2017 National Rice R&D Highlights

PHILRICE MIDSAYAP





Philippine Rice Research Institute Central Experiment Station Maligaya, Science City of Muñoz, 3119 Nueva Ecija

1

PhilRice Midsayap

Branch Director: Ommal H. Abdulkadil

Executive Summary

PhilRice Midsayap has a physical land area of about 96 ha and it is mandated to develop and promote location-specific rice and ricebased technologies for Southwestern Mindanao. Its RDE thrust include the development and production of high-yielding, pest-resistant and high-quality rice varieties; integrated pest management options and decision tools; and effective and cost-efficient technologies.

Learning Farm, Palayabangan, and Trainings

OH Abdulkadil, WP Bugtay, and RP Jayme

The Clean GPS On-farm Learning Center, which is primarily used to show integrated and diversified rice-based production systems, provides experiential learning opportunities to farmers, student-trainees, and other stakeholders. It aimed to produce holistic and comprehensive technology packages and develop alternative inputs for sustainable and cost-effective rice and rice-based farming systems.

In 2017, 21 students from University of Southern Mindanao, Kabacan, Cotabato; Foundation College of Science and Technology (CFCST), Arakan; Upi Agricultural School (UAS), Upi, Shariff Kabunsuan; and Maguindanao State University (MSU) participated in the station's Rice Boot Camp. Other than lectures on rice production, they had field practicum on land preparation, seed preparation, seedbed construction, installation of observation well, drum seeding, soil sampling, Minus One Element Technique, and Agro Eco-System Analysis.

Twenty-five PhilRice staff also participated in a rice appreciation course. They learned about basics of rice science and technology, PhilRice technologies, and current trends and issues related to the Philippine rice industry. Participants gained an average of 70.48 % on knowledge after the training.

One-Stop-Information Shop (OSIS)

OH Abdulkadil, RS Salazar, and JGP Balagtas

This study was conducted to provide rice stakeholders access on latest agricultural development and information through the establishment of PhilRice Corner in North Cotabato high schools. Five National High Schools

2 Rice R&D Highlights 2017

were identified: Midsayap Dilangalen National High School, Pikit National High School, Gil Manalo/ Kabacan National High School, Matalam National High School, and M'lang National High School.

The station will provide book shelves and knowledge products while the school will manage the center.

Lakbay Palay Midsayap

FPJ Tadle and JO Edraira

PhilRice Midsayap conducted its annual Lakbay Palay or Farmers' Field Day in July 20, 2017, which was attended by 625 farmers and other participants. Regional Executive Director of RFO XII Engr. Milagros C. Casis was the guest speaker.

With the theme, "Magsasaka na, negosyante pa!," the Lakbay Palay participants toured the 64-ha seed production area, witnessed the ceremonial harvesting of Combine Harvester, and learned about mushroom growing. Talakayan was conducted for farmers to raise their concerns and the agencies to provide recommendations and solutions.

PhilRice Midsayap Agromet

Peter Loyd P. Sabes

The console of PhilRice Midsayap's agromet station was restored in November 2017. Before its repair, the agromet station was not used as its data recording was not working properly. The equipment also failed to record wind speed as its anemometer was broken.

Intensified Rice Based Agribio-System (IRBAS)

FPJ Tadle, LMA Domo, and PLP Sabes

IRBAS in PhilRice Midsayap has four components: (1) rice seed production, (2) small-scale mushroom production, (3) vermi compost production, and (4) vegetable production. The rice enterprise obtained a net income of around P194,000 in the dry season and P184,000 in the wet season. This is about 58% higher than the income of farmers who conventionally grow rice. With mushroom enterprise, approximately P12-P15,000 per season is added to the income. Moreover, vermi composting and vegetable production provided an additional income of P14, 747 and P8, 450, respectively.

PalaYamaNayon: Transforming Rice Farming Communities into Rice-Based Enterprise Hubs in SOCCSKSARGEN and ARMM

FPJ Tadle, M Gandawali, WP bugtay, PLP Sabes, MD Lastimoso, and P Ostique

The project aimed to showcase location-specific, yield-enhancing and cost-reducing technologies in a 50-ha area; enhance the technical and organizational building and management capability of farmers and farmer organizations in undertaking rice and rice-based agro-enterprise; and develop a marketing plan by linking farmers to markets and financing institutions in the local rice value chain.

Technology demonstration farms were established in Midsayap, Cotabato located at Brgy. Central Glad and Brgy. Upper Glad-I with a total of 53ha. Farmers at Brgy. Central Glad (cluster 1) disposed 80 bags of dried palay products, 70bags of NSIC Rc 222, and 10 bags of NSIC Rc 308. NSIC Rc 222 was the most salable products at P1,200/bag.

Localization of Knowledge Products and Enhancing Knowledge Sharing and Learning Activities (KSL) *Peter Loyd P. Sabes and Raffy S. Salazar*

The gap between extension workers and farmers is one of the factors affecting agricultural productivity. Knowledge Sharing and Learning (KSL) offers a series of interactive activities that will help farmers become competitive and resilient.

Twelve KSL activities were conducted in Sarangani (3), Sultan Kudarat (1), and Cotabato (8) provinces. Videos on "Mga hamon sa agrikultura," "Bakit agrikultura," and "Bakit kailangan tulungan ang mga magsasaka at paano?" were shown. Rice technical updates and ICT-based resources and tools (www.e-extension.gov.ph, www.pinoyrice.com, and knowledgebank.irri.org, Rice Crop Manager, Minus One Element Technique Application, PhilRice Text Center and Farmer's Contact Center) were presented. Through this activity, 1,056 participants were trained to be rice extension intermediaries.

A KSL model farm was established in Brgy. Baguer, Libungan, Cotabato showcasing different methods of crop establishment and rice production technologies. Three "Be Riceponsible" campaign activities were conducted to 798 households, farmers, and students in two elementary schools and a barangay. Five exhibits were also displayed.

4 Rice R&D Highlights 2017

Accelerating Adoption of Sustainable Rice-Based Technologies

Ommal H. Abdulkadil and Datu Ali N. Sumlay

This study was conducted from April to December in ARMM and Region XII (Midsayap, North Cotabato, PPALMA, North Cotabato, Maguindanao Province). One of the activities aimed to help increase the yield of farmers, through series of training of Ulama/religious leader. Farmer to farmer extension approach was used in training Ulama/religious leader, farmer leaders, agricultural extension workers, and local executives.

There were 243 rice stakeholders trained on PalayCheck System and Palayamanan Plus. Twenty religious leaders were trained, 161 farmers, 25 barangay agriculture chairpersons, 19 AEWs, and 18 local executives.

Five technology demonstration were also established as learning sites of Bangsamoro rice farmers; helping them increased their yield from 2.97 t/ ha to 4.43 t/ha (yield with technology intervention). The average increased yield across study sites was 1.46 t/ha.

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

7

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

With a "Rice-Secure Philippines" vision, we want the Filipino rice farmers and the Philippine rice industry to be competitive through research for development in our central and seven branch stations, coordinating with a network that comprises 59 agencies strategically located nationwide.

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

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