on Palaycheck and Palayaman approach were done during the implementation of the project this year. The end-goal of the project is to enhance the productivity and income of the IPs through Palayamanan systems approach to achieve food security and poverty reduction in the communities. Necessary documents were secured prior to the conduct of the study to comply the requirements of National Commission of Indigenous People V. A series of technical and hands-on trainings and on-farm demonstration on rice production and Palayamanan system and rice-based technologies were conducted.

Activities:

- Processed MOA for the conduct of the Phase II Project.
- Rice seeds procured at Philrice LB and for distribution at PhiliRice Ligao.

- In February 2016, meetings with the NCIP Offices in Iriga City, Camarines Sur and Ligao, Albay were held. This is for the conduct of the Phase II project and processing of the research application.
- In March 2016, an appointment with Ms. Lee Arroyo, OIC-Executive Director of NCIP regarding the launching of the coffee table book was conducted.
- In May 2016, community conference in the two sites were conducted.
- In June 2016, seed management training in Tiwi and Polangui was conducted in collaboration with the UPLB-IPB-CSC; resource speaker, Ms. Agripina Rasco. There was also vegetable seed (pinakbet seeds) sponsorship by the Institute of Plant Breeding.
- In June-July 2016, baseline data gathering on the family dynamics of the Agta IPs communities in the two sites was conducted. Moreover, there was an involvement of two (2) BS Development Communication interns from the University of the Philippines – Los Baños for the production of one (1) AVP, one (1) brochure and theme conceptualization for launching of the event.
- From February – June 2016, continuous follow-ups for the updates of the printing and processing of papers for the coffee table book.
- Continuous trainings were conducted regarding the Palaycheck and Palayamanan System in the two sites.
- From November - December 2016, the baseline survey regarding family dynamics of Agta IPs communities in the two sites were encoded and analyzed.

Results:

- There were supply of rice seed distributed in the two sites for the Palayamanan demo farm in Polangui and Tiwi, Albay.
- The interns have produced one (1) AVP, one (1) brochure and theme conceptualization for coffee table book launching event.

- The seed management training in collaboration with IPB has increased and enhanced the knowledge of the Agta IPs farmers.

- The baseline data on family dynamics was gathered and analyzed.

- The four-volume coffee table book were printed and are housed at DA RFO 5.

- The Coffee Table Book was launched last October 12, 2016 at Naga City, Bicol.

- The MOA was processed and signed with NCIP, PhilRice and IPs.

- Fifty five (55) farmers are currently attending on season long training on Palaycheck and Palayamanan system in Barangay Danao, Polangui, Barangay Joroan, Mayong and Misibis, Tiwi, Albay. On pre-test conducted in rice production the lowest score obtained was one (1) in all barangays and highest in Barangay Danao was 9 while 14 in Brgy. Joroan, Tiwi and Misibis out of 30 questions. These figures imply that farmers had limited knowledge in rice farming. After series of training in rice production post test result in Barangay Danao, Polangui shows that the lowest and highest score obtained by the participants were 6 and 21 respectively while in Barangay Mayong, Joroan and Misibis lowest score obtained was 5 and highest score was 19. This implies that there is an improvement in terms of technical know-how in rice production. IPs farmers were also trained on vegetable, organic fertilizer, mushroom and abaca production. Hands-on exercises were employed during the conduct of the training. Experts from PhilFIDA, UPLB - Institute of Plant Breeding and Provincial Agricultural Office of Albay were invited as resource person to handle special topics such vegetable, organic fertilizer and Abaca production.

- Two Palayamanan model farm were established in Brgy. Danao Polangui, Albay which served as an avenue to showcase the different technologies and learning field. Upland rice, mung bean, peanut, eggplant, okra, sweet potato and lemon grass were planted on Palayamanan model farm. Vermibed was also constructed in one palayamanan area which will serve as source of organic fertilizer and source of African night crawler in case there are some farmer participants who wants to establish their own vermibed. Farmer Cooperator Edelita Bodino harvested 70kgs of upland rice in 1546m^2, the yield was affected by drought at Panicle Initiation stage, blast and infestation of rice bug. However, farmer cooperator Felipe Canuel failed to harvest upland rice due to heavy rains and strong wind at flowering stage of the crop and also due to severe infestation of rice bug.

- As to the agronomic characteristic of PSB Rc23 planted in Brgy. Danao, Polangui Albay, average plant height was 110.2cm, average no. of leaves 5 and average of tillers 13. PSB Rc23 is suitable in the area but rice bug should be controlled.

- On the MOET set-up in Brgy. Joroan Tiwi, result revealed that the soil were deficient in Nitrogen, Potassium and Sulfur.

Table 6. Agronomic data of PSB Rc23 at mature grain stage.

Sample No.	Plant height (cm)	No. of leaves	No. of tillers
1	100	4	21
2	108	5	18
3	110	6	7
4	120	6	12
5.	113	5	10

- Printings of 500 sets Coffee Table Book with four volumes thru the financial support from Department of Agriculture Region V. Partial distribution of the said books were now being conducted; books were already distributed within Bicol, Region IV, and NCR (i.e. Department of Agriculture, UPLB, National Economics and Development Authority, University of the Philippines, and Department of Education, etc.)

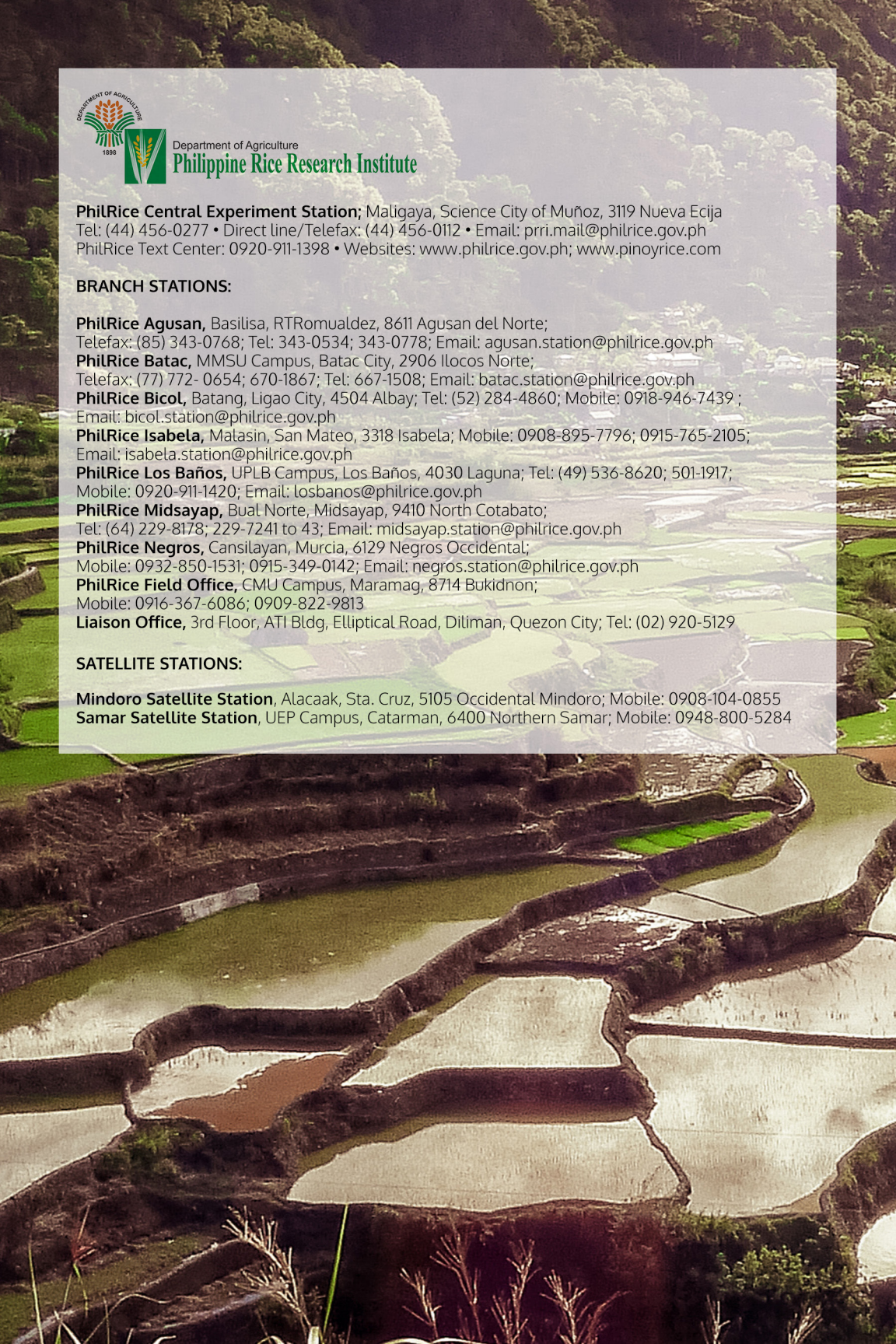
- Coffee table book was also launched last October 12, 2016 at Eurotel Naga City. It was attended by the representative of IPs communities (Brgy. Gatbo Ocampo and Brgy San Pedro, Iriga Cam. Sur; Brgy. Danao, Polangui, Brgy., Mayong, Joroan, Misibis and Sitio Tabgon, Tiwi Albay), National Commission on Indigenous People V (NCIP V), Department of Agriculture Region V, PLGUs and LGUs, Media and State Universities and Colleges (SUCs).

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

List of Tables

	Page
Table 1. Technology Used by the Participants of Palayabangan DS 2016.	5
Table 2. Technology Used by the Participants of Palayabangan WS 2016.	6
Table 3. Details of the Quarterly Seminar Series of PhilRice Los Baños, 2016.	9
Table 4. List of station tours/ visitors in PhilRice Los Baños, January to December 2016.	10
Table 5. List of book agency donors and inventory, January – December, 2016.	13
Table 6. Agronomic data of PSB Rc23 at mature grain stage.	41



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