



NOTABLE ACCOMPLISHMENTS

January to June 2024

To achieve its goals, DA-PhilRice carries out 87 rice research for development (R4D) projects aimed at enhancing national capabilities in rice R4DE. These initiatives produce valuable information, varieties, machines, and crop management options. These outputs are disseminated through the conduct of trainings, field/technology demonstrations, exhibits, and various knowledge products, in collaboration with partners and through the use of online and offline media platforms.

Highlights of accomplishments are as follows:

Strategy 2: Mechanize and modernize agri-fishery production systems

PAP 1.1: Conduct of regional rice R4D programs for Luzon, Visayas, and Mindanao

Seed Production

1. Produced were 226,532 kg of registered seeds from 47.705 ha with 99.74% seed production efficiency (SPE) and 42,853 kg foundation seeds from 9.07 ha with 94.82% SPE this 2024 DS at DA-PhilRice CES.

Integrated Crop Management

2. The direct-seeded rice package of technology (DSR POT) using different machines for crop establishment (drone seeder, drum seeder, paddy seeder, and seed spreader) was compared to manual seeding during the dry season using 40 kg/ha seeding rate. Each machine was evaluated in a 2,500 m² field plot. Fertilizer application was done using a drone. The highest yield of 9.6 t/ha was obtained using drum seeder and paddy seeder. The drone seeder yielded 8.8 t/ha while seed spreader had 8.1 t/ha. Broadcast seeding using the seed spreader and drone seeder facilitated faster crop establishment compared to row-seeding using the paddy and drum seeders.

Extension Support, Education, and Training Services (ESETS)

3. To ensure continued DA-PhilRice presence in the R4DE communities, ICT and non-ICT-based knowledge-sharing and learning (KSL) platforms were utilized.
 - ✓ From January to June 2024, 1,219 users visited the online 360 virtual tour site (<https://360tour.philrice.gov.ph>). Eighty-five groups (2,783 individuals: 1,652 males and 1,131 females) toured the Institute and gave an Excellent rating to visitor management. Majority of visitors were walk-in (31%), and collaborators/ scientists (21%).
 - ✓ Sixteen RCEF *PalayAralan* sessions featured rice production and management practices following the rice planting calendar to educate and empower farmers and help them with decision-making. Livestreamed via the DA-PhilRice Facebook page, these webinars on seed selection; land preparation; crop establishment; nutrient water, insect pest, disease, and weed management; harvesting; and post-harvest management had 1,178 live viewers, 65,151 post views, 5,735 engagements, and reached 116,688 individual social media users.
 - ✓ Four DS *Lakbay Palay* activities were conducted at CES and branch stations from February to April 2024. These attracted over 3,300 farmers and partners from various provinces. The DS *Lakbay Palay* at DA-PhilRice CES reached 96,690 people through our official DA-PhilRice Facebook page. The March 2024 event was themed '*Bida and Sama-sama sa Masaganang Bagong Pilipinas*'.
 - ✓ Eighteen printed and audio-visual IEC materials and collaterals on RCEF Extension program services and science-based rice production were produced and distributed based on the needs of RCEF beneficiaries. A specific communication channel or platform was prioritized based on their media preference, accessibility, credibility, and consumption.
 - ✓ Twenty-three text blast messages on rice production, El Niño, pest management, farm mechanization, and RCEF-related relevant information were sent via the DA-PhilRice Text Center. Priority are areas not covered by RCEF Farm School training, reaching 650,039 farmer-recipients.

Better Rice Communities.

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- ✓ Forty-three news and features on RCEF Seed and Extension Programs were uploaded to the DA-PhilRice website; 27 radio segments on RCEF activities/trainings, DSR, rice machines, and weed management were broadcasted over 7 radio stations. The DA-PhilRice Facebook page uploaded 58 original posts on training, rice crop management tips, and successful RCEF beneficiaries. Fourteen cropping calendar-based videos were uploaded to DA-PhilRice YouTube with 226,797 reach.
- 4. A series of consultation workshops involving DA-PhilRice experts and researchers, trainers, and development staff were conducted starting February 2024 to come up with a revised PalayCheck System for Irrigated Lowland Rice. The PalayCheck is DA-PhilRice's primary platform for promoting research-based rice technologies to increase farmers' yield and reduce production cost. The proposed updates and revisions are based on research updates, feedback from trainees, and lessons gained from implementing extension initiatives.

Technologies developed for coping with negative impacts of climate change

- 5. Farming system technologies that aid in climate change resilience such as Sorjan cropping system, rice-duck-vegetable integration, vertical tower hydroponics, and rice-based mushroom production are continuously maintained and featured at the *Palayamanan* model farm at PhilRice CES.

The rice-duck-vegetable integration had a gross margin of ₱25,227.89 and income of ₱43.11/m². On the other hand, the Sorjan cropping system produced a gross margin of ₱37,734.91 and net income of ₱50.57/m² from various vegetables planted on raised beds and rice and taro on sinks.

The vertical tower hydroponics – grown with pechay, mustard, and lettuce – had gross sales of ₱48,209.19. The rice-based mushroom production had 55.1 kg from one batch of fruiting bags produced in 2024 DS and two batches produced last year. One challenge in mushroom production is the availability of sawdust which is part of the substrate used for production. Pure cultures and grain spawn of oyster and *Volvariella* mushrooms are being maintained in the laboratory. In the rice production component, aerobic rice technology was adopted during the DS. This technology is cost-reducing since it employs dry land preparation, dry seeding, and alternate wetting and drying. Two rainfed rice varieties – NSIC Rc 576 and Rc 578 – were used and yielded an average of 9.2 and 8.4 t/ha, respectively.

Socioeconomics and Policy Research and Advocacy

- 6. Identified topics for a policy brief material, mainly for the use of DA and DA-PhilRice management, and policymakers, include crop diversification, carbon credit, farmer clustering, provincial rice competitiveness, ratooning, and challenges in implementing climate change policies and programs/projects. The policy briefs on crop diversification and carbon credit were drafted. The data and write-ups of the rice industry briefer has also been partially updated. This material will be useful in understanding the trends and current status of the rice industry.
- 7. Technical notes/inputs were provided to: (a) TWG on IAC-IMO – (i) potential effects of temporary lowering rice tariff rates in Q2 2024, and (ii) factors explaining for the increases in rice retail and farmgate prices; (b) DA-International Affairs Division – comments and suggestions on the document '*Principles to Prevent and Reduce Food Loss and Waste in APEC Economies*'; (c) ARTA – how to reduce rice production cost in the Philippines; and (d) Congress of the Philippines – provided inputs to PENCAS law during the stakeholders' consultation meeting.
- 8. Two lobbied municipal ordinances on drought adaptation and on digital agriculture were enacted in Bongabon, Nueva Ecija in February 2024. Policy brokering activities continued in four sites in Mindanao: Cabadbaran City and Las Nieves in Agusan del Norte, and Cantilan and Carrascal in Surigao del Sur.

PAP 1.2: Location-specific rice R4D projects in support of the National Rice Program and in line with the National Agriculture and Fisheries R4D Agenda

Integrated Crop Management

- 9. Regular monitoring was conducted in Gonzaga and Sta. Ana, Cagayan. Recurrent fall armyworm (FAW) invasions for four consecutive years since 2021 were recorded. The documented re-invasion of FAW in the rice seedbeds in both municipalities this 2024 DS showed a relatively low population of 1-22 larvae/m² with up to 90% damaged leaves from observations of its infestation between April 25 to June 6. FAW

infestation was also documented in Gonogon, Bontoc, Mountain Province (March 18), and its presence at DA-PhilRice CES (February 21).

10. Eighty-six *Fertilizer Derby* participants established the DS 2024 field trials in six project sites: CES (20), Isabela (22), Bicol (10), Negros (11), Agusan (9), and Midsayap (14). The different nutrient management protocols include using granular inorganic fertilizers, inorganic foliar, inorganic+biostimulant, inorganic+biofertilizer and biostimulant, inorganic+biofertilizer, inorganic+inorganic foliar, and biostimulants foliar application. Harvesting commenced in March 2024 and the data processing is ongoing. The DA-PhilRice nutrient management protocol and Farmer's Practice in each station remained as protocols for comparison. Each field site was prominently featured during the *Lakbay Palay* program at respective locations.

Strategy 3: Develop and improve postharvest systems and infrastructure

PAP 1.1: Conduct of regional rice R4D programs for Luzon, Visayas, and Mindanao

Machines and Mechanization

11. A locally-designed riding-type paddy seeder specifically developed for direct wet-seeding with eight rows at 25 cm row spacing was evaluated at the two-hectare REMD Model Farm during the DS 2024. The seeder has a field capacity of 2.1 ha for inbred varieties at seeding rate of 30 kg/ha, and 2.4 ha for hybrid varieties at 20 kg/ha seeding rate. Second prototype of the RoboSeeder features a 1-inch diameter shaft, five drums, and an added mud-guard to enhance performance. The RoboSeeder is a remotely controlled robotic seeder that relies on electrical energy, electronics, and software. It drives a pair of brushless electric motors to propel a five-drum seeder, capable of drilling five rows of seeds in wet-tilled soil.
12. The new design of the motorized weeder features a 30 cm plate with spikes suitable for both 30 cm and 20 cm planting distances. The weeder is currently being tested as part of an experiment on weed management strategies.
13. A new panel/frame was fabricated for the heating component of the infrared heating system (IHS) for brown rice. The IHS aims to prolong the shelf life and preserve the quality of brown rice. Testing of the new design showed a 62% increase in surface area compared to the previous panel, allowing for more effective spacing of the ceramic infrared heaters (CIH).

Strategy 7: Promote science and information-driven decision-making through digitalization

PAP 1.2: Location-specific rice R4D projects in support of the National Rice Program and in line with the National Agriculture and Fisheries R4D Agenda

14. Updated rice-related statistics, policy briefs, position papers, and policy memos on emerging issues were provided to DA and other research institutions. Requested position papers, policy notes, and infographics were crafted and submitted to DA for policy and technical support.

Some 100 statistical tables from the PSA and other local (FPA and NIA) and international agencies (FAO and World Bank) are being monitored, maintained, and updated regularly with the latest data available in rice production, area, and yield as well as imports and exports, prices, and supply and demand. These statistics are made available through the *PalayStat* (<https://palaystat.philrice.gov.ph>), which has been viewed 19,778 times and accessed by 4,552 unique users from January to June 2024. According to Google Analytics demographics, users are 82% female and 18% male. Average session durations is at 2 minutes and 21 seconds.

15. The Philippine Rice Information System (<https://prism.philrice.gov.ph>) consistently provided accurate and timely updates on the rice production situation to the DA-NRP, DA-RFOs, and other partners. PRiSM monitors and maps rice areas nationwide using Earth Observing satellite technology, remote sensing, crop model, and ICT in collecting, processing, and sharing information.

PRiSM duly responded to 145 data requests from IRRI, NRP, DA-RFOs, SUCs, LGUs, and PhilRice branch stations. These were on rice area (54), yield estimation (45), damage assessment (19), and planting dates (27). The PRiSM Facebook page (<https://www.facebook.com/PRiSMphilrice>) serves as a consistent source of updates regarding national rice-related information, including details on rice areas at risk due to flood

or drought, as well as updates on area planted, yield, and production. As of date, it has 3,162 followers and has 2,702 page likes.

16. To contribute to the development of a sustainable rice sector to address the impacts of climatic disturbances, the Climate-Smart Maps for Strengthening the Adaptation Plans of Farming Communities (CS Map) project generated information through mapping climate-related risks for rice production, combined with agro-ecological characterization for the development of adaptation and sustainability plans for the rice-producing provinces. The project has generated 25 provincial adaptation plans based on different climate hazards and are now presented to the different provincial LGUs as part of their strategies in addressing the effects of these climate risks.

In addition, the CS Map project provided support to the DA-NRP for the El Niño strategies. It generated 87 provincial maps on rice areas identified vulnerable to drought with data from PRISM, NIA, and BSWM. It also processed five PAGASA forecasts relative to drought and overlaid in the rice area maps for easier visualization. Additionally, 76 provincial maps of flood-prone rice areas with data on flood frequency occurrence were also produced as reference material for the La Niña preparation. These maps were provided to the DA-NRP, DA-RFOs, and other stakeholders for validation and used for strategic planning.

17. The rice grain measuring smartphone application automates the conventional process of measuring rice grain size and shape in different classifications. It significantly expedites the process, reducing measurement time from 10 to 2 minutes compared to the conventional caliper-based method. This also eliminates the need for resources like pen and paper and minimizes logging errors. A comparative analysis conducted on 146 samples, including duplicates, shows highly reliable results, achieving 98% accuracy rate compared to the conventional caliper-based method.
18. The Rice Grain Quality Information System (RGQIS) is a web-based platform to manage and visualize data on rice grain quality. It serves as a tool that provides up-to-date information of rice varieties to access and analyze data related to rice grain quality attributes. This system helps researchers and breeders track and compare the quality attributes of different rice varieties.
19. The Rice Seed Information System (RSIS) is taking off to its deployment and implementation in the DA-PhilRice branch and satellite stations and among the seed growers who are members of the RCEF-contracted cooperatives. The RSIS team with the Bureau of Plant Industry – National Seed Quality Control Services had conducted orientation and briefing about RSIS in Regions CAR, I, II, III, IV-A, VI, and VII seed growers. The team has also presented to the DA-NRP staff for support, guidance, and recommendations toward its full deployment, operationalization, and sustainability. The NRP staff has conveyed the interest on the NRP program management office to RSIS as a tool for planning and decision-making.
20. The Data Analytics Center (DAC) provided rapid response analytics in the following topics: (a) Potential effects of El Niño; (b) RCEF Yield by variety; (c) Source of production growth; (d) NIA cropping calendar; (d) FFRS maps; and (e) Estimating cost of milled rice as needed by the DA and management. The DAC also actively participated in 11 training sessions and exhibits committing to knowledge sharing and capacity building. We also efficiently responded to 15 data requests on rice and rice-related data requests, ensuring timely and accurate data provision to support various analytical and operational needs.
21. To allow farmers and other users to efficiently plan their planting season, the DAC developed an improved version of the Palaycheck App (version 1.1.2) facilitating the tracking and management of ongoing crop seasons. Notably, new key features include season planning, ongoing season tracking, and soil type-based MOET recommendations. In addition, optimizations have been made to improve server syncing for real-time data updates, enhance data validation processes, refine the user interface for a better user experience, optimize app resources for smoother performance, and integrate Crashlytics API for better app stability and crash reporting.

Strategy 8: Establish strong partnerships with the farmers, fisherfolk, private sector, and other stakeholders

PAP 1.1: Conduct of regional rice R4D programs for Luzon, Visayas, and Mindanao

Rice Business Innovations System (RiceBIS) Community Program

22. Baseline information of the nine new sites were gathered and presented to the Program. Custom service provision (CSP) is the most common agro-enterprise among the new and expansion sites in 2024, with 7

of 9 (78%) farmer cooperatives and associations (FCAs) engaged in this business, averaging a net income of ₱453,035.59. Additionally, four (44%) FCAs are involved in the milled rice enterprise, earning an average net income of ₱859,718.56. Other agro-enterprises among the new FCAs include agri-inputs trading, palay trading, microfinancing, rice production loans, and processed peanut production as a non-rice enterprise. Notably, microfinancing is the highest income-generating enterprise with a net income of ₱5,944,345.00.

23. The FCAs' progress in terms of income, marketing practices, level of empowerment, and other relevant indicators are being monitored and assessed. Policy scoping has been conducted in all new sites. Meanwhile, policy recommendations were forwarded to five LGUs of the old sites, specifically to their Sangguniang Bayan.
24. Eight new market deals for different rice and rice-based products of our RiceBIS communities were established. On the other hand, CES found seven new prospective buyers while Agusan has one, Negros with four, and Batac has two. Through the help of DTI, partnerships with All Day Supermarket and Waltermart are also on the way. Meanwhile, the marketing of GAP-certified rice is being positioned for 7-Eleven Corporation. The project is also collaborating with DTI to register RiceBIS farmers' products in their Rice2Rise Ph website to provide a platform where they can sell and organize their rice products.
25. Marketing plans for the GAP-certified products and/or Lakambini rice are being ironed out, in partnership with DTI. Logo studies have been created and are now ready for market research. Packaging templates for the various rice products of the different communities have also been designed.
26. Eight new RiceBIS sites and eight partner-FCAs were selected in Siniloan, Laguna; Balanga, Bataan; Bayambang, Pangasinan; Dupax del Sur, Nueva Vizcaya; Isulan, Sultan Kudarat; Daet, Camarines Norte; San Carlos, Negros Occidental; and Trento, Agusan del Sur.
27. An organizational and business capacity assessment (OBICA) tool was revised to include the assessment of the organizational capacity level of FCAs. The tool was already used to assess partner-FCAs in the new eight RiceBIS sites. Eight FCAs were assessed as to their business and organizational capacity levels. From the OBICA results, the following outputs were generated: (a) a capacity action plan per FCA was developed that addressed the identified gaps and the corresponding responsible agency and timeline to implement the recommendations; (b) the type of agroenterprise identified appropriate to the FCAs capacity; (c) OBICA scoring guide; and (d) draft operation manual on how to conduct the OBICA.
28. Through the RiceBIS 2.0 spin-off project, *Enhancing Market Potential, Opportunities, Welfare, and Economic Resilience (EMPOWER)*, the BPI Foundation and DA-PhilRice turned over a brand-new truck and compact rice mill to the San Carlos RiceBIS Community through the Quezon Codcod RiceBIS Farmers' Agriculture Cooperative, in a ceremony and blessing held on March 19 and 21, 2024, respectively, in San Carlos City, Negros Occidental. More than 320 farmers are expected to benefit from these marketing support equipment. Palay procurement using the first tranche fund is also ongoing. This is to augment the cooperative's income-generating activities from the sale of milled rice.
29. A proposed resolution on LGU-led RiceBIS activities was presented to the Sangguniang Bayan and Municipal/City Agriculturists of Castillejos, Zambales; Banna, Ilocos Norte, and Mandaon, Masbate. A proposed local ordinance on product mainstreaming was lobbied to the Municipal/City Agriculturist, Sangguniang Bayan, and/or City Agricultural and Fisheries Council of San Carlos City, Negros Occidental and Castillejos, Zambales.
30. A total of 429 RiceBIS farmers (196 males, 233 females) were trained on the four modules of Philippine Good Agricultural Practices (PhilGAP) and their rice farms were applied for PhilGAP certification. A total of 69 farms nationwide have been successfully PhilGAP-certified by the Bureau of Plant Industry – Plant Product Safety Services Division (BPI-PPSSD) including DA-PhilRice Isabela's Palayamanan Farm and DA-PhilRice CES' Seed Production Farm. An estimated total supply of 2,200 tons fresh palay will be produced in the 400 rice farms that are expected to be PhilGAP-certified by the end of the year through the Product Innovations Project and in partnership with BPI-PPSSD, DA-Regulatory Division, FPA, provincial/municipal LGUs, and partner-FCAs.

Partnerships

31. DA-PhilRice actively engaged as a member of the Expert Committee in developing the methodology for the Joint Crediting Mechanism (JCM) of Alternate Wetting and Drying (AWD) for the Philippines, in accordance with Article 6.2 of the Paris Agreement. This methodology development for the carbon credit mechanism for AWD through JCM is organized by the Ministry of Agriculture, Forestry and Fisheries (MAFF)-Japan and the Asian Development Bank (ADB). The draft methodology has been completed and finalized, and will be submitted by MAFF to the National JCM Secretariat for approval.

Corporate Social Responsibility

32. In cooperation with Kiwanis International and Lingap Leads Foundation, a medical mission provided free medical consultation and check-up for 100 PhilRice CES field/lab workers on 23 February 2024.
33. In partnership with the BPI Foundation, school equipment and supplies were distributed in two public elementary schools in Negros Occidental that are within the San Carlos RiceBIS Farmers' and PhilRice Negros' communities, benefiting 1,148 students and 36 teachers. In addition, the Maranon Elementary School recognized and thanked PhilRice Negros for sharing with them our water source.

PAP 2.1: General Administration and Support Services / Support to OperationsHuman Resources

34. Six staffers were appointed to plantilla positions; 166 permanent employees were sent to various trainings conducted in-house and by different accredited institutes. Two permanent staff availed of the Institute's study grant (1 MS, 1 PhD), and two staff under Special Assistance Program. Thirteen R&D personnel are DOST/CSC career scientists (9 Scientist I, 1 Sci II, and 3 Sci III), four of whom are women. A total of 135 personnel enjoy Magna Carta benefits.

Financial Resources (Subsidy Utilization)

35. As of June 2024, obligation rate is about 59% while disbursement rate is about 64%.

Physical Resources

36. Completed were three infrastructure (construction) projects at DA-PhilRice CES. Twenty-two repair and maintenance projects amounting to about ₱9.5 million are ongoing.

The *Site Development and Construction of the Seed Warehouse with Cold Storage* for DA-PhilRice Isabela (₱17.10 million) and DA-PhilRice Batac (₱17.98 million) had their groundbreaking ceremonies on March 7 and 19, 2024, respectively. These projects are funded by the Korea Rural Community Corporation through the Global Agricultural Policy Institute and Nature E&T Inc.