PhilRice Magazine

A quarterly publication
of the Department of Agriculture–
Philippine Rice Research Institute

steady perseverance for the farmers

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ABOUT THE COVER

We are unstoppable. Amid the threat of COVID-19, we, together with our partners, continuously generate knowledge, develop high-yielding and cost-reducing technologies and practices, and deploy strategies to reach more rice farmers.

In this issue of the magazine, we celebrate the triumphs of the farmers whose lives have changed for the better and share stories of the unceasing service of the Institute and its partners for the Filipino rice farmers from 2017 to 2022.

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2001 Gawad Florendo Awardee
2007 Binhi Hall of Fame Awardee
2009 Binhi Agri Magazine of the year
2018 Binhi Agri Magazine of the year
2019 Binhi Agri Magazine of the year
2022 BEST Free Food Publications

Unwavering service

JOHN C. DE LEON

It's been six years since we took off to implement the 2017 to 2022 Strategic Plan at PhilRice. It was a period full of exciting opportunities to collaborate, create, and deliver. At the same time, it was a period when our decades-long systems of working were put to the test. COVID-19 pandemic came, and truly, it has redefined the way we do our work, forced us to be more determined, and enabled us to discover whatever untapped capabilities we may not have used yet under the business-as-usual circumstances.

This issue of the PhilRice Magazine shows our humble contributions to push the rice research for development and extension forward. This issue is being published ahead of the Exit Report of the Strategic Plan, a detailed retelling of the accomplishments of the Institute over the past six years. There, we show the outputs and outcomes of our labor for and together with our rice farmers and stakeholders.

As an organization, PhilRice has been a witness to several transformations in the lives of our clients. In this issue, we narrate the stories of success of our clients relative to the outcomes that we have aimed to achieve in our Strategic Plan. For example, our efforts to improve productivity and income of our rice-farming communities, our first targeted outcome, yielded bountiful harvest in Buenavista, Quezon. From their usual 2.5t/ha, the town saw that 8t/ha is possible with the introduction of our publicly-bred hybrid rice Mestiso 20! This, for sure, is a rice wonder in Buenavista!

PhilRice has been a witness to several transformations in the lives of our clients. In this issue, we narrate the stories of success of our clients relative to the outcomes that we have aimed to achieve in our Strategic Plan.

Another story worth telling is our efforts to bring to the market the machines that we have developed. Val Agri-Machineries, along with other manufacturers, have partnered with us in this endeavor.

We know it only too well that policymakers have the power to translate our research and advocacies into actionable policies. Hence, PhilRice has unceasingly engaged them during the course of implementation of the current Strategic Plan and even prior. Our longstanding campaign to offer half-cup serving has caught audiences in over 50 major cities and towns in the country. They now have passed resolutions and ordinances to offer half-cup serving of rice in their respective food establishments and promote the consumption of brown rice.

In 2021, the Philippines through our farmers made history by achieving 19.96M metric tons of rice harvest—thanks to the contribution of the Rice Competitiveness Enhancement Fund that distributed some of the highest-yielding inbred varieties across the country, with many of them PhilRice-bred.

There are more stories to tell you–our valued readers. As we share these stories, we look towards a more vibrant, resilient, and sustainable rice farming and industry.

Malusog rice now cultivated at the farm level

CHRISTOPHER JOHN C. GONZALES

Malusog Rice has undergone rigorous biosafety processes.

DA-PhilRice, in partnership with IRRI, selected DA research centers, local government units, farmers, and seed growers commenced the cultivation of Golden Rice at the farm level. It was planted this wet cropping season on approximately 40ha for both seed and commercial production across 10 regions in the country and had been harvested with an average yield of 5t/ha.

In the Philippines, Golden Rice is registered with the National Seed Industry Council (NSIC) as Malusog 1 or NSIC 2022 Rc 682GR2E.

"NSIC selected Malusog as the common name of Golden Rice to emphasize its potential health benefit," said Dr. Ronan G. Zagado, program leader. "As we breed other popular varieties, we hope this will improve the vitamin A intake of Filipino households."

Malusog Rice is cost-efficient since it is an inbred variety, which could be replanted.

Dr. Reynante L. Ordonio, lead for Golden Rice varietal improvement, said the program is continuously doing breeding works to introduce the beta-carotene trait into other popular, high-yielding inbred varieties.

Based on the rice production status and current nutrition data, Quirino, Catanduanes, Samar, Antique, Lanao del Norte, Agusan del Sur, and Maguindanao have been identified as initial Malusog Rice distribution areas. Seed production is underway in Isabela, Ilocos Norte, Pangasinan, Cagayan, Nueva Ecija, Albay, Samar, Iloilo, Antique, and Agusan del Sur.

"As supply increases, Malusog Rice will also be available in more areas," Zagado said.

Rice Precision Seeder

Direct seeding promoted, preferred varieties developed

CHRISTOPHER JOHN C. GONZALES

DA-PhilRice collaborates with the Food and Agriculture Organization (FAO) to promote direct seeding to cut costs, and with IRRI and UP Los Baños to unify strategies in developing farmer and consumer-preferred rice varieties.

The FAO-funded project on direct-seeded rice is being implemented in Sta. Cruz, Zambales. Project lead Dr. Jaime A. Manalo IV, Socioeconomics Division head, maintained that with labor accounting for more than 30% of the production cost, farmers are encouraged to practice direct seeding.

Our studies show direct seeding could reduce labor costs by P1.14/kg. In Isabela, a farmer reduced fuel cost by 60% and water-use by 53%.

Meanwhile, when the NextGen Project that introduced new varieties to farmers in partnership with DA-Regional Field Offices ended in 2021, a new project dubbed as OneRicePH emerged. It unifies the methods and strategies of developing, producing, and distributing quality and nutritious rice in the Philippines.

DA-PhilRice leads in the breeding of new rice varieties preferred by farmers and consumers that are high-yielding, early-maturing, have good grain quality with low glycemic index, and contain high antioxidants for health improvement.

Senior researcher Christopher C. Cabusora said the activities include project information dissemination and its steps to achieve high varietal turnover in the farms, and technology demonstration to identify preferred varieties.

"Be RICEponsible" is NRAM's theme until 2028

SARAH JOY N. RUIZ

The National Rice Awareness Month (NRAM), observed every November since 2004, is now themed "Be RICEponsible" to promote these messages until 2028: **A** - *Adlay, mais, saba, atbp. ay ihalo sa kanin;* **B** - Brown rice *ay kainin;* **K** - *Kanin ay huwag sayangin;* **D** - *Dapat bigas ng Pilipinas ang bilhin.*

"Using the same theme for six years will create better continuity, emphasis, cost-efficiency, and recall of the advocacy, which aims to help achieve food security, improve the income of farmers, and promote better health among rice consumers," said PhilRice's Dr. Hazel A. Beltran, head of the NRAM secretariat.

NRAM's launching was on Nov. 3 at the Quezon City Memorial Circle to set off the exhibit at Eastwood Mall on Nov. 4-6 and the ceremonial rice harvesting at Luneta on Nov. 11.

NRAM observation also included online activities such as a Facebook live session, social media mini challenges such as the NRAM Filter and Tiktok *palay* dance contests, and the Be RICEponsible buyer challenge. The buyer challenge would motivate consumers to buy local rice.

Others participated in in-person activities like *Kanin–Bigas –Palay–* Product Exhibit, and other efforts to promote awareness and encourage buying local rice to support our own farmers.

DA-PhilRice RCEF Seed Program Team

JAYSON C. BERTO

Seed monitoring systems recognized

ANNA MARIE B. BERTO

A digital monitoring system developed for the Rice Competitiveness Enhancement Fund (RCEF) Seed Program is given the country's Best in Future of Connectedness in the 2022 Future Enterprise Awards by the International Data Corporation (IDC).

IDC, a global provider of market intelligence and advisory and information and communications technology (ICT)-related services, said the "award is given to organizations who transformed their system digitally to ensure that people, things, applications, and processes are connected to make possible seamless flow of data and drive target outcomes."

First developed in Sept. 2020, the seed monitoring system was designed for the RCEF Seed Program to monitor its operations in near real-time. It was deployed during the height of the COVID-19 pandemic and was proven helpful in ensuring the continuous delivery and distribution of certified seeds from the Program to the farmer-beneficiaries despite community lockdowns and quarantine restrictions.

The system hosts web-based and mobile applications such as the drop-off point maker, delivery and inspection app, web dashboard, distribution app, Binhi e-Padala, and monitoring and evaluation dashboards. These are used by the Program's field operations and planning personnel, seed inspectors, seed growers' cooperatives and associations, and the local agriculture offices in seed allocation and variety planning, pre-positioning of seeds, delivery and inspection, distribution, and tracking of seed inventories.

"Yearly, the RCEF Seed Program distributes around 3.4 million bags of certified seeds to about one million farmers. Through our seed monitoring system, we can now consolidate and analyze big data faster and more efficiently. The insights we generate here are utilized for policy and decision-making processes. It also allowed us to provide valuable updates to our oversight committees and other stakeholders, which are critical to transparency, accountability, and good governance," said Dr. Flordeliza H. Bordey, director of the DA-PhilRice's RCEF Program Management Office.

According to the IDC, all country winners in the different categories qualify for the regional Asia/ Pacific regional competition.

This is the second time that DA-PhilRice won an award for its monitoring system. The first one was with the Philippine Rice Information System receiving the Outstanding Research and Development Award given by the Los Baños Science Community Foundation Inc. back in 2016.

RICE ACROSS THE COUNTRY

Public hybrids introduced in Ilocos

FRANZEL MONIQUE D. BONILLA

The Hybrid Rice Cluster/Regional Rice Technology Forum showcased many rice varieties, including the public hybrids Mestizo 1 (M1) and Mestiso 20 (M20), in the 120-ha techno-demo area in Bacarra, Ilocos Norte, to help farmers choose the best high-yielding varieties that suit their area.

Two newly released inbreds NSIC Rc 480 and Rc 508 and 26 hybrid rice varieties from 12 private seed companies and two government institutions were promoted. On-farm data show that hybrids yield higher than inbreds by a minimum of 15%.

M20 yields 6.4t to 11.7t/ha, matures in 111 days after sowing (DAS), and is moderately resistant to yellow stem borer, green leafhopper, and brown planthopper.

M1 can yield 9.9t/ha and matures in 123 DAS. Averaging 5.4t/ha, this hybrid has an intermediate reaction to blast, bacterial leaf blight, tungro, and green leafhopper.

Different yield-enhancing and cost-reducing technologies such as mechanical, direct, and drone seeding as well as nutrient management like the *Abonong Swak* recommendations were also demonstrated.

Close to 2,000 farmers, extension workers, municipal/city agriculturists, and local government officials from 116 municipalities in Region 1 participated in the techno forum. The techno-demo area was open to the public from July until the end of September.

Abonong Swak campaign intensified in CAR, Region 2

DIANA P. LIM

The *Swak sa Badyet, Swak sa Palay* campaign has reached about 4,000 rice farmers in Ifugao, Abra, Apayao, Kalinga, Quirino, Nueva Vizcaya, Isabela, and Cagayan, promoting strategic nutrient management practices to help them cope with the soaring prices of fertilizers.

"This campaign is an effective strategy to inform the farmers to combine organic and inorganic fertilizers to cater to their budget and current yield. We have sources of organic fertilizers such as rice straw, chicken dung, and other materials, which are readily available or can be bought at low costs," Dr. Fidel M. Ramos, PhilRice Isabela's campaign coordinator, said during the station's *Lakbay Palay* on Sep. 15-16.

Ramos also encouraged farmers to know what type of fertilizer to use, when and how much to apply on crops to optimize the fertilizer and to help lower farming expenses.

The campaign promotes three fertilizer recommendations or "combos" that farmers can choose from based on their current yield and available budget.

Ramos emphasized that in choosing a combination, the yield potential of the variety should also be considered. The target yield specified in the combo should be checked if it is within the range of the maximum potential yield of the variety to be used.

Crisolita Balmilero, a 72-year-old farmer from Luna, Apayao, said that in the next cropping season, she would follow the Abonong Swak Combo 2 with a 5-6t/ha target yield.

"The P2,000-4,000/ha that we can save by following this strategy would be a big help to us," she added.

To intensify the campaign, it is being integrated into the R&D and Rice Competitiveness Enhancement Fund Program activities of the branch stations.

MARIA SOFIA M. CANILAO

Hybrid rice team wins CSSP Award

CHERRY ROSE F. PIÑON

The thermo-sensitive genetic male sterility (TGMS) hybrid rice R4D team won the 2022 Crop Science Society of the Philippines (CSSP) Sant S. Virmani Hybrid Rice Award for its significant accomplishments in support of the National Hybrid Rice Program.

Formed in 2009, the team is composed of breeders, an agronomist, a seed quality specialist, and technicians from DA-PhilRice and UP Los Baños. The breeding of TGMS-based hybrids started in 1998.

The 29-member team was recognized for producing the five NSIC-released two-line public hybrids: NSIC Rc 202H (M19) and Rc 204H (M20) in 2009, Rc 446H (M73) in 2016, Rc 544H (M99) in 2018, and Rc 552H (M103) in 2019. Mestiso 20 is currently being used in the public hybrid rice commercialization of DA-PhilRice. Meanwhile, M73, 99, and 103 are now being prepared for launch as new public hybrids for nationwide commercialization.

The team also produced nucleus and breeder seeds of parent lines of Mestizo 1 and M20 to meet national requirements. It helped develop policies under the direction of DA and in collaboration with IRRI and the Bureau of Plant Industry, which guided seed growers/inspectors/analysts involved in crop establishment, field inspection, and seed certification for TGMS hybrids and their parent lines.

The team likewise identified certain areas in Davao Oriental/del Norte/ del Sur, South Cotabato, and Negros Occidental as the best locations for M19 and M20 seed production. A potential site was also recently found in Buenavista, Quezon, where technical assistance and training are being provided to key stakeholders and farmers. This breakthrough can help increase hybrid seed supplies in Luzon.

The Award is given by the CSSP to researchers or seed production and extension personnel who significantly contribute to the development and dissemination of hybrid rice technology in the country. Dr. Sant S. Virmani was a former principal scientist of IRRI and a world-renowned rice breeder.

Rice in saline-prone areas yields

MICHAEL L. SATUITO

DA-PhilRice Bicol develops and promotes integrated management practices and technologies for rice and rice-based crops for salt-affected areas in Albay.

Under a supportive DA-Regional Field Office 5-funded project, a 10-ha community-based technology demonstration was established in salt-affected rice areas in partnership with the Albay Provincial Agriculture Office (PAO) and the municipal government of Tiwi.

Twenty-five farmer-cooperators were provided with seeds of Salinas rice varieties, fertilizers, training, and other activities with close supervision from the station and Tiwi personnel.

One of the main highlights of the project was the *Lakbay Palay* showcasing salt-tolerant rice varieties, particularly NSIC Rc 468 and Rc 470, and packages of technologies. About 100 Albay farmers with salt-prone rice fields from Tabaco and Ligao Cities, and municipalities of Bacacay, Malinao,Tiwi, and Malilipot participated in the said activity.

Mr. Sunday Combo of Tiwi said that since his field is affected by salt water, it is very hard for him to grow rice. After planting Rc 468, his yield had improved.

“My training on proper crop management was really helpful. Even our neighbors replicated the practices we learned and expressed their joy because their yields also improved,” Combo was thankful.

Because of this inspiring initiative, the Albay PAO now also eyes to implement the same project in their other coastal areas.

PHILRICE PHOTO

RICE ACROSS THE COUNTRY

New varieties, lower seeding rate promoted in Panay Islands

VANESSA A. TINGSON


PHILRICE PHOTO

DA-PhilRice Negros and the local government units of Patnongon, Antique; Cabatuan, Iloilo; and Jordan, Guimaras, established technology demonstration areas to put on the spotlight the performances and adaptability of seven newly released rice varieties, the 40kg/ha as direct seeding rate, and strategic nutrient management practices from the *Abonong Swak* campaign.

Alvin D. Palanog, the R&D coordinator, said that through the techno-demo, they hope to increase the knowledge and encourage the adoption of the new rice production technologies among farmers. The project has started this wet season with an aim to promote the technologies in every province of Central and Western Visayas.

The new varieties are NSIC Rc 506, Rc 514, Rc 510, and Rc 534; and hybrid NSIC Rc 490H, Rc 504H, and Rc 204H.

Francisco Gonzaga III, municipal agriculturist (MA) of Cabatuan appreciated the techno-demo on the new varieties. These will enable farmers to see for themselves the performance of other varieties, which they could choose from for higher yield and early maturity.

Palanog also explained that by adopting the 40kg/ha seeding rate, the rice plants grow healthier because they can receive sufficient sunlight. He said it could also help produce productive tillers, which would mean higher yields. This recommendation also results in lower farm expenses, he added.

"Most of the farmers in our area use 80-100kg seeding rate/ha," Gonzaga said. Patnongon MA Bernardita Salvador confirmed that more than 50% of their farmers also use the same high seeding rate.

The *Abonong Swak* campaign promotes the use of combined organic and inorganic fertilizers to help farmers save up to P4,000 on their production costs. Gonzaga looks ahead to the reduction in the use of inorganic fertilizers among their farmers.

Salvador and Gonzaga hope that through the techno-demo established, the practices of their farmers will improve for better yields and reduced production costs.


PHILRICE PHOTO

Technologies scaled up in Agusan del Sur

KRISTIANNE MARIE C. DAVID

DA-PhilRice Agusan has established technology demonstration farms in La Paz, Talacogon, and Loreto, Agusan del Sur, to add to their sites in Surigao del Norte this 2022 wet season.

R&D coordinator Cherryl U. Seville said Agusan del Sur has a low average yield of 3.2t/ha despite its 40,000-45,000ha rice area, hence the techno-demo sites.

The use of high-quality rice seeds, rice farm machinery, Alternate Wetting and Drying method, integrated pest management, and Rice Crop Manager (RCM) application are being promoted.

Seville urged more farmers to try the technologies being promoted, particularly the rates generated by the RCM app owing to the soaring prices of fertilizers.

Milled rice sold at P20/kilo

SYLVIA THERESE C. QUIRING

The SanGlad RiceBIS Farmers Association sold milled rice at P20/kilo during DA-PhilRice Midsayap's *Lakbay Palay* on Sept. 7 in support of the aspiration of President Bongbong Marcos.

Merily Ortega, president of SanGlad, said that with the guidance of the Rice Business Innovations System (RiceBIS) program from production to marketing, they managed to produce *palay* and sell it as milled rice at only P20 per kilo. Their gross income is estimated to be at P25,000. The lucky buyers brought home a total of 800kg milled rice.

She testified that RiceBIS improved their rice farming practices. They were educated on the PalayCheck System, and the value of marketing their own produce was also hammered into their shared mentality.

SanGlad farmers' yield averaged last cropping at 5.79t/ha with a production cost of P55,000/ha or P9.50/kg. Before RiceBIS days, they harvested only 4.34t/ha.

The farmers ventured into milling their *palay* at a production cost of P14.48/kg milled rice; hence selling it at P20/kg still earned them an income of P5.52/kg.

Local RiceBIS coordinator and OIC Branch Director Ommal H. Abdulkadil said they cultivate a deep sense of ownership among the farmers in their enterprise. "We encourage them hard to transact with offices, process the needed papers or documents, and market their products, so they will truly feel that they own the business. We are just there to monitor, guide, and provide support if needed," he added.

Ugnay Palay takes on rice R4DE issues

JOSHUA P. MENDOZA

To address current issues and emerging problems in rice research for development and extension (R4DE), the Ugnay Palay: 34th National Rice Research for Development Conference was held at the DA-Crop Biotechnology Center Plenary Hall in Nueva Ecija.

With the theme, "Advanced science and technology for prosperous rice-farming communities toward sufficient and affordable rice for all," the conference organized by PhilRice highlighted the accomplishments of the Institute's maturing strategic plan 2017-2022 and presented its new plan for 2023-2028.

Also, it recognized the rice R4D accomplishments and implementation strategies of the different sectors in the rice industry. It likewise gathered feedback on relevant rice R4DE thrusts and initiatives to achieve rice self-sufficiency along with making rice affordable for all as part of the national stakeholders' consultation workshop for the new PhilRice Plan.

Land preparation made easy especially for women with this riding-type boat tiller with leveler attachment.

Riding-type boat tiller for shallow-to-deep muddy fields

HANAH HAZEL MAVI B. MANALO

SHALLOW-TO-DEEP MUDDY FIELDS in the Philippines are about 15,000ha. Developed for this type of rice fields to lighten the burden of land preparation especially for women and to address the limitations of conventional tillers, the new machine has turned out to be the improved version of the floating tiller. It has a boat-shaped body allowing an operator to ride on it while doing rotovation, harrowing, and levelling.

Dr. Arnold S. Juliano, one of the developers of the machine and head of the Rice Engineering and Mechanization Division, said the tiller is made of light metal materials.

The boat tiller has eight major components: the power transmission assembly, body/flotation chamber, a steering handle with a drive wheel, puddling rotor, prime mover, pneumatic tires for road transport, reverse mechanism, and leveler attachment.

This tiller has 2.7x1.3x1.8m dimensions with a 1.2m cut width. It is equipped with a 10hp reduction-type air-cooled diesel engine with an average forward speed of 5km/h, fuel consumption of 1.5-2L/h, actual field capacity of 3-4ha/day, and average field efficiency of 80%. Labor requirement is 1-2 persons (operator and helper). It showed promising performance as it leveled a field ready for planting.

This machine was granted an invention patent on June 10, 2022. It is at the pre-commercialization phase, whereby eight units were deployed to all PhilRice branch stations, and a memorandum of agreement is currently in place with five manufacturers. The machine was developed by Engr. Joel A. Ramos, Juliano, and scientists Drs. Manuel Jose C. Regalado and Elmer G. Bautista.

MA SALOME DUCA

Fungus reduces sheath blight

ALDRIN G. CASTRO

Trichoderma harzianum, a fungus, effectively reduced sheath blight incidence by 19 to 35% in inbred and traditional rice varieties, according to a DA-PhilRice study.

Dindo King M. Donayre, Scientist I, said that under greenhouse conditions, *T. harzianum* isolates effectively reduced the incidence of the disease by 19% and 35% in NSIC Rc 216; 21% and 20% in Rc 282; and 27 and 21% in traditional variety. He also said that *Rhizoctonia solani sclerotia*, the fungus that causes sheath blight, were very few in treatments applied with two isolates in the three test rice varieties.

Trichoderma isolates were applied by treating the seeds, mixing them with soil, or spraying directly onto the plants. These protect plants by attacking harmful organisms through *mycoparasitism* or coiling their mycelia or network of threads around them. The isolates also produce antibiotics and secrete enzymes that cause the thinning of the mycelia of harmful organisms.

Donayre asserted that *T. harzianum* will not only help reduce diseases of rice but also the farmers' reliance on chemical fungicides, thus, reducing the cost of production.

This study is under the project Ecology and Non-Chemical Ways of Managing Rice Pests or EcoWays. "Our research on *Trichoderma* will help explore its applicability and efficacy against diseases of rice under irrigated lowland conditions," Donayre, a crop protection expert, said. His team plans to test it for rice blast and bacterial leaf diseases under rainfed conditions.

Dr. Flordeliza H. Bordey (right photo, middle), 2021 Presidential Lingkod Bayan Awardee, delivers a message on behalf of the awardees. Meanwhile, Atty. Karlo Alexei B. Nograles, Civil Service Commission chairperson, is the guest speaker (left photo) of the Dangal ng PhilRice Awarding Ceremony.

Dr. Zosimo M. Battad, University of the East Caloocan Campus chancellor and member of the UAAP Board of Managing Directors, shares his experiences on research management during the Santiago R. Obien (SRO) seminar series.

DA-PhilRice turns 37

JOSHUA P. MENDOZA

PhilRice commemorated its 37th year of service anchored on rice research for development and extension for the Filipino rice farmers, Nov. 3-4.

The institute celebrated its founding anniversary with the theme, "Ensuring a responsive rice R4DE for a fast-recovering agri-economy".

Dr. John C. de Leon, executive director, said that PhilRice is grateful to the DA family and collaborators for "co-creating many breakthroughs and keeping the institute's research, development, and administrative sectors motivated and determined."

The anniversary featured rice art exhibits titled, "Butil, buhay, sining, at kulay" by Hermisanto and the #BeautifulPhilRice – a photo gallery showcasing the institute's sceneries and work, awarding of outstanding staff in the Dangal ng PhilRice ceremonies, SRO seminar series on research management and institution-building, and thanksgiving and moral enrichment program.

Mr. Reynaldo L. Tabulo, founder of the RiceMan Agricultural Consultancy and The Radiant Light Coaching and Training Company, inspires the PhilRice staffers during the Thanksgiving and Moral Enrichment Program.

The rice art exhibit features the works of Hermisanto (left), a multimedia artist known for experimental works since the 70's. Joining Hermisanto is Baby Armi L. Alvarez, Mayor of Science City of Muñoz, Nueva Ecija.

PhilRice staffers enjoy playing basketball, volleyball, darts, table tennis, lawn tennis, and longest distance travelled during the Sports Festival.

DA-PhilRice NOTABLE ACCOMPLISHMENTS 2017-2022 *

Infographics by Sarah Joy N. Ruiz

Outcome 1

Increased productivity, cost-effectiveness, and profitability of rice farming in a sustainable manner

- **17,657** collections conserved in genebank
- **28** new varieties developed
- **12** machines ready for technology transfer
- **5** non-chemical ways of managing pests developed
- **PRIME** (Pest Risk Identification and Management) understands risk factors for pest outbreaks and identifies appropriate management strategies to reduce crop losses

Outcome 2

Improved rice trade through efficient postproduction, better product quality, and reliable supply and distribution system

3 systems package developed/updated

- PalayCheck System (now with KeyCheck 9)
- PAG-AHON (Sa Palay at Gulay, may Ani, Hanapbuhay, Oportunidad, at Nutrisyon)
- Palayamanan Plus

3 postharvest machines developed

- Mini and stripper rice combine harvesters
- Combined conduction and far infrared

Outcome 3

Enhanced value, availability, and utilization of rice, diversified rice-based farming products, and by-products for better quality, safety, health, nutrition, and income

- **Golden Rice** approved for commercial propagation
- **Rice with special characteristics** developed:
  - NSIC 2021 Rc 648 (Zinc rice 2), Rc 31 SR, Rc 638 SR; 640 SR, 642 SR, 644 SR; 646 SR
- **10** snack meals, **4** beverages, and a dietary supplement developed
- **Continuous-type rice hull carbonizer** now includes built-in heat recovery attachments
- FutureRice Farm received **Good Agricultural Practices certification**
- **Heavy metal study on rice contamination** conducted

Outcome 4

Science-based and supportive rice policy environment

2 Publications

- Rice value chain in the Philippines
- Comparative issue of rice farming in Asia and the Philippines

LGUs passed **5 ordinances** to serve half-cup rice and **4 resolutions** to serve brown rice

24 position papers, policy memoranda/briefs

More than **300** members of both houses of congress received **7** issues of Rice Science for Decision-Makers

Truthful labelling of rice passed as provincial ordinance in Nueva Ecija; municipal ordinance in Balaoan, La Union

Palaystat system launched:
60,832 views, **14,377** sessions, **8,988** users

* Data as of June 2022

Outcome 5

Advanced rice science and technology as continuing sources of growth

PSIS (PhilRice Soil Information System) updated
- **23** provinces' soil information uploaded
- **31** soil series field guides developed

Android apps developed and released:
- **Leaf Color Computing (LCC) App**
- **Minus-One-Element Technique (MOET) App**
- **e-damuhan**, **e-binhi** and **AgriDoc apps**
- **Rapid Crop Health Assessment**
- **Rapid Intel** - "**chart download**" function added
- **AutoMonPH** and **WateRice App**

Systems developed:

Oryza Germplasm Management System Online for the timely delivery of requested germplasm for research and increase of genetic resource-use in breeding and genetic improvement

RSIS (Rice Seed Information System) helps address issues of seed production traceability, distribution monitoring, and seed demand forecasting

PRISM (PhilRice Information System) hailed as a model in Asia on how satellite-based monitoring systems can result in significant gains for agriculture

Outcome 6

Enhanced partnerships and knowledge management for rice research for development (R4D)

Ricelytics is now ready for use in policymaking

Information, Education, and Communication:
- **451** titles of knowledge products produced
- **3,176** total media hits
- **796%** increase in Facebook engagement
- **90%** user satisfaction rating of the Pinoy Rice Knowledge Bank (PinoyRKB)

Advisory Service:
- **424%** increase in PhilRice Text Center users
- **Survey: 91% -** highly satisfied users

Promotion of PhilRice Technologies
- Rice Patrollers - **3.2M** reach and **429k** engagement on social media
- *"Palaywakin Ang Galing"* - Interest to learn new farming techniques increased by **100%**
- *"Golden Rice Malapit na to"* – facebook followers increased from **3,688** to **13,851**

5 Information systems developed, maintained, and enhanced. **PinoyRKB and Palayman Chatbot** developed. Chatbot was found useful by **81%** of the users

More than **200** techno-demo sites established; **7,539** stakeholders trained

News releases equivalent to **P20.4M** public relations value saved

Executed **1,128** Memorandum of Agreements

Outcome 7

Strengthened institutional capability of PhilRice

People:
- **14** conferred scientists; **28** staffers sent to degree training; **82%** of staffers sent to non-degree training; **138** magna carta recipients
- **332** plantilla positions awarded
- **Competency Manual** developed to ensure that the talent requirements of the Institute are met
- **18** Civil Service Commission - Honor Awards Program National and Regional Awardees

Processes and budget utilization:
- Granted **PRIME-HRM Level II**
- Enhanced **digitization of processes** in the Institute
- Accomplished 38% gender mainstreaming in projects and administrative processess
- Implemented **100%** IMS internal audit and received ISO 9001 and 14001 certifications
- Utilized **98%** of budgets

Properties, infrastructure, and products:
- Acquired **15.48ha** of rice land amounting to **P30M**
- 1**29** new infra repair and maintenance projects completed amounting to **P434.5M.**
- **50** new vehicles **(80.3M)**, 69 units of IT and office equipment procured (**100k/**unit and above)
- Produced an average of **1,662.67 tons** of registered seeds with an average area planted of **286.73ha**
- Awarded "**Gawad Yamang Isip: Special Awards**" in IP protection, utilization, and/or commercialization

The making of a hybrid seed-producing municipality

AURA SHAZNAY P. TUMULAK

"PUBLIC HYBRID MESTISO 20 (M20) seeds are only available in Mindanao" is a turnoff for Luzon farmers, who are interested in growing the variety.

This dared the implementers of DA-PhilRice's project Public Hybrid Rice Seeds System (PHRSS) in 2019, to make M20 seeds available and accessible in Luzon. Hence, the search for a seed production area.

Bred by DA-PhilRice and UP Los Baños, M20 (NSIC Rc 204H) yields 6.4 to 11.7t/ha. It matures in 111 days after sowing and is moderately resistant to green leafhoppers and brown planthoppers. M20 is promoted by PHRSS that aimed at making high-quality parentals and F1 seeds accessible, affordable, and available at all times.

MIRACLE SEED

Before being dubbed by locals as the "miracle seed," M20 was an unknown hybrid from the DA-Regional Field Office (RFO) in CALABARZON.

"When the M20 seeds arrived, we had to accept them because these were the only available hybrids from the RFO back in 2018," said Alvin Ray Rivera, vice mayor of Buenavista, Quezon.

Initially planted in the municipality as an adaptability trial, M20 proved to be the best option for rice production when it harvested 8.3t/ha during the 2018 dry season. They used to harvest a measly 2.5-3t/ha.

"From 25ha demo farms in 2018 and 50ha in 2019, we had allotted 100ha in 2020. We shared the management practices with more growers to improve their yields. They went beyond the 8-ton yield to as high as 9.6t/ha," Rivera boasted.

Farmer Mike Delos Santos from Buenavista made public his experience with M20 back in the 2019 dry season. Despite the insufficient water that threatened tillering due to El Niño, Mike managed to hit the jackpot. He hauled 120cav from his 1.1-ha farm. This was the highest yield he had ever achieved. Before, he was contented with his 120cav using other varieties.

"M20's leaves remained green and showed no signs of drying," he described. With M20, Mike said goodbye to all his debts after pocketing P136,000 gross income.

WANTED: SEED PRODUCTION AREA

"Let us try Buenavista. If commercial M20 performed well there for three seasons, its parents may also thrive in that area," Dr. Fidel M. Ramos, PHRSS Project lead, said with optimism.

The high interest of Buenavista farmers in M20 also sparked in Ramos the idea to introduce how to produce their own seeds.

"We had no idea that it is possible to produce hybrid rice seeds in our place until Ramos' team set up a two-line hybrid rice seed production trial here in December 2020," Rivera said.


LGU OF BUENAVISTA, QUEZON

Buenavista Vice Mayor Alvin Ray Rivera sows parental seeds of M20 with guidance from DA-PhilRice's Dr. Fidel M. Ramos and Engr. Christian Paul A. De Leon.


PHILRICE PHOTO

Twenty-five farmers from Buenavista master hybrid seed growing with the help of the DA-RFO CALABARZON training.

Without a second thought, Rivera decided to participate in the hybrid rice seed production (HRSP) trial with the hope of ensuring M20's accessibility and availability in their place and helping increase Buenavista farmers' yields and incomes.

From the results of the trial, Ramos reported that the potential yield of SxP seed production was an impressive 2.16t/ha fresh weight and 2.06t/ha at 14% moisture content.

The municipal government spotlighted to their rice growers the potentials of HRSP in their locality on a field day in October 2021. Rivera then announced that it is possible for farmers to grow their own M20 seeds.

"We are proud and happy that the M20 F1 seeds produced from the seed production trial and eventually planted in our own fields also performed well," the vice mayor enunciated.

"The favorable results of the two-line HRSP trial in Buenavista are an achievement. Thank you, DA-PhilRice, for sharing your technical expertise on seed production and F1 cultivation of M20."

TOWARD BECOMING SEED GROWERS

"My goal is to put our town on the map as one of the top seed growers of M20," Rivera emphasized.

Under his stewardship, the Buenavista LGU was mobilized to identify possible trainees and locate potential demonstration areas, which will serve as the training grounds for participants.

In May 2022, 25 farmers underwent a modified season-long training on seed production. All field activities, from seed sowing to harvesting, were done in the demo site in Barangay Hagonghong, while the lectures were compressed in the 5-day intensive training course sponsored by the DA-RFO CALABARZON. The technical discussions and field practicum were conducted under the supervision of DA-PhilRice Los Baños and the BPI - National Seed Quality Control Services.

The trained farmers were accredited as seed growers and began their scaled production and commercialization. But they seemed to have run out of beginner's luck; they harvested only 400kg of F1 seeds against their 900kg target yield from their 1-ha demo farm.

According to Mel Anthony T. Talavera, senior researcher of Los Baños station, the inferior yield was because they planted the parentals 21 days late during the dry season, which led to drought during the early tillering stage and pest problems in the latter stretch of the season.

Planting hybrid parentals is a high-risk, but high-reward investment since producing them on a bigger scale requires stricter measures in time management and location isolation.

After focusing on these aspects, Buenavista seed growers expect to yield a full one ton of M20 F1 seeds in their 1ha field.

"Good news for interested Luzon farmers! We have available M20 seeds as certified seeds harvested in October," Rivera said with pride.

The politician also said that they plan to sell hybrid rice from their 8-ha field to the National Food Authority. They have an ongoing application as a cooperative for them to be able to sell M20 F1 seeds to DA-RFO, and training of other farmers for M20 seed production is also underway.

Buenavista's story proves that Outcome 1 of the Institute's 2017-2022 StratPlan, which aimed to increase productivity, cost-effectiveness, and profitability of rice farming in a sustainable manner is achievable.

JAYSION C. BERTO

RICE COMPETITIVENESS
RCEF
ENHANCEMENT FUND
SEED & EXTENSION

DA-PhilRice-led RCEF Programs: Toward improving the competitiveness of Filipino rice farmers

Infographics by Anna Marie B. Berto
Subject Matter Specialists: Dr. Flordeliza H. Bordey and Dr. Karen Eloisa T. Barroga

OUTCOMES ACHIEVED:

Improved rice yield through higher technology adoption

Increased use of certified seeds of inbred varieties

Since its maiden implementation, the RCEF Seed Program and its partner-LGUs distributed around **10.41 million bags** of inbred certified seeds to about **one million farmers** who planted in some **1.5 million hectares**. At least 36% of the beneficiaries are female and 64% are male. They also received reading materials on recommended rice production technologies and practices from the PhilRice-led component of the RCEF Extension Program.

A total of **333 unique PalaySikatan technology demonstration sites** were established nationwide from 2020 DS to 2022 DS to showcase the benefits of using recommended rice varieties and modern farm technologies in select areas.

Improved adoption of yield-enhancing technologies

From late 2019 to mid-2022, the PhilRice-led component of the RCEF-Extension Program conducted **15 batches of Rice Specialists Training Course** (RSTC) with 409 graduates, **71 batches of Training of Trainers** (ToT) with 1,974 graduates; and **74 batches of Farmer Field School** with 3,152 farmer-graduates nationwide.

The Institute also developed **298 titles of information, education, and communication materials** in various formats. More than three million copies of these materials were distributed to farmers and intermediaries (eg., rice specialists, trainers, agricultural extension workers) in the 57 provinces covered.

An estimated **18.7 million beneficiaries** (not unique) were also reached through various knowledge sharing and learning activities.

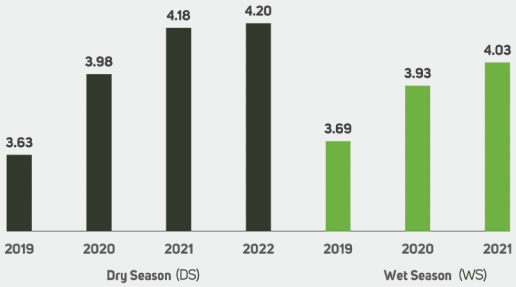
Enhanced partnerships

DA-PhilRice through its RCEF Seed and Extension Programs engaged various public and private groups in its implementation mechanisms.

In 2021, the Philippines produced a record-breaking *palay* output of **19.96 MILLION METRIC TONS**

The national *palay* output increased by around 670,000 tons. More than 390,000 tons or 59% of which were gained in the 42 provinces served by the RCEF Seed and Extension Programs implemented by the Institute.

Growth in yield



Baseline (2019) vs monitored (2020-2021) yield performance of RCEF-covered provinces

Increase in seed utilization

96%
in 2022 DS, from 85% in 2020 DS

97%
in 2021 WS, from 94% in 2020 WS

Reduction in seeding rate

from 87kg/ha in 2019 WS to

56kg

per hectare in 2021 WS (51kg/ha in transplanting and 65kg/ha in direct seeding)

Gain in knowledge (GIK)

Graduates of training courses achieved an average GIK of:

RSTC	55%
TOT	61%
FFS	50%

The RSTC and TOT graduates were also tapped as resource persons, trainers/training management team members in RCEF Extension work.

Expanded information access

71%
of the surveyed RCEF Seed beneficiaries said they had access to the various communication materials produced in 2021

Widened technology adoption

97%
of the farmer-recipients who had access to communication materials applied the knowledge they learned

Top technologies applied by surveyed FFS graduates are on pest and nutrient management.

57 Provincial LGUs

at least 1K City/ Municipal LGUs

58 Seed Growers Cooperatives & Associations

388 Farm School Owners

Dry direct seeding rekindles hope among rainfed farmers

MINARD F. PAGADUAN

WHEN WATER BECAME limited, the rainfed farmers' hope for a better yield was also dampened.

Twenty years ago, most farmers in Acnam, Nueva Era in Ilocos Norte enjoyed a yield of at least 5t/ha from their transplanted crops.

Irrigation issues causing water scarcity have brought them a nightmare.

"Our yield dropped to 1.5-3t/ha," lamented Noel D. Galut, 44, a farmer from Acnam.

Water scarcity delayed land preparation and crop establishment, exposing their crops to destructive typhoons from flowering to maturity.

They turned to dry direct seeding (DDS), whereby they prepared dry land while conserving irrigation water. They established their crops on time by broadcasting, dibbling, furrow seeding, or using a manually operated single-row seeder, which requires an intimidating amount of labor.

In 2018, DDS using the Multi-purpose (MP) Seeder was presented to the Acnam farmers. The MP Seeder, powered by a *kuliglig* or two-wheeled hand tractor, could plant a hectare of rice, corn, and mungbean in less than a day with just one operator. It perfectly matches Acnam conditions as they plant rice during the wet season, and corn and mungbean during the dry months.

Galut, who has farmed for 23 years, challenged himself and tried the MP seeder without much hesitation.

"I found out that it creates straight rows with adequate space between rows to allow the plants to grow. The seeding rate is reduced," Galut observed.

PhilRice Batac's John Mark Bumanglag, project coordinator, said Nueva Era farmers are used to 100-130kg/ha seeding rates.

But through mechanized crop establishment with management practices, the seeding rate was reduced by 14-50%.

He explained that the MP Seeder also lessens labor costs by 70% during crop establishment by only requiring 2-3 people. It also shortens crop set-up operation time to half a day.

Noel Galut harvested 4.3t/ha *palay* with a 61% (P3,550) reduction in labor and crop establishment costs. "Now, I have sufficient budget for our basic necessities and for my children's education, and I even pay my obligations on time," he proclaimed.

Farmers from Banna, City of Batac, Paoay, Currimao, and Pasuquin also participated in the MP Seeder trials, technical briefings, and techno-demos in collaboration with their local government units (LGUs) and other authorities.

Even after the project is completed, the MP Seeder is still being promoted during training in Rice Business Innovations System communities to help and meet requests from various LGUs and farmers.

"This year, an MP Seeder unit was turned over to the LGU of Nueva Era to make dry direct seeding more accessible to farmers," Bumanglag said with a wide smile.

DEEJAY JIMENEZ

Noel Galut is a proud MP Seeder adopter.

DEEJAY JIMENEZ

PHILRICE PHOTO

The first-ever dry direct seeding machine developed by DA-PhilRice and IRRI with funding from the DA-Bureau of Agricultural Research, the MP Seeder is attached to a hand tractor that direct-seeds rice, corn, and mungbean.

JOHN MARK BUMANGLAG

Overall dimensions

Length: 2,000mm
Width: 895mm
Height: 700mm

	CORN	RICE	MUNGBEAN
Number of rows	4	2	2
Distance between rows (cm)	20	60	60
Depth of seeding (cm)	adjustable	adjustable	adjustable
Field capacity (ha)	2.5	2.5	2.5
Seeding rate (kg/ha)	60	18	24
No. of seeds/linear meter	33	4	26

FROM PRODUCERS TO AGRIPRENEURS

Infographics by Kiara Mae E. Panyo

The Rice Business Innovations System (RiceBIS) is a flagship program of DA-PhilRice that addresses rice farmers' low productivity and income through the modern techniques highlighting the agripreneurship framework. It is founded on strong multi-sectoral and multi-disciplinary collaboration to ensure viable and sustainable rice and rice-based enterprises among RiceBIS communities nationwide.

Such communities are composed of empowered farmers equipped with personalized and responsive capacity-building techniques, transforming rice farmers to become agripreneurs through packages of holistic and demand-driven business development services to facilitate and assure successful agribusiness operations.

In becoming agripreneurs, the farmers are taught to be critical by asking not only 'what and how to produce' but also 'what, how, and to whom to sell.' The agroenterprises of the RiceBIS communities are milled rice, brown rice, pigmented rice, inbred seeds, and custom service provision.

"Let's support our local rice farmers by patronizing their products," RiceBIS Program Lead Dr. Aurora Corales said.

RAYURAY FARMERS AGRICULTURE COOP
Location: Batac City, Ilocos Norte
Products: Brown Rice and Milled Rice
Contact: Ruthbell Pammit
(0995-911-3940)

RICEBIS BAYAMBANG AGRICULTURE COOP
Bayambang, Pangasinan
Brown Rice, and Pigmented Rice
Conrado Lapurga
(0920-797-5594)

RICEBIS MANGATAREM AGRIPRENEURS AGRICULTURE COOP
Mangatarem, Pangasinan
Milled Rice
Robert Velasquez
(0951-052-0498)

CASTILLEJOS FARMERS AGRICULTURE COOP
Castillejos, Zambales
Brown Rice
Bernabe Ladislao
(0948-503-0628)

RICEBIS LOS BAÑOS
Sariaya / Tiaong, Quezon
Milled Rice and Pigmented Rice
Michelle Quimbo
(0916-772-7659)

BANGAD FARMERS ASSOCIATION/BACLAY ARB COOP
Milagros and Mandaon, Masbate
Pigmented Rice
Fernando Amoyo
(0935-579-0358)/
Jessie Dadula
(0938-071-9154)

PINAGBUKLOD NA ADHIKA MULTIPURPOSE COOP & UGAT-UHAY FARMERS ASSOCIATION
Zaragoza, Nueva Ecija
Brown Rice
Machines: 4-wheel tractors, combine harvesters, transplanter, and mechanical dryer
Francisco Ignacio
(0935-478-8367)

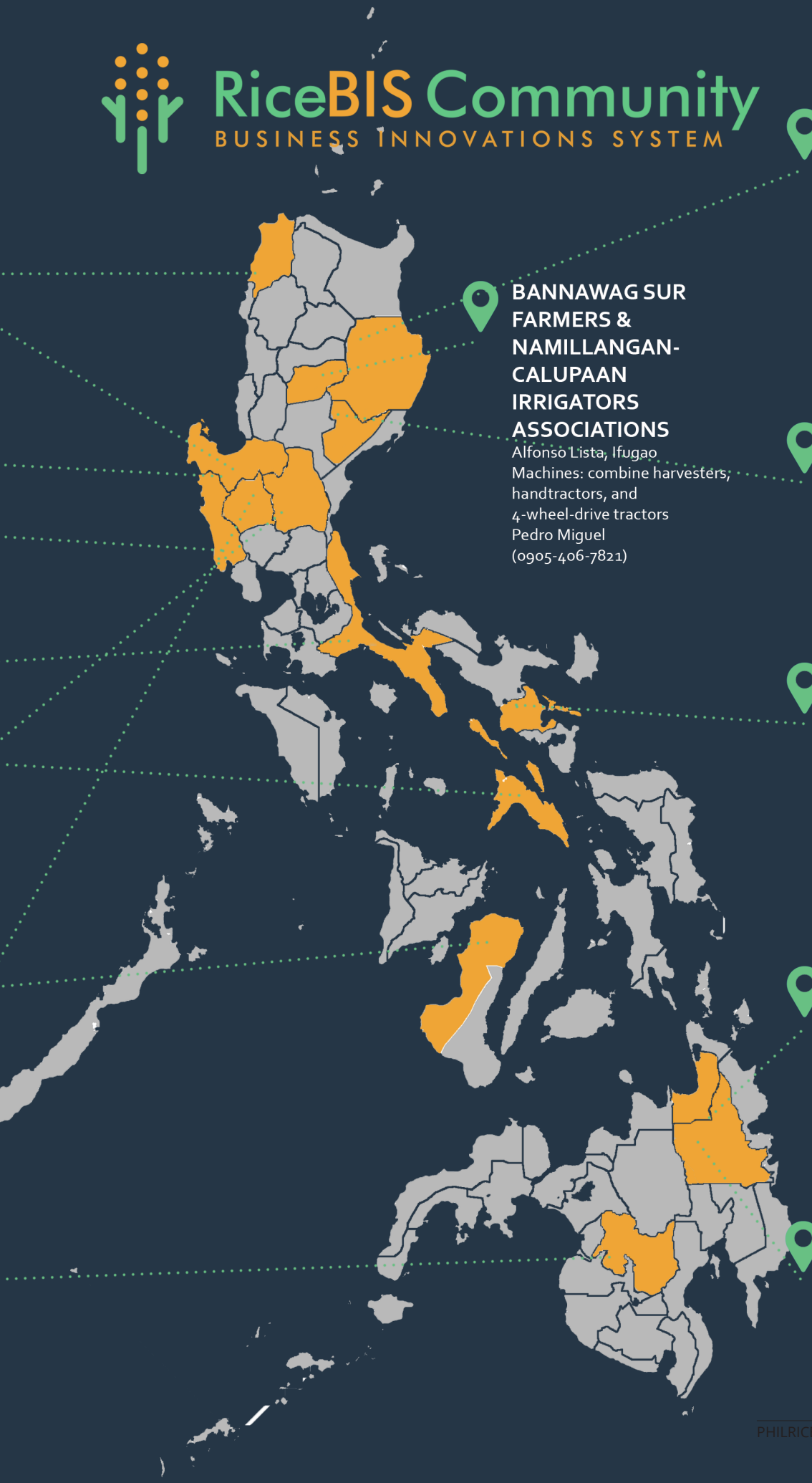
RICEBIS NEGROS AGRARIAN REFORM COOP
Murcia, Negros Occidental
Brown Rice
Donato R. Melagoso
(0919-922-8477)

SEMBRANO CLIMATE-RESILIENT FARMERS AGRICULTURE COOP/ MACAGUING PRIMARY MULTI-PURPOSE COOP
Gerona/ Sta. Ignacia, Tarlac
Milled Rice
Samson Velascon
(0929-911-2070)/
Mely Nicolas
(0945-128-5701)

RICEBIS MIDSAYAP
Midsayap/ Libungan, North Cotabato
Milled Rice
Wynrich Bugtay
(0930-552-9423)

RiceBIS Community

BUSINESS INNOVATIONS SYSTEM



MARDAG RICEBIS AGRICULTURE COOP

San Mateo, Isabela
Brown Rice and Milled Rice
Machines: handtractors, mini/rice combine harvesters, walk-behind transplanters, and 4-wheel-drive tractors
Jose Manglallan Jr.
(0997-537-3352)

BANNAWAG SUR FARMERS & NAMILLANGAN-CALUPAAN IRRIGATORS ASSOCIATIONS

Alfonso Lista, Ifugao
Machines: combine harvesters, handtractors, and 4-wheel-drive tractors
Pedro Miguel
(0905-406-7821)

VILLA PASCUA FARMERS ASSOCIATION

Diffun, Quirino
Machines: 4-wheel tractors, handtractors, and combine harvesters
Francisco Nera
(0936-190-9899)

BALANGIBANG PALAYAMANAN FARMERS ASSOCIATION, INC.

Polangui, Albay
Machines: handtractor, threshers, and transplanter
Bayani Abarquez
(0907-202-4955)

RICEBIS AGUSAN

Cabadbaran City, RT Romualdez, and Buenavista in Agusan del Norte; and Esperanza, Agusan del Sur
Milled Rice
Sonny Jay Acosta
(0930-200-6116)

ESPERANZA SEED GROWERS/ FARMERS ASSOCIATION

Esperanza, Agusan del Sur
Inbred Seeds
Teodoro Ortega
(0950-565-5058)

Land prep and postharvest machines have 'landed' on farmers' fields

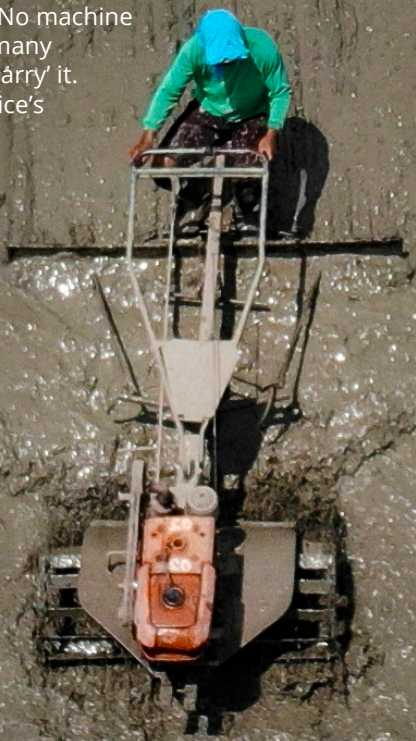
HANAH HAZEL MAVI B. MANALO

THE SHOP WAS CONGESTED with farm machines gathering dust. The machines were for display only. The Institute's senior engineers vividly recalled how their shop looked like before.

Dr. Arnold S. Juliano, head of our Rice Engineering and Mechanization Division (REMD) said, "Making our machines available and accessible to more farmers is a big challenge for us."

The machines aimed to contribute to producing better-quality rice by improving harvest and postharvest facilities. This is to help achieve one of the seven outcomes of the Institute's StratPlan: "improved rice trade through efficient post-production, better product quality, and reliable supply and distribution system". The R4D emphasis on improving said facilities is due to the growing postproduction losses in rice. Studies show that such wastage accounts for 16% of all total losses. This could be alleviated by more efficient postharvest facilities, hence targeting to reduce such losses to 10%.

However, the Institute alone couldn't fabricate and manufacture many units of machines at a given time. It needs partners to help bring the machines right to the rice farmers' fields. No machine is heavy when many hands help to 'carry' it. Thanks to PhilRice's local partner-manufacturers like the Val Agri Machineries and Machine Shop.



JAYSON C. BERTO

Apart from commercializing DA-PhilRice-developed machines, Val Agri Machineries and Machine Shop in Guimba, Nueva Ecija also manufactures durable hand tractors.

TRANSFERRING TECHNOLOGY

In 2020, the Institute signed a licensing agreement as required by the Technology Transfer Act of 2009 with its two-decade partner Val Agri to manufacture and commercialize the microtiller, laboy tiller, reversible flatbed dryer, and seed cleaner.

Microtiller is a lightweight equipment used for tilling small-sized paddies, while laboy tiller does land preparation, particularly for puddling soil with deep hardpans. The reversible batch-type mechanical dryer dries *palay* by first introducing heated air at the bottom layer of the grains, then reversing its flow before completing the drying process. The seed cleaner is used to remove foreign materials from the seed mass.

Roman S. Lugto, 53, owner of Val Agri in Guimba, Nueva Ecija reports, "the microtiller has reached Iloilo, Ifugao, Mountain Province, Benguet, and even some parts of Mindanao. Laboy was brought to Aurora, Palawan, Iloilo, Agusan, Davao Del Sur, and Bukidnon. The dryer was installed in PhilRice Isabela and Batac, and its parts were brought to Ilocos, Tarlac, Nueva Ecija, and Cagayan. Also, the cleaner has reached Ilocos Sur. Multipurpose (MP) seeders were brought to PhilRice stations."

"Manufacturing machines," Lugto went on, "requires hard work and large capital. Delivering them to mountainous places is very challenging. But, this is OK as I am still earning 10-50% from those machines."

According to Dr. Elmer G. Bautista, Scientist I from REMD, Val Agri is also one of the inventors of the MP seeder. Lugto was heavily involved in the prototyping, testing, and modification of the equipment.

SUPPORTING LOCAL MANUFACTURERS

"We encourage more agricultural machine shops to also undergo licensing to help us reach more farmers," Juliano said.

Bautista, on the other hand, admitted the limitations of the public sector in commercializing its own technologies. "Partnership with the private sector, like the local manufacturers, hastens the process of owning a unit of our machine among farmers," he added.

"With local manufacturers, after-sales service will be provided. The machine parts are locally available when replacement is needed," Juliano explained.

"Quality and performance of the locally fabricated machines are comparable with the machines manufactured by other countries. Let us support our local shops," he concluded.

MICROTILLER

Field capacity	0.5ha/day
Labor requirement	1 person
Width of cut	0.6m
Power requirement	6hp gasoline engine
Weight	60kg
Dimensions (LxWxH)	1.5x0.7x0.7m

SEED CLEANER

Output capacity	250cav/day
Paddy purity	90-99% depending on paddy MC
Cleaning losses	<1%
Labor requirement	1-2 persons
Power requirement	1.5hp electric motor or 6hp gasoline engine
Weight	80kg
Dimensions (LxWxH)	1.2x0.6x1.0m

REVERSIBLE FLATBED DRYER

Drying bin	60 to 220cav/ batch
Drying time	4–6h/batch (up to 14% MC)
Drying temperature	43 to 60°C
Fan	Single to two-stage tube-axial
Furnace	25 to 60kg/h, rice hull-fueled
Prime mover	12.5 to 26hp diesel engine

LABOY TILLER

Field capacity	
1st pass	1ha/day
2nd pass	1.5ha/day
Labor requirement	1 person
Width of cut	1.1m
Weight	100kg
Dimensions (LxWxH)	1.75x1.2x0.8m

Standing on their own: The true PAG-AHON

CHARISMA LOVE B. GADO-GONZALES

CALM AND CONFIDENT; standing erect.

Henry Ramos and his fellow farmers in Lupao, Nueva Ecija are not worried about the uncertainties in *palay* prices as their rice-based vegetables keep their livelihood afloat.

"We have increased our income by 20-30% by marketing our produce, which adds up to the gain from our rice harvest. This is our solution to low *palay* prices– a skill we learned from the 'Sa Palay at Gulay may Ani, Hanapbuhay, Oportunidad at Nutrisyon (PAG-AHON) Project," said Ramos, president of the Lupao Pag-ahon Agriculture Cooperative that evolved from the Lupao Vegetable Growers Association. It rose in May 2022.

This is one achievement under the third outcome laid out in our StratPlan 2017 to 2022. Under this outcome, the value, availability, and utilization of rice, diversified rice-based farming products, and by-products are enhanced for better quality, safety, health, and income.

Implemented in May 2020-December 2021, PAG-AHON molded the farmers into entrepreneurs through market-matching, a major support from the project that helped farmers to directly engage with consumers. Farmers were trained to diversify their crops, establish community hubs, and raise seedlings.

"The implementers trained us well. We sustained the project through this cooperative, which we formed on our own. We did not establish our Coop so we can ask for further assistance. We want to stand and depend on ourselves, be self-reliant, and strive hard," Ramos stressed.

The Coop members are living the goal of rising up. This September, Ramos claims that one of them earned P45,000 after 35 days by selling cucumber harvested from a 500m^2 area. The project report also shows that their gross income ranges from P2,035-P32,334. Tomato earned the highest net return with an ROI of 665.19%.

Before the project, farmers in San Antonio Weste were not accustomed to growing vegetables, leaving some fields barren. Licensed massage therapist Aila Grospe, who went back to their village as a coping mechanism during the pandemic, now cultivates the 1.3ha that was untilled for 15 years

since her father passed away. She and her husband learned to use the right amount of fertilizer, the right timing of pesticide application, and good farming practices through the project's training, and duly applied these in her 2,000m^2 veggies farm.

Meanwhile, Manuel P. Garcia said he is glad that his land that used to feed goats only is now teeming with rice and various vegetables.

The impact of the project rippled through demonstrations. From a 500-1,000m^2 demo area, 12 farmers who frequently passed by the site tried vegetable farming in a 500m^2 initial plot. Now, about 40 farmers replicated the practice, some extending their fields to as massive as 2ha. They have eggplant, hot pepper, bitter gourd, tomatoes, cucumber, bottle gourd, watermelon, yardlong bean, pechay, and mustasa.

"We organized ourselves 'cause we want to be better entrepreneurs. Presently, we can hardly supply the requirements of our buyers. From three outlets, we now deal with more than 10 markets. Of course, we also supply our community households – the reason why we started planting vegetables during the peak of the pandemic," he said.

The cooperative's major buyers include the Dizon Farms and Ateneo Foundation. Their produce also reaches Guimba, Nueva Ecija and Urdaneta City, Pangasinan.

To chart this success, PAG-AHON farmers were trained on seedling, soil nutrient and water management, crop protection, food storage and preparation, market integration, food safety and sanitation, among other aspects. A series of webinars and training courses on values orientation, rice production, nutrition education, and financial literacy were also provided to the 30 members.

They were also educated on using apps such as GrowHow, Plant Doctor, and Skill Ed, and had formed a community group on Facebook Messenger, where they presented their activities and challenges in growing vegetables.

"We have solved some of our farming challenges by opening our minds to learning new technologies, organizing ourselves, and having a wider perspective of going beyond production. From merely growing vegetables in small plots to selling our produce, now we're marketing planting materials. We have more to explore!" Ramos calculated.

The PAG-AHON project was implemented by DA-PhilRice together with the local government of Lupao, East-West Seed Company, and Lupao Vegetable Growers Association.

As of this year, the PAG-AHON model is being adopted and used in other RiceBIS projects in Isabela and Nueva Ecija, spearheaded by project lead Dr. Roel R. Suralta.

We have increased our income by 20-30% by marketing our produce, which adds up to the gain from our rice harvest. This is our solution to low *palay* prices– a skill we learned from the PAG-AHON Project

- HENRY RAMOS

JAYSON C. BERTO

DA-PHILRICE HAS ALWAYS DREAMT of serving policy recommendations on legislative tables as evident in the Strategic Plan 2017-2022 Outcome 4: Science-based and supportive rice policy environment.

Dream-come-true as local legislators now support responsible rice consumption advocated by the Be RICEponsible campaign led by the Institute.

In 2013, then Senator, now Philippine President Ferdinand Marcos Jr. authored the Anti-Rice Wastage Act. Today, **25** cities, **17** municipalities, and **8** provinces are implementing ordinances to serve half-cup rice to minimize rice wastage; and **13** cities have passed the resolution to make brown rice available to promote better health among rice consumers.

WALKING THE TALK IN RICE POLICIES

INFOGRAPHICS BY JAYSON C. BERTO
SUBJECT MATTER SPECIALIST: HAZEL A. BELTRAN

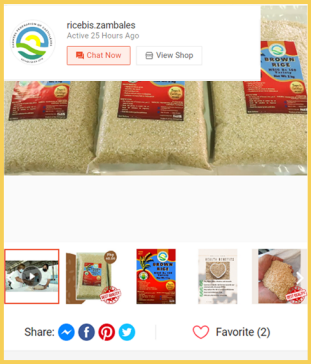
RiceBIS Zambales and Mangatarem Community

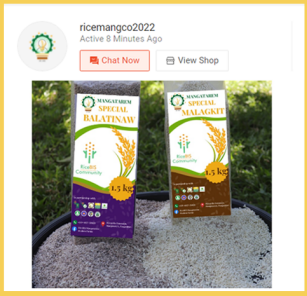
Online Seller of Brown Rice

The Zambales Community is composed of 21 farmers' associations with more than 40ha production area and Mangatarem Community has more than 123 farmer-cooperators with more than 100ha production area. The farmers were provided by DA-PhilRice and its partners with various capacity enhancement and development training courses, yield-enhancing, and cost-reducing technologies and practices.

They now sell locally produced and packaged brown, glutinous, and premium rices through online platforms such as Facebook and Shopee.

#SupportLocalFarmers





A yellow tag is posted at the door indicating that the restaurant franchise in General Santos City offering grilled Filipino and Asian favorites serves half-cup rice.

In early 2015 from an article published by DA-PhilRice, restaurant manager Aizabelle Iris Mangao testified that they have incorporated the half-cup rice in their point of sale, which is half the price of full rice as mandated by the ordinance.

"Notably, before we started advocating for the half rice in our store, we started with ourselves. We asked our staff to responsibly consume rice," Mangao said.

ELENA ESTEVA

Owner of Elena Cafe
General Santos City

"Eating brown rice and other pigmented rice has been part of our family diet for almost a decade. Now I want to share this through my three-month-old café."

When we think about getting warm this rainy season, Elene Café is a best option for a cozy rice stew or arroz caldo with combined brown, red, and black rice.

"Serving my version of arroz caldo is my way of promoting healthy diet and supporting local farmers. My unpolished rice grains are sourced from GenSan and North Cotabato as they are more aromatic and freshly milled."

LOVELY AND ENRIQUE MAGBANUA

Farmer-distributor of Brown Rice
Victorias City, Negros Occidental

"While selling our brown rice, we always encourage our clients to serve half-cup cooked rice in their eateries to avoid wastage. Other consumers are not used to eating brown rice so half-cup serving is recommended."

As part of their advocacy, several farmers' organizations were able to promote brown rice consumption through feeding programs in 2018 to about 1,000 students/pupils in their community.

Digital transformation in rice farming

CHRISTINA A. FREDILES

JAYSON C. BERTO

THE FUTURE OF RICE FARMING is dawning. New technologies and digitalization are helping "wired" farmers work more precisely, efficiently, and sustainably while improving their productivity and income.

MOET app generates fertilizer recommendations

The Minus-One-Element Technique (MOET) 3-in-1 Android App is a nutrient management decision support, a techno-transfer and a soil fertility mapping tool rolled into one mobile application.

The MOET app computes and schedules fertilizer applications for the rice crop based on the results of the MOET kit test. The app can also predict yield based on the farmers' own fertilization plan that they may compare with the target yield of the fertilizer recommendation. To access the app, simply download it from Google PlayStore, for free.

The app complements the MOET kit, a soil nutrient diagnostic tool that farmers can use to test their paddy soil for deficiency of six nutrient elements. It is currently priced at P300 and can be purchased from any PhilRice Station across the country.

Ailon Oliver V. Capistrano, the lead developer of the app, hopes that more agriculture extension workers will access the app and reach more farmers' fields. "The app offers the right amount, combination, and timing of fertilizer applications," he said. It helps farmers avoid excessive or inadequate fertilizer application. The app aims to improve farmers' yield and make fertilizer use more accurate.

Based on field validations in Central Luzon, the MOET App recommendations are 92%, precise, as the target yield calculated is close to the actual yield.

Capistrano reported that MOET app plots in the 2015 dry season (DS) yielded higher at 9.04t/ha than farmers' plots (7.4t/ha). During the 2016 DS, the majority of farmers in Muñoz and Cabanatuan Cities who tested the app gained up to 11.72t/ha. The lowest was 6.32t/ha, which is still superior to the national average of 4.3t/ha.

Raymundo Peter B. Bañaga from Mangatarem, Pangasinan is one of the farmers who have used the app. After doing the MOET setup, he downloaded the app. His usual yield was 5.5t/ha that grew to 7t/ha in 2021. "I encourage my fellow farmers to try and not be afraid with modern technologies," the BS Agriculture graduate and "digitalized" farmer said in Filipino.

The app is used before crop establishment, after the MOET test is set up. The setup includes seven planting pots, which contain complete fertilizer formulation and

> **The app offers the right element, amount, and timing of fertilizer applications. It helps farmers avoid excessive or inadequate fertilizer application. The app aims to improve farmers' yield and make fertilizer use more accurate.**

Pest Control (Drone spray-43)

Fertilization (DFA - 36)

Seeding (Drone seeding FutureRice 1)

Promoting precision agriculture, the drone can be used in direct seeding and application of fertilizers and herbicides.

the subtracted elements nitrogen (N), phosphorus (P), potassium (K), zinc, sulfur (S), and copper. The setup is performed for 30-45 days before transplanting, the data of which will then be used to generate location-specific recommendations. "The MOET app computes the precise N, P, K, and S amounts," Capistrano said.

Likewise, Sarah C. Villaflor, a local farmer technician and chairperson of the Moises Padilla Irrigators Association in Negros Occidental, has been using the app since 2016. She declares that the app is very convenient to use as it doesn't require internet connection that is often challenging in her place.

At present, 42 rice-producing provinces across the country will be provided with soil texture-based fertilizer recommendations from the MOET app through the Rice Competitiveness Enhancement Fund-Seed Program.

Drone that seeds, applies fertilizer, and helps manage pests

Nehemiah L. Caballong, digital agriculture specialist of PhilRice, swears the drone can finish direct seeding at 30min/ha as against manual operations that could take around 2.5h/ha. Drone use also guarantees more equal spatial distribution than manual. It reduces the seeding rate for inbred at 40kg/ha instead of the wasteful average of 96kg/ha under manual broadcasting, he adds. As the drone rental cost is only P850/ha, the total production cost can be reduced to P2,370/ha.

In a 2022 DS experiment, the drone-seeded plot produced 6.85t/ha, while the manually broadcasted yield was 6.38t/ha.

"Drones can also be used in monitoring pest incidences, nutrient status of rice, lodging after heavy rains, missing hills, and uneven greenness. It is also used in aerial farm mapping," Caballong explained.

Agricultural drone systems were showcased by the Institute via demonstration trials at the FutureRice Farm and Rice Engineering and Mechanization areas. Visitors during the *Lakbay Palay* and other events were able to appreciate in actual plots the rice that was directly seeded and herbicide-sprayed using drones.

Among the drone providers are Agridom Solutions Corp., New Hope Corp, and Harbest Agribusiness Corp.

May rice farmers be encouraged to be more objective and open-minded to adopt modern technologies that are being developed to ease farming processes, reduce costs, and increase yield. All of these products of science have contributed to the attainment of PhilRice's strategic Outcome 5.

> **In a 2022 dry season experiment, the drone-seeded plot produced 6.85t/ha while the manually broadcasted yield was 6.38t/ha.**

They made water flow in Cotabato

ANNA MARIE B. BERTO

THE M'LANG AND MALASILA Rivers are flowing blessings to North Cotabato farmers because they are their main source of irrigation. However, their waters do not always flow to the fields of everyone, especially those at the farthest end of the system.

"Farmers believe that rice plants need water throughout the cropping season. So, those in the upstream portion of the irrigation network flood their fields and sometimes hoard water, especially during the dry season. Less is left for farmers at the downstream part despite implementing schedules," documented authors of the book Alternate Wetting and Drying: the M'lang/Malasila Rivers Irrigation System (MMRIS) Experience.

The problem becomes weightier with climate change bombing the picture. The National Irrigation Administration (NIA)-MMRIS management said they began facing a bigger challenge to close the gap between their service area and the rice area planted because the weather phenomenon causes water scarcity.

"The decreasing water level and increasing rice areas required deliberate and sustainable solutions. We also needed to seek ways to irrigate new rice areas without tapping additional water," said Engr. Henry Labio, system chief of the NIA-MMRIS.

AWD AS ENTRY POINT

Alternate Wetting and Drying (AWD), a water-saving technology, was found to be one of the most effective and efficient solutions to address the province's water problem. It can help reduce irrigation water consumption without reducing rice yield. It is done with the aid of an observation well, which is used to monitor changes in groundwater levels.

In 2009, DA-PhilRice Midsayap recommended AWD to the NIA-MMRIS. The two agencies collaborated and established demonstration farms within the service areas of its participating irrigators' associations (IAs).

"Training courses and technical briefings were offered to farmer-cooperators and IA officials. AWD was coupled with appropriate rice production technologies such as high-quality seeds, drum seeder, and decision support tools on nutrient and pest management," DA-PhilRice Midsayap OIC Branch Director Ommal H. Abdulkadil related.

In 2017, more than 1,500 farmers within the MMRIS service area had already adopted AWD. This doubled by the end of 2020.

"With AWD, I've seen better plant growth. There are more rice tillers when the rice field is not always submerged in water. The more tillers, the more grains the rice would produce and the better the harvest would be," said Rogelio P. Lozada, a farmer and trustee of the Tulunan IA, a member association of the MMRIS.

KEY TO SUSTAINABILITY

More than the technology, what sustained the positive change was the commitment of NIA and the IAs, who upscaled the initiative.

M'lang River Irrigation System

Malasila River Irrigation System

JAYSON C. BERTO

The collaborative project set up demonstration farms to showcase the plastic drumseeder (left photo) and the observation well (right). Leading the crop establishment activity were (from L-R) NIA-MMRIS Senior Irrigators Development Officer Lorenza Deguma, farmer-cooperator Manuel Aliaga, and current DA-PhilRice Midsayap Acting Branch Director Ommal Abdulkadil.

"At the beginning," Abdulkadil continued, "the Midsayap station conducted intensive promotion and capacity enhancement activities for some farmer-leaders and key people of NIA Region 12. NIA eventually took hold of the project, engaged local government units, strengthened IAs, and reached more farmers even after we exited a few years later. Yes, DA-PhilRice has the technology and the expertise, but the key to the sustained adoption of the AWD technology was at the hands of our partners," he expounded.

As DA-PhilRice affirms in its maturing Strategic Plan, its collaboration with other development institutions and private organizations intensified the implementation of its rice science programs. It also made interventions more responsive to the needs of the people.

NIA and the participating IAs organized contests for best implementers, and conducted information dissemination and capacity enhancement activities to motivate the adopters. They also passed resolutions as means for reinforcement.

For one, the Kapisanan ng mga IA ng M'lang/Malasila RIS (KIAMMRIS) adopted the 'One Farmer, One Tube Well' policy. Farmers were required to install at least one observation well in their fields and use it every cropping season.

Farmers were motivated to follow the policy because they believed in the benefits of AWD.

"They volunteered to get observation wells from the office and install them in their farms because it was well-explained to them during their meetings," Edwin P. Porras, IA president said.

NIA also ensured that the initiative resonated among their personnel. Engr. Flora May D. Respicio, former system chief of NIA-MMRIS, said they educated and engaged their staffers because she believed it was pivotal to address the concerns not only of the farmers, but also of the people.

REACHING THE UNREACHED

The strong partnership of the NIA, DA-PhilRice Midsayap, and the IAs bore valuable results.

Cropping intensity within the MMRIS service areas increased when more farmers adopted AWD. From 2017 to 2020, 100% of its service area was irrigated and planted with rice, both in the dry and wet seasons.

Farmers' average yield also increased from 5t/ha in the 2017 dry season, to almost 7t/ha in the 2020 dry season.

Of all the documented impacts, the most meaningful result probably would be that the waters from the M'lang and Malasila Rivers are finally moistening all farmers' fields.

Labio said the project has become an instrument to prevent water delivery-related conflicts. Water scarcity is here to stay but farmers are grateful that they are all served by the irrigation system, no matter how near or far they are from the source.

"Now that AWD is being used, irrigation is managed and controlled. Its delivery extends to wider areas because farmers choose to let the water flow to other farms," Jose Peniero, member of the Buayan-Langkong IA Board of Trustees, said.

They owe it to the improved attitude of farmers to monitor the level of their farms. Since then, Peniero observed no new altercations arising on this matter.

"We believe that this is a thriving testimony of a practical and sustainable intervention that rice farmers and the whole rice community were able to benefit from. As water and seeds play vital roles in rice production, may this partnership with DA-PhilRice Midsayap continue to flourish as we continue to help improve the rice farmers' quality of life," wishes Engr. Diosdado A. Rosales, NIA 12 regional manager.

At present, NIA and IAs continue to pursue policy recommendations to further expand the adoption of AWD in other areas like Sultan Kudarat and South Cotabato.

More testimonies of the partnership were documented in the NIA / DA-PhilRice co-authored book, Alternate Wetting and Drying: the M'lang/Malasila Rivers Irrigation System (MMRIS) Experience.

Koreans working for Filipino farmers

AURA SHAZNAY P. TUMULAK AND CHARISMA LOVE GADO-GONZALES

KOREANS NEVER FORGET.

Already at his office before 8 a.m. in the Korea Project on International Agriculture (KOPIA) center, now in Los Baños, Laguna, Dr. Kyu Seong Lee is hustling the day with instructions on providing support to the typhoon-hit communities in their project sites in Zaragoza, Nueva Ecija.

"We should move fast. The farmers are suffering. We can't let them in agony; they are my brothers and sisters," the project director, installed in April 2022, said.

The Filipinos' special place in the hearts of Koreans was ingrained 70 years ago when our country sent more than 7,000 of its soldiers to South Korea, which was then at war with communists.

The KOPIA project was established in 2010 through a Memorandum of Agreement (MOA) signed by Korea's Rural Development Administration and our Department of Agriculture. Also established in 23 countries, it aims to enhance capacity in rice R&D and increase production while sharing agricultural technologies to help attain rice self-sufficiency.

The project directly organizes and carries out activities with the Philippines for the development and deployment of technology compared to other Korean programs.

"KOPIA has its own resources and finds ways to make lasting impacts despite being smaller in scale than other programs. We funnel all our focus on agriculture and increasing farmers' income," explained Dr. Jeong Taek Lee, who directed the project while it was being hosted in PhilRice in Nueva Ecija until it relocated within the Bureau of Plant Industry facilities in Los Baños.

LASTING COMMITMENT FOR FILIPINO FARMERS

KOPIA and DA-PhilRice had been collaborating on empowering farmers to adopt technologies that increase their income and reduce production costs.

Since 2011, they have focused on variety development and improvement by testing 15 Korean cultivars for adaptability and seed increase in the country.

Three of these cultivars–Jinmibyeo, Dasanbyeo, and Hangangchal 1–yielded high at 7 - 7.6t/ha with excellent grain quality. Close to 700kg of these seeds were then handed over to 26 farmers in Pangasinan and 29 in Nueva Ecija for cultivation testing.

Successful cultivation sparked interest in Filipino farmers, which prompted the distribution of the same varieties to five more areas of 130 more farmers in Pampanga, Tarlac, and Bataan.

Two more years later, the continuing adaptability and yield performance tests for Korean cultivars bore more success with the Taebaegbyeo and Saegyejinmi, both performing with 10.5t/ha yields.

Farmers in the five provinces sold their produce to Korean consumers residing in their areas, not to mention the Filipino buyers who were after the delicious rice.

At present, farmer-beneficiaries have sustained the "seed fund" strategy–an initiative of project leader Dr. Norvie L. Manigbas of PhilRice that started in 2014.

The concept allows farmer cooperatives and associations (FCAs) to provide high-quality seeds of the farmer's choice for free at the start of the planting season. Come harvest time, the farmers can then repay the seeds for P1000/bag, the sum of which becomes the seed fund of the cooperative.

PHILRICE PHOTO

KOPIA Philippines director Dr. Kyu Seong Lee (left), together with consultant Julian Lapitan seals MOA with PhilRice executive director Dr. John de Leon (center) to continue their 12 years of partnership for agriculture and rice R4D.

Our plan is to expand to non-rice enterprises like raising high-value crops after rice and providing greenhouses and Korean farm machinery in the pilot villages to produce these crops all year-round; thereby, increasing farm income.

- Dr. Kyu Seong Lee

The amount is entrusted to the treasury of the cooperative and managed by them to generate more income and purchase inputs and machines for farming.

"The seed fund is a sustainable way of keeping all these FCAs in business even if the project has ended. In order for it to work, farmers had to learn and embody the values of self-help, diligence, and cooperation that were emphasized during the implementation of the project," Manigbas said.

This concept helped many farmers capacitate and sustain their rice farming operations.

To date, the seed fund has generated up to P2.5M for 15 FCAs in Luzon and Visayas.

Following the successful strengthening of FCAs, at least 30 of their representatives and officers and local government personnel were sent to South Korea for an educational trip.

Publications, books, and training courses were also provided to farmers for information and knowledge advancement in rice production, including mushrooms, legumes, and high-value vegetables.

ALLIES FOR A PROGRESSIVE FUTURE

In May this year, three greenhouses were awarded to the Buklod ng Nagkakaisang Magsasaka ng Batitang (BNMB) and four to Ugat-Uhay Farmers' Association (UUFA) in Zaragoza. Two rototillers were also provided to the associations.

This is in addition to the six greenhouses earlier turned over to them as part of the "Pilot Village Project on Protective Agriculture".

Despite the onslaught of Typhoon Karding in September 2022, the greenhouses allowed farmers to start planting vegetables such as cucumber, tomato, and lettuce.

The Pagbiagan Irrigators Association in Pugo, La Union also received mechanical transplanters from KOPIA.

VISION FOR FILIPINO FARMERS

"Our plan is to expand to non-rice enterprises like raising high-value crops after rice and providing greenhouses and Korean farm machinery in the pilot villages to produce these crops all year-round; thereby increasing farm income," Dr. Kyu Seong Lee said.

For Lee, this is a step in the right direction for the "mega-project" he envisions at the end of the tunnel.

With the steady crafting of President Ferdinand "Bongbong" Marcos' National Rice Program, he hopes to seamlessly integrate his plans to consolidate the operations in helping the farmers.

The director looks forward to bridging Korean technology developers with government agencies in the Philippines to deliver a more unified effort in technology deployment.

"We want to provide support for farmers experiencing challenges at any part of the rice growing process," Lee asserted.

"We want them to integrate mechanized farming on a larger scale while also providing them with other necessary facilities like rice processing centers so they can produce premium rice."

The ultimate goal for his mega-project is a rice-sufficient Philippines.

Lee anticipates the challenge a project of that scale would bring, as he knows it would require reconstructing and realigning bureaucratic systems that have long been established.

In his field visits, he cherishes the hugs and grateful messages he receives from the farmers. It fills his heart, but he does not rest on the gratifying gestures.

"Do not be too gracious with your compliments. This is my obligation. You're my brothers and sisters," he would say to the thankful farmer-beneficiaries.

Returning to his Laguna home from a trip, he would feel the exhaustion seeping into his body after a long day, yet he is never overcome by the grind.

He only looks up at the sign conspicuously placed atop their headquarters that says, "We work for the Filipino Farmers."

The fatigue now feels distinctly lighter as Dr. Lee is reminded of his purpose.

He never forgets.

ALL DA-PHILRICE STATIONS have been awarded ISO 9001:2015 or the Quality Management System (QMS) seal by SOCOTEC Certification Philippines. It achieved one of the seven outcomes of our StratPlan— Strengthened institutional capability of PhilRice.

The certification highlights "workable guidelines to help your organization develop mechanisms for continuous improvement and customer satisfaction. It is a documented quality system, management responsibilities, competency requirements of the people in the organization, and in-built and systemic follow-up and follow-through. The standard represents the best business practices, risk assessment, infrastructure, and effective management of resources."

Here are the anecdotes from the branch stations on their QMS certification.

Quality Matters

COMPILED BY VANNEZA B. ISIDRO

Internal Audit Unit staff review documents and institutional practices to ensure certification compliance.

JOY BARTOLOME A. DULDULAO
DA-PhilRice Isabela, OIC Director

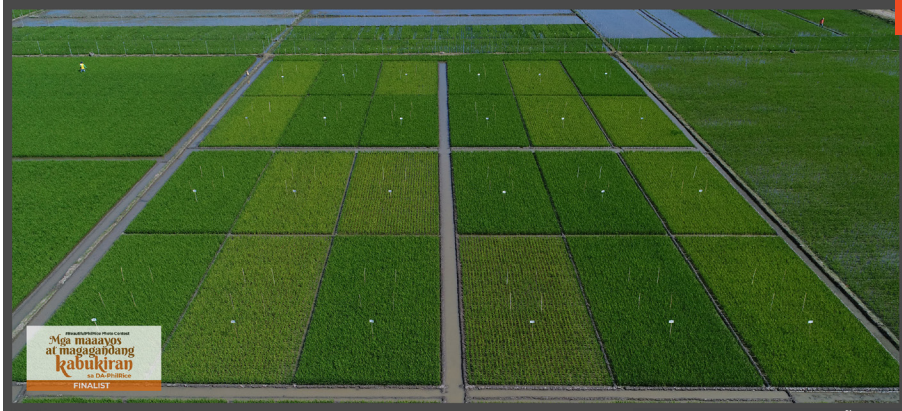
Applying for the ISO certification was no easy task. It was done virtually, making the verification of audit points challenging. Documentation practices used to be weak. Thus, securing official documents for previously conducted activities was difficult, especially when records were not properly filed.

Receiving the ISO certification has resulted in a more systematic program and project planning implementation in the station. Operations and documentation have now become more organized, leading to a better process flow, structure, and overall management."

GIDEON F. DELA CRUZ
DA-PhilRice Bicol, GASS Coordinator

When we applied, we really had no idea how the audit would go, which made us feel quite worried during the preparation. To make sure we do it right, we readied all the documents that we thought would be relevant to the audit.

Our ISO Certification has improved the process flow of transactions in the Station. The payments for external suppliers are now being processed efficiently contributing to excellent customer satisfaction ratings. Likewise, because of the systematized process flow, the staff can now easily trace the status of the documents resulting in better procedure adjustments."



Kabukirang kay gandang pagmasdan

Photographer: SANDRO CAÑETE

Happy moments during transplanting

Photographer: DON LUIGI CASTRO

RHEMILYN Z. RELADO-SEVILLA
DA-PhilRice Los Baños, Director

Prior to receiving the ISO Certification, the processes of the Station were already aligned with those of the Central Experiment Station, which is ISO-certified already. Despite this, we still experienced challenges going through the application. On top of these challenges is ensuring that our operations will lead to R4DE products and services that are of high-quality and responsive to the needs of our clients, especially our farmers.

The ISO Certification process became a platform for the Station to address areas for improvement. The R&D units strengthened their processes and results through the improvement of the calibration system for office and laboratory equipment. This ensured the accuracy of gathered and measured data.

Further, the certification process also provided a venue to further assess the risks in our processes. We then developed hazard control and risk management plans to ensure continuous operations, if they become reality.

Thus, ISO Certification is our way to safeguard our commitment to our clients. All the best for our farmers!"

ALBERT CHRISTIAN S. SUÑER/ ALVIN D. PALANOG
DA-PhilRice Negros, Business Development/
R&D Coordinators

This was the first time for the station to apply; hence all of us had yet to learn how to comply with the requirements, criteria, and what to consider. The evaluation of the internal reviewer indicated that the station was not ready for QMS accreditation. But we mustered our courage and compiled the many requirements. Unexpectedly, we got the certification! We are very happy, fulfilled, and relieved.

The overall experience was and is still a roller-coaster feeling for us. Like when taking an exam you have prepared for, you still get nervous. But it also provided us the opportunity to learn the standards that we must meet and the system that we should follow.

Our application has somehow opened our eyes and made us more conscious of our operations, especially in utilizing documents. We are still learning, but we will continue to take a step forward at a time to be a fully-fledged ISO-certified station."

OMMAL H. ABDULKADIL
DA-PhilRice Midsayap,
OIC-Director

Prior to our accreditation, we acknowledged the weak documentation of our processes and activities, which was also one of the major issues during the whole application procedure. We knew we were doing our job right, but we had no evidence to prove this. Hence, we now make sure that we properly record and document everything we do based on the approved protocols.

We now embrace the system in our everyday work and ensure that everything we do is based on the approved protocols and guidelines. Our application to the ISO Certification became a starting point for us to improve our processes and make sure that we only provide our clients with quality products and services."

Paying it forward

HANAH HAZEL MAVI B. MANALO

THEY'RE NOT PAYING the government back; they're paying it forward to the farmers.

In 2008-2010, more than 300 rice sufficiency officers (RSO) and agricultural extension workers (AEWs) were trained through PhilRice's season-long Rice Specialists' Training Course (RSTC) on *PalayCheck* and *Palayamanan* Systems. *PalayCheck* is an integrated rice crop management system, while the latter is a diversified but integrated rice-based farming formula.

The RSTC graduates didn't serve the Institute directly, they instead helped bring technologies to rice farmers while working in various agencies.

Under a 2017 tracer study, 135 of the 347 RSTC alumni were interviewed. The study showed that 87% of them were then with the government, particularly in the agriculture sector doing research, extension work, and training. The specialists reached an average of 29,200 farmers, AEWs, and other rice stakeholders through capacity enhancement activities from 2008 to 2017.

MARILOU L. ORELLANO
RSTC Batch 5
Senior Science Research Specialist, DA-RFO 8

The RSTC prepared me for what I intend to become. I am currently in-charge of rice seed production at San Jorge Experiment Station in Samar. I do acknowledge that I still have so much to learn, but I owe it to PhilRice that I was equipped with basics and the technical aspects of rice production. I was able to impart my learnings on rice production to our farmers whenever I was invited to seminars and training activities, and to our walk-in clients as well.


JAYSON C. BERTO

CLARK N. MELENDRES
RSTC Batch 1
Senior Agriculturist, DA-RFO 6

The RSTC on *PalayCheck* System molded and equipped me with the right technical and organizational skills and mindset in the performance of my duties back then in PhilRice as an RSO and now, as an agriculturist in DA-RFO. It served as my training ground in conducting community development and extension works that are highly relevant to my current job. I believe that I would not have prospered in my career without RSTC.

RSTC boosted our confidence in performing our duties and functions as development workers. This translates into more effective extension work and technology transfer that benefit our farmers as our main clients.

RYAN V. RASGO
RSTC Batch 1
Chief, Regional Crop Protection Center 6

The training equipped me technically in all aspects of rice production, which helped me build my confidence in providing technical assistance to our farmer-clients. I was able to provide effective recommendations on rice crop management to farmers, which helped them increase their production.

MARK ANGELO A. ABANDO
RSTC Batch 5
Senior Science Research Specialist, DA-PhilRice CES

With the vast knowledge in rice production that I gained from RSTC and the experiences I had during the implementation of the Location-Specific Technology Development Program, I was able to implement better my tasks and projects, such as the Training of Trainers on Pest and Nutrient Management (PNM) under the Rice Competitiveness Enhancement Fund Program and the Scaling Rice Development Initiatives in Central Luzon. For example, in the 2022 wet season, 321 farmers from seven LGUs graduated from the PNM training with 55% average gain in knowledge. In addition, 91% of the participants said that the training objectives were fully attained, and 71% said that they were fully satisfied with its overall quality. This showed that the strategy to tap the agricultural extension workers, local farmer technicians, and farmer leaders as the resource speakers and facilitators in their groups of farmers was effective.

VOXPOP

Where do you see the PH ricescape in the next 5 years?

COMPILED BY
FREDIERICK M. SALUDEZ

JEFFREY ALLAN VILLEGAS
Agricultural Extension Worker, Bataan

Farmers will be **EMPOWERED INDIVIDUALS**. They will dictate the market on which varieties should be planted by seed growers. The local DA office will have strengthened ties with the farmers to **IMPROVE LOCAL RICE PRODUCTION**. Farmers will be happy and inspired to plant their preferred variety, which helps them achieve better yield and higher income.

DR. GINA JORDAN
Office of the Antique
Provincial Agriculturist

We envision **HIGHLY SKILLED ENTERPRISING RICE FARMERS** who adopt modern farm mechanization technologies with the support of their respective local government units. **FARMERS AND THE GOVERNMENT** will be focusing their efforts on the achievement of food security, so we'll be a country that's self-sufficient in rice and maybe even have a rice surplus, which we can export to countries with rice shortage.

ALMA ALAYON
Farmer/Psychologist
Zamboanga Sibugay

Farmers will fully adopt the **NEW TECHNOLOGIES** we've been introducing to them, like using high-quality seeds and farm machinery. There will be **ACTIVE DEVELOPMENT PROGRAMS** from the DA and PhilRice that will also include farm workers as beneficiaries. Hopefully, farmers will gain from their crop insurance, too.

ZENAIDA VILLANUEVA
Farm School Owner, Oriental Mindoro

We will be a **RICE-SECURE PHILIPPINES**, where farmers will use environment-friendly technologies. There will be **CONTINUOUS PRODUCTION OF HIGH-QUALITY RICE** and reduced dependence on other countries for rice supply. The farmers may improve their lives and help other farmers, too. As an owner of a farm school, we will help disseminate new rice production technologies among farmers in my area and neighboring communities.

CARL PHILLIP JASON FULGENCIO
Farmer, Occidental Mindoro

I envision that the PH rice sector will have **IMPROVED LIVES**. There will be more **YOUNG PEOPLE WHO HAVE INTEREST IN FARMING**. There will also be many opportunities or programs available to farmers. As a farmer myself, I will do my best to get more knowledge and share it with others.

LILIBETH NOLASCO
Teacher, Polangui, Albay

I envision a **MODERNIZED AND RESILIENT** agricultural sector with empowered farmer-agripreneurs, and with **YOUTH RECOGNIZING AGRICULTURE** as a promising field of study and work.

STAFF EXTRAORDINAIRE

Thriving in service and purpose

COMPILED BY AURA SHAZNAY P. TUMULAK

AWARDEES

BEST PAPER GIVEN BY THE CROP SCIENCE SOCIETY OF THE PHILIPPINES (CSSP)

DEVELOPMENT AND FIRST VARIETAL RELEASE OF GOLDEN RICE BIOFORTIFIED WITH BETA-CAROTENE IN THE GRAINS

Reynante L. Ordonio, Marissa V. Romero, Ronalyn T. Miranda, Luilene A. Miranda, Trinidad C. Fernando, Mark Philip B. Castillo, Rhona Jane B. Fabros, Rodel M. Bulatao, Gerome A. Corpuz, Maricar B. Castillo, Mercy Q. Samia, Roel R. Suralta, Antonio A. Alfonso, Raul M. Boncodin, Russell F. Reinke, Donald J. MacKenzie, and BP Mallikarjuna Swamy

BEST POSTERS GIVEN BY CSSP

FIRST PLACE
Category Crop Production

UPSCALE PRODUCTION AND SHELF-LIFE EVALUATION OF HEALTHY AND NUTRITIOUS DRIED GABA RICE

Rodel M. Bulatao, Maricar B. Castillo, Henry F. Mamucod, Gerome A. Corpuz, Ezra Spencer M. Delim, and Marissa V. Romero

FIRST PLACE
Category Technology Development

CONSUMER AWARENESS AND PERCEPTION ON LOW-GLYCEMIC-INDEX-RICE IN HIGHLY URBANIZED CITIES IN THE PHILIPPINES

Mae Rose M. Maoirat-Abad, Teodora E. Mananghaya, Ria C. Yate, Rheumel Kheem A. Albano, and Janet Q. Polipol

DR. FLORDELIZA H. BORDEY
Presidential Lingkod Bayan-National Awardee; Civil Service Commission-Honor Awards Program (CSC-HAP); 2021

RICEBIS COMMUNITY PROGRAM
Presidential Lingkod Bayan-Regional Awardee and semi-finalist National; CSC-HAP; 2022

JOSE A. ORCINO
Dangal ng Bayan- Regional Awardee; CSC-HAP; 2022

DR. ROEL R. SURALTA
2021 National Research Council of the Philippines (NRCP) Achievement Award (Agriculture); NRCP Achievement - March 15, 2022 and CSSP Distinguished Service Award

DEVCOM DIVISION
Outstanding Institutional Award for Science and Journalism-Paragala Awards; Holy Angel University (HAU); June 17, 2022

GENDER AND DEVELOPMENT TEAM
Global Winner: Ministerial Award as Best Practice Public-Private Sector Project Advancing Economic Opportunities for Women and Girls; Global Summit of Women; Thailand; June 24, 2022

RCEF IT-TEAM
Best in Future of Connectedness; International Data Corporation Future Enterprise Awards for Philippines; September 30, 2022

DR. RIZA ABILGOS-RAMOS
2022 Outstanding UPLB Alumna Awardee; University of the Philippines Los Baños Alumni Association (UPLBAA), Inc. October 8, 2022

DR. JOHN C. DE LEON
CAFS Distinguished Alumnus Awardee; UPLBAA Inc.; October 8, 2022

PHILRICE MAGAZINE
Best free food publications; Hallbars Sustainability Research Institute; 2022

PHILRICE TGMS HYBRID RICE TEAM
CSSP Sant S. Virmani Hybrid Rice Award

DR. NORVIE L. MANIGBAS, CES-PBBD
CSSP Honorary Fellow Award

DA-PHILRICE MIDSAYAP
Token of Appreciation given by the LGU of South Upi, Maguindanao

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Science Research Specialist I
CES-REMD

Be RiCEPONSiBLE

A — Adlay, mais, saba, atbp. ay ihalo sa kanin

B — Brown rice ay kainin

K — Kanin ay huwag sayangin

D — Dapat bigas ng Pilipinas ang bilhin

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