

Quality Rice. Quality Life.



2017
National Rice R&D
Highlights

PHILRICE
BICOL



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

PhilRice Bicol

Branch Director: Victoria C. Lapitan

Executive Summary

PhilRice Bicol was primarily established to develop and disseminate strategies and technologies, which will make rice farming in calamity-vulnerable regions of Bicol and Eastern Visayas more resilient to climate change. Rice productivity was sustained in rice communities within the area by developing, adapting, and sharing technologies to create climate-resilient and sustainable rice production systems. These objectives are achieved through Learning Farm, Palayabangan and Trainings; One Stop Information Shop (OSIS); AgroMet; Palayamanan Plus; Laktay Palay; Rice Business Innovations System (RiceBIS); and localization of knowledge products and enhancing KSL activities.

Palayabangan and learning fields demonstrated farming practices and newly-released varieties. One Stop Information Shop (OSIS), on-station and satellite OSIS in SUCs and LGUs, were maintained with proper monitoring. Five exhibits were also conducted. Under Palayamanan Plus, book on rice-based farming systems model (PalPlus case Bicol) was drafted; nine mushroom production training were conducted; and a model of enterprise-driven agri-biosystems was established. Laktay Palay was conducted in October 25 with the theme, "A paraomang nagnenegosyo, asensado!" ("Ang magsasakang nagnenegosyo, asensado!"). There were 366 participants (203 female, 163 male).

Rice Business Innovation System (RiceBIS) project established a pilot site in Brgy. Busay, Ligao City, Albay and formed a cluster of 16 farmers. A 15-ha technology demonstration area was established. Four knowledge products in Bicol Naga dialect were produced. The station's agromet also consolidated weather data available for researchers' use.

Learning Farm, Palayabangan, and Trainings

KR Paliza, DB Bañares, and SM Oxales

This study was conducted to show integrated and diversified rice-based production systems that will provide experiential learning opportunities. It showcased and packaged technology interventions for farmers, trainees, walk-in visitors, and guests. Highlighted technologies included those developed by PhilRice and through the Palayabangan 10-5 Challenge.

In DS 2017, the learning farm showcased Alternate Wetting and Drying (AWD), Rice Crop Manager (RCM), Reduced Tillage Technology (RTT), and Minus One Element Technique. In 2017, it featured the practices of Bayer Crop Science (winner in the DS 2017 Palayabangan), AWD, MOET, and Nutrient Omission Plot Treatment. Rice growth stages were shown in small pails placed in a screen house, which served as specimen during trainings. Practicum area and learning shed were maintained for trainings and field visits.

Two Rice S&T training courses for PhilRice staff, Rice Boot Camp, IT Productivity Seminar, and Data Management and Analysis were conducted in the learning farm. It also provided experiential learning opportunities to OJTs and students.

The Palayabangan 10-5 Challenge, which started in WS 2013 until WS 2017, provided the venue for private companies, farmers, government, and non-government organizations to showcase their rice production technologies to attain 10t/ha at P5/kg of palay production. Nine private companies and two farmers joined the competition.

Bayer Crop Science produced the highest yield of 8.37t/ha and 6.4t/ha and the lowest production costs of P6.71 and 7.66/kg. The average yield for the dry season was 5.37t/ha and 4.04t/ha in the the wet season. The average production cost was P9.24/kg of palay in the dry season and P11.95/kg of palay in the wet season.

Promoting Rice R4D Through One-Stop Information Shop (OSIS)

RT Dollentas and MC Nayve

Through OSIS, farmers and agricultural extension workers were given timely access to information. The establishment of OSIS also opens new learning opportunities for agricultural extension workers and strengthen their linkage with PhilRice. Partnerships with other government agencies, farmers, and state universities and colleges in Bicol Region and in Samar and Leyte were also strengthened through OSIS establishment.

Agromet Bicol

JG Tallada, JP Quierra, and GC Nuñez

Weather monitoring is important in farm management, decision-making, and planning. Correct weather forecasting and reliable weather instrument help improve agricultural activities leading to better yield and profit in agriculture. PhilRice Bicol maintain the operation of Automatic Weather Station (AWS) and collate data on ultraviolet index, wind speed, leaf wetness, air temperature, air pressure, wind direction, air humidity, solar radiation, minimum temperature, and maximum temperature.

January and February were the coolest months with an average maximum temperature of 27.340C and 27.460C, respectively. Warm month starts in April until November with an average maximum temperature ranging 29.82-32.470C. Hottest month was in June with a temperature of 32.70C. Highest and lowest minimum temperature was recorded at 26.530C and 22.980C, respectively. Speed of wind was higher in January (4.85 kph), February (4.39 kph), and November (3.82 kph) at East North East direction. Wind direction is at South East from June to October. Wind speed became weak ranging 1.01kph-2.13kph from April to October. High relative humidity was also noted ranging 85.47-91.26 %. The national range varies from 71% to 85%.

The recorded solar radiation ranged from 150.53 to 485.29 w/m². Highest UV index, leaf wetness, and air pressure were recorded at 2.66 (November), 0.51 (January), and 1023.90 hpa (April).

Development, Establishment, and Assessment of Palayamanan Plus Model for PhilRice Bicol

GC De Peralta, MAC De Peralta, and GH Morente

PhilRice Bicol established and implemented the Palayamanan Plus project from 2014 to 2017 with seven rice and rice-based components: rice and rice seed production, vermicomposting, oyster mushroom production, duck egg production, azolla, tilapia, and vegetable production. Among the components, rice-rice production attained the highest gross margin. Lack of facilities and equipment for mushroom production has led to development of new techniques and innovations. Innovations that worked in oyster mushroom production included the use of rubber band to close the fruiting bag, which is easier, cost-reducing, and effective in reducing contamination and moisture loss. Pasteurization for 4-5 hours using plastic cover to seal and prevent steam from escaping and pasteurization using the steam-sharing pasteurization technique can also be used to conserve excess steam from the main pasteurizing drum.

Lakbay Palay PhilRice Bicol

Victoria C. Lapitan

The station conducted its Lakbay Palay on October 25. It aimed to increase the awareness of participants on rice and rice-based innovations. With the theme, “An paraomang nagnenegosyo, asensado!” (“Ang magsasakang nagnenegosyo, asensado!”), it specifically intended to showcase the station’s R&D projects and technologies and launch the RiceBIS Community Program. The activity was attended by 366 participants (203 female, 163 male). Palayamanan/edible landscaping, learning center/variety demo, Palayabangan 10-5 challenge, and farm machineries were shown to the Bicolano farmers and partner-organizations. Evaluation showed that the participants were “satisfied” of each of the program’s component: over-all coordination and organization, field tour, showcased farming technologies, open forum, and knowledge products.

RiceBIS was launched, and a taste test on brown, black, and red rice varieties was conducted during the program. Evaluation showed that 90%, 88%, and 85% of the participants were satisfied and enjoyed these varieties, respectively.

Development of Rice Business Innovation Systems (RiceBIS) Community in Bicol Region

VC Lapitan, MAC De Peralta, GC De Peralta, SM Oxales, MC Nayve, GCC Enot, ARS Rivera, and KR Paliza

The Rice Business Innovation Systems (RiceBIS) Community Program was implemented in Bicol Region in 2017. It aimed to monitor, establish, and evaluate a RiceBIS community that would serve as a farmers’ support system in carrying out rice-based enterprises. Specifically, the project aimed to implement a social mobilization and communication strategy to increase awareness, interest, and participation of target communities; organize and develop the technical and organizational capability of farmers and other stakeholders in support of the rice-based enterprise plan; examine the existing rice value chain including the production practices, needs, markets, partners, and opportunities in the communities; develop and implement rice and rice-based enterprise investment portfolio; establish a monitoring and evaluation system; and develop a built-in sustainability mechanism for the identified rice-based enterprises.

Partnership Building, Site Selection, and Cluster Formation

For Phase I, Brgy. Busay in Ligao City, Albay was identified as the pilot site.

Baseline survey for WS 2016 and DS 2017 of all RiceBIS farmer participants (16 farmers) and non-participants (16 farmers) was conducted while the WS 2016 baseline data in the web-based system was encoded.

Campaigns and Mind setting

PhilRice Bicol conducted series of briefings to partner agencies (City Agriculture Office-Ligao and DA RFO 5) to orient them about the purpose, possible impact of the project in the identified community, and the counter parting or support to the project. The farmers were also oriented on agripreneurship in an attempt to change their perception, attitude, and practices in this farm endeavor.

A RiceBIS briefer in Bicol-Naga dialect titled, “Papano ta matatabangan an mga Paraoma?” was also produced.

Establishment of Techno Demo

A technology demonstration of 15ha was established during WS 2017 at Brgy. Busay, Ligao City, Albay. NSIC Rc222 seeds (2 bags at 40 kg/bag per 1-hectare area) and fertilizer (complete and urea) were provided to the farmer-cooperators. PalayCheck recommendations and Minus One Element Technique-based fertilizer application were introduced to the farmer-cooperators.

Weekly monitoring of the techno demo area was conducted to ensure readiness of participants during regular activities in the field. Rice combine harvester was shown during harvesting.

Capacity Enhancement

Season-long training on rice production based on the PalayCheck System was conducted to 16 farmer-cooperators. Schedule of the training coincided with farm activities or crop growth stages.

Localization of Knowledge Products and Enhancing the KSL Activities

Kristine R. Paliza and Marino C. Nayve

Four knowledge products in Naga dialect was produced under the study: Alternate Wetting and Drying, Integrated Nutrient Management, Leaf Color Chart, and RiceBIS brochure. The localization of materials was based on demands relayed in the PhilRice Text Center.

KSL activities for Be Riceponsible and Ready SET (Save Rice, Eat Healthy, and Try Brown Rice) Rice campaign were conducted during the National Rice Awareness Month.

Abbreviations and acronyms

ABA – Abscisic 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 – cytoplasmic 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
 DWRSR – 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
 IRR – 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
 mtha¹ - 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



Philippine Rice Research Institute

Central Experiment Station
Maligaya, Science City of Muñoz, 3119 Nueva Ecija

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).

PhilRice Central Experiment Station; Maligaya, Science City of Muñoz, 3119 Nueva Ecija; Tel: (44) 456-0277 -
Direct line/Telefax: (44) 456-0112; Email: prri.mail@philrice.gov.ph; PhilRice Text Center: 0917 111 7423;
Websites: www.philrice.gov.ph; www.pinoyrice.com

BRANCH STATIONS:

PhilRice Agusan, Basilisa, RTRomualdez, 8611 Agusan del Norte; Telefax: (85) 343-0768; Tel: 343-0534; 343-0778; Email: agusan.station@philrice.gov.ph
PhilRice Batac, MMSU Campus, Batac City, 2906 Ilocos Norte; Telefax: (77) 772- 0654; 670-1867; Tel: 677-1508; Email: batac.station@philrice.gov.ph
PhilRice Bicol, Batang, Ligao City, 4504 Albay; Tel: (52) 284-4860; Mobile: 0918-946-7439 ; Email: bicol.station@philrice.gov.ph
PhilRice Isabela, Malasin, San Mateo, 3318 Isabela; Mobile: 0908-895-7796; 0915-765-2105; Email: isabela.station@philrice.gov.ph
PhilRice Los Baños, UPLB Campus, Los Baños, 4030 Laguna; Tel: (49) 536-8620; 501-1917; Mobile: 0920-911-1420; Email: losbanos@philrice.gov.ph
PhilRice Midsayap, Bual Norte, Midsayap, 9410 North Cotabato; Tel: (64) 229-8178; 229-7241 to 43; Email: midsayap.station@philrice.gov.ph
PhilRice Negros, Cansilayan, Murcia, 6129 Negros Occidental; Mobile: 0932-850-1531; 0915-349-0142; Email: negros.station@philrice.gov.ph
PhilRice Field Office, CMU Campus, Maramag, 8714 Bukidnon; Mobile: 0916-367-6086; 0909-822-9813
Liaison Office, 3rd Floor, ATI Bldg, Elliptical Road, Diliman, Quezon City; Tel: (02) 920-5129

SATELLITE STATIONS:

Mindoro Satellite Station, Alacaak, Sta. Cruz, 5105 Occidental Mindoro; Mobile: 0908-104-0855
Samar Satellite Station, UEP Campus, Catarman, 6400 Northern Samar; Mobile: 0948-800-5284

