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

NOTABLE ACCOMPLISHMENTS
January to June 2025

DA-PhilRice is mandated to help develop and promote high-yielding, cost-reducing, and climate-resilient technologies that enable Filipino farmers to produce enough rice for the nation. To fulfill this mandate, the Institute conducts research for development (R4D) activities across our central and branch stations nationwide.

In 2025, 87 rice R4D projects are being implemented, focusing on the development of improved rice varieties, innovative farm machinery, and science-based crop and nutrient management strategies tailored to local conditions. Results are widely disseminated through a range of extension modalities, including hands-on trainings, field demonstrations, exhibits, and the production of knowledge materials. These are delivered in collaboration with various rice stakeholders and made available via both digital and face-to-face engagements, ensuring broad reach and practical application.

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

Germplasm Conservation and Variety Development

1. Rice genetic resources were actively conserved and managed to support both national and international efforts in food and genetic security. A total of 1,860 rice collections were established for seed increase to ensure a sufficient supply for conservation and distribution purposes. The DA-PhilRice Genebank processed 32 germplasm seed requests, covering 413 distinct rice varieties, supporting a wide range of scientific research, plant breeding, educational initiatives, and development programs nationwide.

   Moreover, 4,417 rice seed entries were prepared for international shipment and long-term storage at the Svalbard Global Seed Vault in Norway. This significant contribution highlights the Philippines' strong commitment to global initiatives in agrobiodiversity conservation and long-term food security.

2. A total of 277 pre-NCT lines, harvested during the 2024 dry and wet seasons, were completely evaluated for grain quality traits as requested by breeders. Of these, 32 lines were identified as promising, having met standards for milled rice percentage, head rice recovery, chalkiness, grain length and shape, amylose content (AC), and gelatinization temperature (GT). Additionally, 253 rice germplasm entries were evaluated specifically for AC and GT.

3. Ten promising inbred lines with potential yields of 6-7 t/ha, each possessing at least two combined stress-tolerance traits (e.g., drought, salinity, high temperature, and submergence), were selected for further evaluation under stress-prone and rainfed environments. Three elite inbred lines with potential yields of 8-10 t/ha for irrigated lowland conditions were identified. These lines are currently undergoing pre-NCT multi-location testing and will be nominated to the National Cooperative Testing (NCT) upon completion of initial evaluations.

Seed Production

4. A total of 72,923 panicles of nucleus seeds were produced for 40 rice varieties distributed under the RCEF Seed Program and the Local Seed Support (LSS) to Rice Farmers project. These are currently stored at the DA-PhilRice Genebank. In addition, 3,870 kg certified breeder seeds of the same varieties were produced, all with 100% seed purity.

5. DA-PhilRice CES produced 16,618 kg of foundation seeds and 10,740 bags (20-kg bag) of registered seeds (RS), all officially tagged by the BPI-NSQCS. Of the total RS produced, 5,656 bags (53%) were distributed to seed growers' cooperatives and associations (SGCAs).

6. Around 2,000 kg of high-quality special rice seeds – consisting of both released and traditional varieties – were produced and distributed to rice farmers and seed growers across various regions of the country.

Integrated Crop Management

7. The Direct-Seeded Rice Package of Technology (DSR POT) was evaluated using drone seeder, drum seeder, paddy seeder, and seed spreader, and compared with manual seeding during the 2025 DS at 40 kg/ha seeding rate. In addition, drone seeding was tested at 20 kg/ha, 30 kg/ha, and 40 kg/ha to assess optimal seeding rates. Public hybrid rice varieties Mestizo 1 (M1) and Mestiso 20 (M20) were also seeded using drone at 20 kg/ha. Each treatment was implemented in 2,500 m^2 field plots. Fertilizer application was done using a drone.

   The drone-seeded rice at 40 kg/ha yielded 7.78 t/ha, which was comparable to drum seeder (8.24 t/ha), seed spreader (8.14 t/ha), and manual broadcast (7.5 t/ha), and significantly higher than the paddy seeder (7.2 t/ha). These results corroborate previous findings from the last three cropping seasons. In terms of efficiency, drone seeding covered one hectare in 45 minutes, compared to 3-4 hours for paddy and drum seeders, and 1.5-2 hours for seed spreader and manual broadcast.

   Drone seeding at 30 kg/ha yielded 7.13 t/ha, and at 40 kg/ha, 7.78 t/ha, both higher than 6.6 t/ha recorded at 20 kg/ha. Initial results for drone-seeded M1 and M20 at 20 kg/ha showed yields of 5.8 t/ha and 6.8 t/ha, respectively.

8. Nine packages of technologies (POTs) -- one mainstream and eight area-specific (AOR-based) -- were established across 95 sites nationwide for DS 2025 fine-tuning. Initial results showed remarkable yields ranging from 4.14 to 7.32 t/ha.

9. The nine fine-tuned POTs from 2024WS, attaining average yields of 4.76 to 6.95 t/ha, were deployed in RCEF PalaySikatan, other DA-PhilRice programs, and branch stations.

10. Technical experts from all stations participated in discussions for each key check during consultations for the development of the PalayCheck System for Hybrid Rice Production.

11. Planning and design for the PalayCheck Lite mobile application are currently underway. The app aims to help farmers select appropriate POTs based on site-specific farming conditions.

12. Agricultural drones, a riding-type paddy seeder, and a mechanical transplanter were tested at the FutureRice Farm for DS 2025.

Safe and nutritious rice and rice-based food products

13. The phytochemical content and antioxidant activity of 50 pigmented rice samples were analyzed. From a previous batch of high-antioxidant rice accessions, four were further characterized for agro-morphological traits, and one was subjected to *in vitro* mutagenesis.

14. The anti-obesity and neuroprotective properties of four pigmented rice accessions with superior phytochemical content and antioxidant profiles were evaluated. Extracts from the selected accessions exhibited strong potential in preventing adipogenesis and mitigating oxidative stress-induced cytotoxicity in cell-based models.

15. Two variants of NutriRice Milk -- instant and sterilized ready-to-drink -- were developed and evaluated for their nutritional content and sensory acceptability.

16. Rice wine, produced using laboratory-prepared starter cultures from pure mold and yeast, was upscaled and assessed for both sensory quality and physico-chemical properties. Meetings were held with a potential adopter of the DA-PhilRice Tapuy technology, and preparation of necessary documents are underway.

17. Two rice-based food products enriched with high-value crops --veggie *brandesal* and instant brown rice congee -- were developed based on product concept testing, which included focus group discussions and market surveys.

18. Stabilized brown rice (SBR) produced using the DA-PhilRice-developed infrared brown rice machine was tested. Machine optimization is ongoing based analyses of free fatty acid content and lipase activity to improve product quality and extend shelf-life.

19. The final formulation of a buffalo milk-based yogurt drink co-fermented with SRB was completed. The product was analyzed for nutritional value, phytochemical content, and antioxidant properties.

20. The mapping of traditional rice-based food products in Biliran was completed, documenting consumer preferences and reasons for product discontinuation to inform future product development and market targeting. In Davao de Oro, ongoing value chain research supports the adoption of rice technologies and the commercialization of rice-based food products to promote inclusive growth among micro- and small-scale enterprises.

Extension Support, Education, and Training Services (ESETS)

21. To maintain a year-round presence in R4DE communities, DA-PhilRice utilized both ICT and non-ICT-based knowledge-sharing and learning platforms:
    - The DA-PhilRice 360° virtual tour (https://360tour.philrice.gov.ph) recorded 231 users and 11,243 visits. On-site tours were conducted for 113 groups comprising 1,847 males and 1,533 females, mainly students/faculty (33%) and farmers/LGU representatives (44%).
    - The 2025 DS *Lakbay Palay*, themed *Binhi ang susi!,* highlighted the importance of quality seeds in rice production. Held on 27 March 2025 at CES, the event gathered over 700 in-person participants from La Union, Pangasinan, Isabela, Zambales, Tarlac, and Nueva Ecija, and reached over 44,000 online viewers via the DA-PhilRice Facebook page.
    - About 300 farmers, farmer-leaders, AEWs, and other rice stakeholders participated in Farmers' Field Walks held at TDLF sites in Iba (Zambales), Dinalupihan and Limay (Bataan), Victoria (Tarlac), and Casiguran (Aurora).
    - The DA-PhilRice Text Center delivered 23 text blasts to 265,908 farmers in RCEF priority areas. Topics included pest management (rats, brown planthopper, stemborer, rice black bug, weeds,

snails), water management during flowering, drying, optimal seeding rate, seed germination, health tips during El Niño, fallow period, seedling and seedbed management, planting distance, and the benefits of alternate wetting and drying (AWD).

- Dissemination efforts also included 41 news articles posted on the DA-PhilRice website, 12 radio segments aired across eight stations, and 205 original social media posts shared through the DA-PhilRice Facebook page.

22. A total of 818 farmers were trained on rice production through 32 training courses, achieving an average gain-in-knowledge (GIK) of 58%.

Socioeconomics and Policy Research and Advocacy

23. A policy brief (Rice Science for Decision-makers, RS4DM) on ratooning was published in March 2025. Another policy brief was prepared to support evidence-based advocacy for the development and promotion of traditional rice-based food products.

24. One of the key findings on the socio-technical dimensions of weedy rice is the evident disconnect between scientific and regulatory perspectives. While crop protection experts classify weedy rice as a pest, regulatory agencies largely regard it as rice. This inconsistency may warrant a review of existing regulatory frameworks and could guide future transdisciplinary research and policy development.

25. In collaboration with the DA-Philippine Rural Development Project (DA-PRDP) and the DA-NRP, a national value chain analysis for rice is underway to support investment prioritization and the formulation of targeted interventions. Surveys involving key rice value chain actors, including palay traders, rice millers, wholesalers, retailers, wholesaler-retailers, and rice importers, have been completed in Nueva Ecija, Isabela, Bulacan, Pangasinan, and Metro Manila.

26. Policy brokering activities promoting participatory policymaking were conducted in Negros Occidental, Laguna, Pangasinan, Camarines Sur, and Ilocos Norte. From January to June 2025, key policy themes identified included direct-seeded rice, balanced fertilization, drought adaptation, digital agriculture, community action, and pest management.

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

27. Eighty-four participants established DS 2025 Fertilizer Derby field trials across seven sites: CES (15), Isabela (20), Bicol (7), Negros (10), Agusan (7), Midsayap, (14), and Los Baños (11). Various nutrient management protocols were tested, including granular inorganic fertilizers, inorganic foliar, inorganic + biostimulant, inorganic + biofertilizer and biostimulant, inorganic + biofertilizer, inorganic + inorganic foliar, and biostimulants (foliar application).

    The highest average yields were recorded at CES at 6.9 t/ha, followed by Negros (6.68 t/ha) and Isabela (6.57 t/ha). Other sites recorded: Midsayap (5.85 t/ha), Agusan (4.02 t/ha), and Bicol (2.2 t/ha).

    The best-performing nutrient management protocol came from Negros, where the inorganic + biofertilizer combination (using the DA-PhilRice recommended inorganic rate + biofertilizer) achieved 7.64 t/ha, with input cost of ₱5.87/kg, fertilizer cost of ₱3.19/kg, and income of

₱100,265/ha. Another participant from Negros using the inorganic + biostimulant protocol recorded 7.47t/ha at ₱5.96/kg input cost, ₱2.25/kg fertilizer cost, and ₱97,398/ha income.
At CES, the same inorganic + biostimulant protocol performed best with 7.38t/ha, ₱8.25/kg input cost, ₱1.62/kg fertilizer cost, and ₱79,340/ha income. In Isabela, the farmer's practice (purely inorganic) also yielded 7.38t/ha, with a ₱7.08/kg input cost, ₱1.66/kg fertilizer cost, and a higher income of ₱87,350/ha.

In Agusan, the top-performing protocol was inorganic + biofertilizer, while the DA-PhilRice protocol (purely inorganic) performed best in both Midsayap and Bicol.

The DA-PhilRice recommended protocol and the Farmer's Practice were maintained at all sites as standard comparison treatments. Each field site was prominently showcased during the *Lakbay Palay* events held at the respective locations.

Strategy 7: Promote science and information-driven decision-making through digitalization
PAP 1.1: Conduct of regional rice R4D programs for Luzon, Visayas, and Mindanao

Smarter Crop Management including Digital Agriculture

28. Updated rice statistics, policy briefs, memos, position papers, policy notes, and infographics on emerging issues were provided to the DA and partner institutions to support policy development and technical decision-makin.

    Around 100 statistical tables from local and international sources were regularly updated and made available through *PalayStat* (https://palaystat.philrice.gov.ph), which recorded 9,753 views and 2,149 unique users from January to June 2025. Based on Google Analytics demographics, 79% of users were female, with an average session duration of 1 minute and 14 seconds.

29. The RSIS team served as resource persons in 19 retooling and refresher courses co-organized by ATI and BPI, training 704 seed growers and seed inspectors. They promoted both the RSIS and the DA-PhilRice-developed GrowApp, a mobile application for digital seed certification applications. RSIS enables near-real-time monitoring of seed production areas and certified seed output per season, supporting planning and monitoring.

    The RSIS was officially launched on 19 June 2025 during the 3rd National Agriculture and Fisheries Technology Exhibition (NAFTE) in Mandaue City. The event, co-organized by DA-BAR and DA-RFO VII, was attended by participants from all regions nationwide.

30. From January to June 2025, 12,776 farmers were added to the Rice Crop Manager Advisory Service (RCMAS) database (https://rcm.da.gov.ph), covering 137.25 ha of verified farms. The dashboard is now integrated with Google Analytics for improved user tracking. To date, RCMAS has generated 107,373 recommendations, responded to 49 online queries, and sent 384,122 SMS advisories, facilitating site-specific and timely decision-making among rice farmers.

31. The Philippine Rice Information System (PRiSM) (https://prism.philrice.gov.ph) continued to provide timely and accessible data on rice-planted areas, planting dates, yield and production estimates, and areas affected by floods and drought. These were shared with the DA-NRP, DA-RFOs, and other stakeholders. Using satellite imagery, crop models, remote sensing, and ICT tools, PRiSM mapped and monitored rice areas nationwide, presenting key information through infographics.

To date, PRiSM responded to 149 data requests, covering rice areas (65), yield estimates (36), damage assessments (17), and planting dates (31). It detected 2,031,048 ha of rice-planted area – 1.5% lower than in 2023 (2,062,702 ha) and 1.2% lower than in 2024 (2,056,334 ha).

To enhance rice price and supply monitoring, the *Bantay Palay* app collected real-time weekly and monthly data on palay prices by variety (farmgate, dry and milled rice) nationwide. The app includes a dashboard that allows users to track prices by region, province, and municipality. Rollout activities were conducted in Baguio, Cebu, and Davao.

Agreements were finalized to support continued development of the *Bantay Palay* App as a national rice price monitoring tool, in addition to support for direct dry-seeded rice initiatives and PRiSM system enhancements.

32. To promote climate resilience in the rice sector, the Climate-Smart Maps for Strengthening the Adaptation Plans of Farming Communities (CS Map) Project generated spatial data on climate-related risks and agroecological characteristics for the development of adaptation and sustainability plans for the rice-producing provinces. To date, 42 provincial participatory mapping activities have been conducted, resulting in adaptation plans for 40 rice-producing provinces. The Project has also produced multi-risks maps, including crop suitability maps.

    To assist the DA-National Rice Program, monthly climate forecasts from PAGASA were provided. In preparation for the wet season, adjusted planting calendars for 39 provinces -- based on 20-year PAGASA historical data, genetic coefficients, and soil data -- were also provided. Maps of rice areas vulnerable to drought were updated and shared with the DA-NRP and DA-RFOs.

    Participatory policy-writing workshops were conducted in several provinces, which are now preparing to integrate the climate risks maps and risk-specific adaptation plans into their local policies.

33. The PalayCheck App (version 1.1.14) exceeded 5,000 downloads on the Google Play Store, indicating growing user engagement. Meanwhile, the enhanced RiceLytics platform was launched to support evidence-based policymaking, enabling area-specific strategy development, targeted research, and data-driven farm management.

    According to Google Analytics, the RiceLytics 2.0 dashboard recorded 5,500 active users with an average engagement time of 6 minutes and 29 seconds. The top five countries by user count were the Philippines (4,700), Indonesia (112), United States (108), Japan (101), and Singapore (57). The most viewed pages were the Rice Industry Landing Page (20,000 views), Palay Production (12,000 views), Area Harvested (6,800 views), Average Yield (5,500 views), and Rice Prices (3,700 views).

34. Sixty new and updated datasets were maintained in the Data Catalog, supporting various analytical and policy-related tasks, including: (a) computation of the Composite Rice Price and Stocks Index (CPSI) and Maximum Suggested Retail Price (SRP); (b) estimation of yield increments from the RCEF and Hybrid Rice programs; (c) surplus-deficit analysis for Malusog Rice; (d) provision of data on rice prices, imports, production, area harvested, and yield (PAY), and Supply Utilization Accounts (SUA) for presentations; (e) national and provincial SUA projections; (f) regional self-sufficiency ratio estimates; (g) cost and return analysis using 2024 RBFHS and market data; (h) supply-demand simulations to support NRP interventions; (i) seed target recalibration; and (j) presentation of insights and dashboards (RiceLytics Executive, Command Center) to key stakeholders, including DA teams, the SmartFarm group, and Senator Win Gatchalian. These data-

driven outputs continue to inform critical decisions in rice policy, investment, and program planning.

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

35. DA-PhilRice currently supports 53 FCAs (26 associations and 27 cooperatives) across 33 municipalities in 24 provinces. Of these, 9 are classified as low-capacity, 36 as medium, and 8 as high-capacity based on organizational and business metrics. Progress is monitored in terms of income generation, market participation, and farmer empowerment. Common agro-enterprises include milled rice, custom service provision, microfinancing, brown rice processing, and *palay* trading.

36. Three policies were adopted to institutionalize support for the RiceBIS model: (a) ordinances on the adoption of Philippine Good Agricultural Practices (PhilGAP) and commercialization of GAPproved Rice enacted in San Mateo, Isabela and San Carlos, Negros Occidental, and (b) a resolution in Castillejos, Zambales endorsing the Mayor as Lead Implementer of the RiceBIS Program.

37. Nine new FCAs across 10 municipalities (one per DA-PhilRice station) were added as expansion sites. All underwent organizational and business capacity assessment (OBCA) to assess readiness for value chain-oriented, rice-based enterprise development. Results showed 5 medium-capacity and 4 high-capacity FCAs. Initial site working group (SWG) meetings were conducted in Batac, Isabela, Los Baños, Negros, CES, and Agusan, while meetings for the remaining sites are scheduled for the second semester.

38. Strategic partnerships enabled new opportunities for the supported FCAs, including participation in DSWD programs such as Enhanced Partnership Against Hunger and Poverty (Agusan, Midsayap, Bicol, Negros), *Walang Gutom* (Isabela), and Supplementary Feeding (Isabela). Strengthened partnerships also provided additional support, including a ₱300,000 livelihood grant from the Aboitiz Foundation to the Calupagan Agrarian Reform Cooperative (Pangasinan), and a ₱5M warehouse provided under the DA-RFO CAR AMIA Project to the Namillanan-Calupaan Lateral F Irrigators Association (Isabela).

39. RiceBIS communities established 20 new market linkages and signed 16 formal partnerships, resulting in ₱22 million in sales from rice and rice-based products.

40. Collectively, the 53 communities sold 126.72 metric tons of GAPproved rice, promoting safe, high-quality rice. This enabled farmers to command premium prices, enhancing livelihoods and increasing consumer awareness of good agricultural practices.

41. A Retooling Session on Philippine National Standards for paddy, milled, and brown rice, along with brand management, product standardization, and packaging equipped, was conducted for 20 focal persons (4 men, 16 women) from eight DA-PhilRice stations. The training enhanced their capacity to support FCAs in standardizing processes for product consistency, quality assurance, and consumer satisfaction. The session recorded an average GIK of 53%.

Partnerships

42. DA-PhilRice continues to collaborate closely with key rice stakeholders in implementing rice R4DE programs and reinforcing its presence in the scientific community. As of June 2025, 150 agreements have been signed. Notably, a tripartite partnership among PRiSM, Agrilever and sarmap was established to boost rice production through the integration of advanced remote sensing, meteorological data, and field-based information systems.

PAP 2.1: General Administration and Support Services / Support to Operations

Human Resources

43. Strengthening human capital remains vital to achieving DA-PhilRice's mandate and strategic goals. As of June 2025, 24 staff were appointed to plantilla and contractual positions, including 15 promotions. Additionally, 144 permanent employees participated in both in-house and external training programs to further enhance their technical and managerial competencies.

    The Institute currently supports 19 scholars (6 MS, 13 PhD). Meanwhile, 12 R4D personnel -- including four women -- have been conferred with DOST/CSC career scientist ranks: 7 Scientist I, 3 Scientist II, 1 Scientist III, and 1 Scientist IV. A total of 161 staff received Magna Carta benefits.

Financial Resources (Subsidy Utilization)

44. As of June 2025, DA-PhilRice recorded a 57% obligation rate and a 71% disbursement rate. The government subsidy increased by 28%, from ₱746.325 million in 2024 to ₱954.392 million in 2025, enabling the Institute to pursue modernization and facility upgrades. In addition, external grants continued to support the implementation of R4DE operations nationwide.

Physical Resources

45. Institutional capability was further strengthened through investments in infrastructure, funded by both government subsidies and external grants. Seven infrastructure and repair / maintenance projects amounting to ₱4.93 million were completed across DA-PhilRice stations, while five more projects are currently ongoing.

    In January 2025, PhilRice Isabela inaugurated a 540-square-meter seed warehouse to enhance seed storage and distribution in Region 2 and Cordillera. The facility is expected to bolster seed production and security, ensuring a more sustainable supply of inbred and hybrid seeds. Meanwhile, in March 2025, PhilRice Batac inaugurated a solar-powered seed warehouse equipped with cold storage and acclimatization rooms to improve seed quality and supply chain efficiency. This initiative aims to provide Ilocos rice farmers with better access to high-quality seeds, contributing to a more resilient and sustainable rice production system. Both facilities were funded by the Korea Rural Community Corporation.

Integrated Management Systems and Good Governance

46. DA-PhilRice remains committed to quality and good governance by ensuring compliance with international standards. The Negros station successfully passed its second surveillance audit for ISO 9001:2015 (QMS) standards and was recommended for continued certification. Surveillance audits for other stations, including CES, are scheduled in the second semester of 2025.