PhilRice Magazine

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Philippine Rice Research Institute

By increasing yield & reducing cost

We can compete!

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ABOUT THE COVER

Government support in the form of yield-enhancing and cost-reducing technologies could help boost our farmers' confidence to continue producing rice and compete in an open rice market. The use of high-quality inbred seeds among our farmers is the first step in achieving a competitive yield.

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EDITOR'S NOTE

LET NOT TARIFFIED RICE TERRIFY US

Even before the February 14, 2019 enactment of Republic Act 11203 (Rice Liberalization Law), crisp and, at times, heated public opinion debates have swirled around rice tariffication. Many are thinking that it's a high-risk government decision, with farmers seen as losers. They ask: Are our farmers competitive? How do they fare compared with their nearest ASEAN counterparts? What safeguard mechanisms would the government institute to motivate them to continue planting rice twice a year, particularly in irrigated areas? However, it is high time our country fulfills its international trade commitments.

Under the tariffication regime, the playing field is leveled off. Anybody willing and able to pay taxes can import rice. Gone is our import limit or quantitative restriction. Our government's economic managers reckon that import liberalization is for the greater good, making rice more available and affordable for 106M Filipinos, including the 1.1M of our 2.9M rice farmers who also buy rice for food.

Policy analysts admit that our farmers could initially undergo difficulties under the tariff regime importation setup. Tariff collection, however, is designed to generate new revenues to be used to protect and empower the farmers. The law calls this safeguard mechanism Rice Competitiveness Enhancement Fund (RCEF), with some P10B annual appropriation for the next six years. RCEF aims to enable farmers to cope with the birth pains associated with the law. Government needs to clearly understand these days which of its services matter most to rice farmers.

To survive and preferably triumph in an open rice market, agricultural economists admonish farmers to boost their yields up to at least 5t/ha for provinces with average yield less than 4t/ha and up to 6t/ha or more in provinces with yields more than 4t/ha with 30% reduction in rice production cost. So if we have an average of P12/kg cost of rice production, then we aim to bring it down to P8/kg (See infographics on pages 14-15 for details on RCEF). Achieving these yield and cost targets requires not only technologies but also a change of mindsets into looking at farming as a lucrative economic activity given the right attitudes – self-help, diligence, and cooperation.

The use of yield-boosting high-quality inbred seeds coupled with appropriate integrated crop management practices are bannered in this issue of our magazine. The stories shed light on practical insights and experiences regarding proper land preparation and nutrient management in support of yield enhancement and cost reduction.

More than the technologies is our commitment to support our local farmers who work so hard to earn a living and feed us at the same time. Let's help our farmers! If we have the power of choice, let's buy their produce rather than the imported rice.

Law that eases rice trade mandates PhilRice to extensively promote inbred seeds

Signed on Feb. 14 by President Rodrigo Duterte, Republic Act No. 11203 or the Rice Trade Liberalization Law mandates PhilRice under Section 13 (Rice Competitiveness Enhancement Fund or RCEF) to: 1) develop, propagate, and promote inbred rice seeds to rice farmers and organize them into seed growers associations to be engaged in seed production and trade; and 2) teach skills on rice crop production, modern rice farming techniques, seed production, farm mechanization, and knowledge/technology transfer through farm schools nationwide together with ATI, TESDA, and PHilMech.

The implementing rules and regulations (IRR) of some of the provisions of the law including the RCEF have been signed by the implementing agencies on April 05. It will accordingly take effect 15 days after its publication.

Meantime, PhilRice is now working on the implementing guidelines (IG) for the seed component and extension, which are expected to come out within 60 days after the release of IRR upon the approval of the program steering committee led by Agriculture Secretary Manny Piñol.

In support of this law, the Institute pushes for the use of high-quality inbred seeds and its associated technologies to help farmers become competitive and survive the influx of cheaper rice from the international market.

Currently, around 48% of local farmers use high-quality inbred seeds. Most farmers usually use 80-120kg of seeds per hectare.

To make them more competitive, experts advised farmers to use high-quality seeds of a recommended variety as these can increase their yield by 10% or more, based on studies. Moreover, farmers are also encouraged to reduce their seeding rate to save on cost. Instead of the usual 80-120kg/ha, farmers are advised to use 40kg for transplanted rice and 60kg for direct-seeded rice.

"High-quality inbred seeds are free from visible insect pests and diseases, full and uniform in size, relatively pure, viable, and have high germination rate (85% above) when planted by farmers," said Susan Brena, a PhilRice supervising science research specialist and expert on seed technology.

According to Brena, farmers may also produce their own high-quality inbred seeds. That way, farmers can purify their own harvest and use them as planting material. This will also help them save on cost.

Farmers are also advised to use recommended inbred varieties that are appropriate to the environment and resistant to pests and diseases in the locality. Farmers may also plant varieties that showed relatively stable and high yield in adaptability trials and have high demand in the local market.

Under the tariffication regime, PhilRice will train farmers and seed growers to produce and use high-quality inbred seeds. With an allotted P3.1B annual budget (3B for seeds and 100M for extension services) for six years to accomplish its mandate, it will also partner with agencies to propagate and promote the technology to farmers.

- MARY GRACE M. NIDOY

Villar trusts Rice Fund implementing agencies

Sen. Cynthia Villar has expressed confidence that government institutions entrusted with the Rice Competitiveness Enhancement (RICE) Fund under the Rice Trade Liberalization Law will effectively manage it.

"Kailangang magtiwala sa kanila dahil kung hindi, walang mangyayari (We need to trust them for the programs to work)," Villar told media in a December 2018 graduation ceremony of farmer-trainees on quality inbred rice seed production and farm mechanization.

A government response to the June 2017 expiration of the quantitative restriction on rice importation, the Liberalization Law replaces the import limits with tariffs and provides support mechanisms for farmers who could be undesirably affected by the law in its initial years of implementation.

Villar, chair of the Senate Committee on Agriculture and Food and the sponsor and principal author of the Rice Tariffication Law, said PhilRice will be in-charge of inbred rice seed production while the Philippine Center for Postharvest Development and Mechanization (PHilMech) will ensure provision of rice farm machines.

From the 10-billion-peso Rice Fund, PhilRice will receive P3.0B for "developing, propagating, and promoting inbred rice seeds to rice farmers, and in organizing rice farmers into seed growers associations to be engaged in seed production and trade."

On the other hand, PHilMech will handle P5.0B to provide farmers with rice farm machines and equipment.

"PhilRice and PHilMech will take good care of the farmers. They will help them earn more profit and survive trade liberalization. Note that good seeds are important to increase harvest and to fill in the 7% deficit in rice. Our farmers must also be competitive so they can reduce their production cost currently at around

Development Communication team receives two Binhi awards.

BPI-NSIC awards PhilRice during its 25th founding anniversary.

HANAH HAZEL MAVI B. MANALO

PhilRice reaps 2 awards for seeds, comm efforts

Two of PhilRice's knowledge products won in the annual and prestigious BINHI Agricultural Journalism Awards on March 28. The Philippine Agricultural Journalists Inc. in cooperation with the San Miguel Corporation organized the Binhi Awards to recognize individuals and institutions in their efforts to disseminate relevant information in the agriculture, environment, and agrarian reform sector.

PhilRice Magazine, the Institute's quarterly publication featuring cost-reducing and yield-enhancing technologies in rice farming, was hailed Agriculture Magazine of the Year.

PhilRice produced radio program ***Bukid at Buhay*** aired through Sonshine Radio received the title Regional Agricultural Radio Program of the Year.

The Bureau of Plant Industry- National Seed Industry Council (BPI-NSIC) also recognized PhilRice's efforts or its exemplary innovations leading to the development and registration of eighty-seven outstanding rice varieties. The Institute was awarded as the 2018 National Outstanding Seed Innovator in the Breeding Institution Category also on March 28. **- DONNA CRIS P. CORPUZ**

P12/kg *palay*. Vietnamese produce *palay* at around P7 because their farming is mechanized," the senator said in Filipino.

P1.0B is allocated for credit with minimal interest rates and with minimum collateral requirements to rice farmers and cooperatives to be managed by the Land/ Development Banks of the Philippines. "[This is an important provision] so that farmers do not have to borrow capital from traders," she said.

PhilRice, PHilMech, the Agricultural Training Institute, and Technical Education and Skills Development Authority will manage P1.0B for extension services.

Joysen A. Bumanglag, a 31-year-old farmer from Nueva Era, Ilocos Norte said training is helpful for farmers like him as he is informed on how to purify seeds, do recommended farm practices, store seeds, and operate farm machines.

"I'm earning P80,000 from my 2-ha integrated farm. I think I can increase this further through more training," he hoped.

- CHARISMA LOVE B. GADO-GONZALES

PHILRICE PHOTO


ALLAN C. BIWANG, JR.

Rice germplasm now better conserved

The Genetic Resources Laboratory and Genebank at PhilRice Central is complete.

Worth P23 million, the newly inaugurated facility houses more than 5,000 PH traditional rice varieties (TRV) and more than 16,000 germplasm collections, from which genes needed in breeding new rice varieties will be harvested.

"Through proper conservation of the germplasm, we can select the best traits from our TRV and elite breeding lines to develop new varieties that are high-yielding and climate-resilient," said Dr. Sailila E. Abdula, PhilRice acting executive director.

Abdula urged the Institute's genetic resources experts to accurately characterize the collection to optimize the germplasm's use as parent lines.

Meanwhile, Dr. Jonathan Niones, head of the Genetic Resources Division (GRD), said when properly processed and stored, seeds at the facility can last from 50 up to 100 years.

"To ensure seed availability and quality, we have a monitoring system for the seed volume, stocks, and viability of the germplasm," he said.

For 2019, GRD plans to collect TRV from eight provinces and characterize 800-900 germplasm. PhilRice recently acquired a permit to collect TRV from indigenous people communities in Sarangani province. - **ALLAN C. BIWANG, JR.**


CARLO G. DACUMOS

United Arab Emirates Minister for Food Security, Her Excellency Mariam Bint Mohammed Saeed Hareb Al Mehairi visited PhilRice Central on March 25 as part of her state visit to explore bilateral agri-trade relations between the Philippines and the UAE.

Mehairi shared the food security plans of UAE and expressed her hopes for country collaborations on food marketing. - **ALLAN C. BIWANG, JR.**

Hungary Minister of Agriculture, His Excellency Dr. István Nagy, visited PhilRice Central on March 27 as part of his state visit to strengthen the cooperation between his country and the Philippines. He recognized PhilRice in improving the country's rice productivity. His Excellency József Bencze, Ambassador of Hungary to the Philippines, joined him in this state visit.

Foreign leaders visit PhilRice


CARLO G. DACUMOS

Training on ICT

To further respond to the information needs of agriculture teachers in schools offering Technical-Vocational-Livelihood courses in Region 2, PhilRice Isabela initiated the Training of Trainers on Information and Communications Technology (ICT)-based Tools and Resources on Rice and Agriculture, February 11-15. Participants were 19 teachers. - **MARITHA C. MANUBAY**


MARITHA C. MANUBAY

PHILRICE PHOTO

Media apprised on Golden Rice

About 70 media practitioners from Central Luzon and Cagayan Valley convened at PhilRice CES and PhilRice Isabela on January 9 and March 21 respectively to gather the latest information on the Healthier Rice Project that pursues the development of Golden Rice.

In coordination with IRRI, the PhilRice Development Communication (DevCom) Division organized the "Media Dialogue: Making Rice Healthier" to enlighten the media about the nutrition situation in the country and share updates about the project and other nutrition-related initiatives at PhilRice.

In the dialogue, experts shed light on the prevalence of vitamin A deficiency in the country, how the project could help address it, and how to communicate science. The media persons asked questions and shared their insights about Golden Rice during the open forum. - **DONNA CRIS P. CORPUZ**

Off to Japan

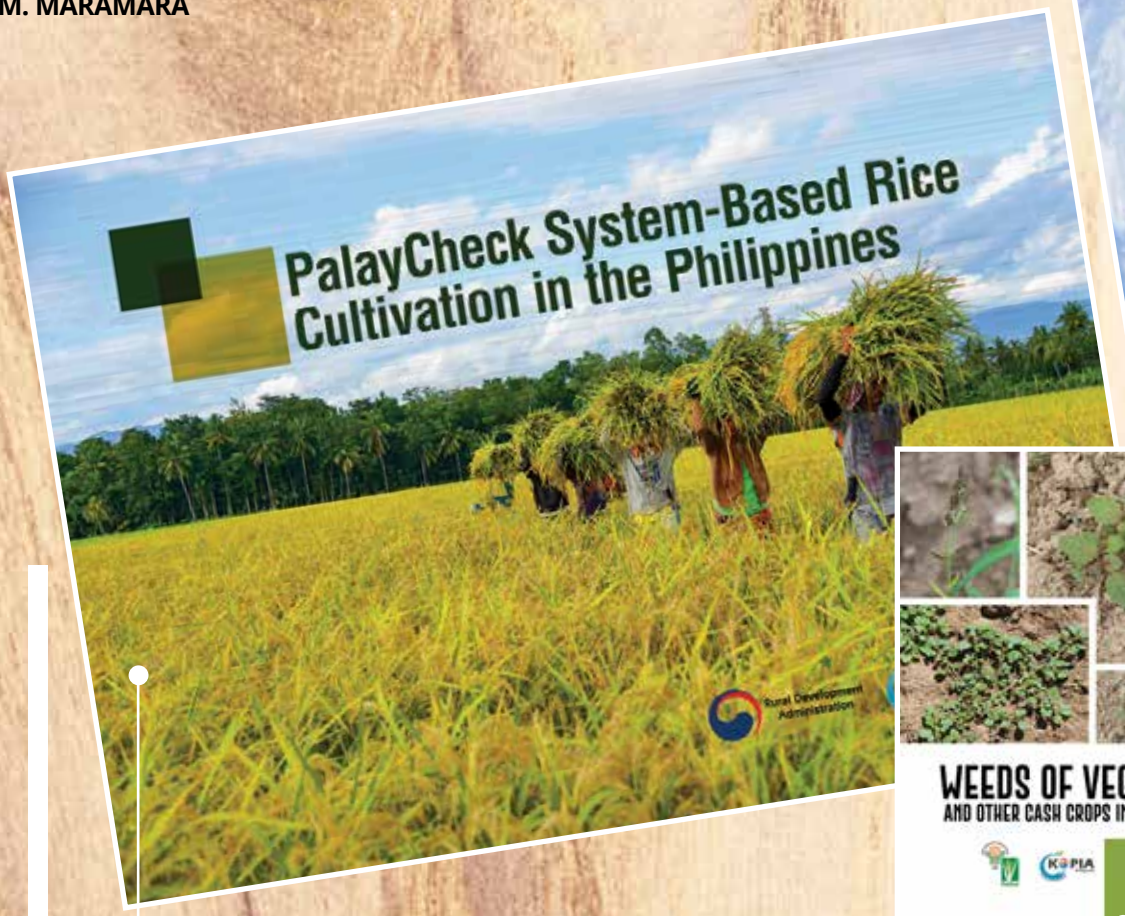
As part of their preparations for training in Japan, 21 young farmers from across the country completed a week-long training on Farm Machinery Operation and Safety with ***PalayCheck*** System at PhilRice in Nueva Ecija, February 15. The participants, recipients of the Young Filipino Farm Leaders' Training Program by the Agricultural Exchange Council, are set for an 11-month training on agriculture starting April 2019 in Japan.

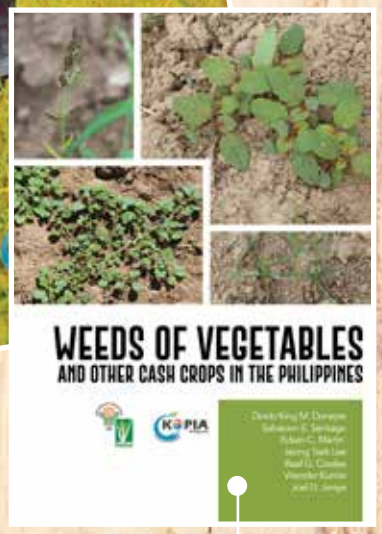
- **DONNA CRIS P. CORPUZ**


PHILRICE PHOTO

New* Knowledge Products

REUEL M. MARAMARA





BOOK

PalayCheck System-based rice cultivation in the Philippines compiles photographs of rice production practices based on integrated rice crop management approaches.

Weeds of vegetables and other cash crops in the Philippines enumerates the common weeds in rice-based crops, presents their characteristics, and suggests ways on how to effectively manage them.

MAGAZINE

Makulay at masustansiyang kanin, alamin! features the art and culture behind the different colorful rice varieties, and their economic and health benefits to farmers and consumers.

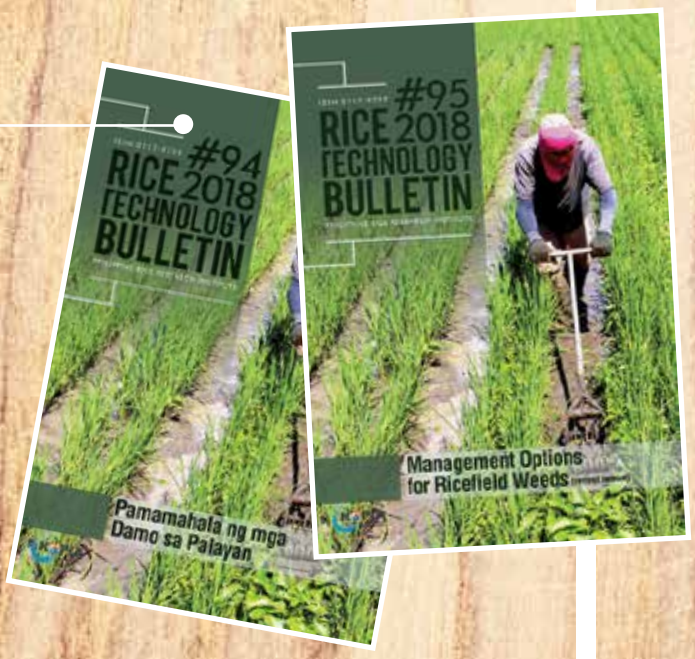
Group marketing, sell as one, rise as one lays down the basics of group marketing. It features success stories of clustered farmers and their experiences in the chronology of activities that make up the rice value chain.

TECHNOLOGY BULLETINS

Mechanized hybrid rice cultivation focuses the spotlight on the use of machines like the mechanical rice transplanter to ease drudgery and lower production cost.

PalayCheck System for highland rice production (2nd edition) lines up recommendations based on integrated rice crop management approaches to grow the farm productivity of heirloom rice farmers.

Management options in Philippine ricefield weeds (revised version) and **Pamamahala ng mga damo sa palayan** list down common ricefield weeds and offer strategies to effectively manage them.



*These knowledge products are available at www.pinoyrice.com, www.philrice.gov.ph, and PhilRice Development Communication Division.

Rice across

COMPILED BY ZENNY G. AWING

PHILRICE BATAC

MARIBEL B. ALUPAY


PHILRICE BICOL


PHILRICE ISABELA

MARITHA M. BALOY


PHILRICE LOS BAÑOS

RUBY MOSELLE O. TUMANGIL

Batac RiceBis farmers turn into agripreneurs

The Rayuray Farmers Agriculture Cooperative, a RiceBIS community in Batac City, Ilocos Norte is now into group marketing and agripreneurship. Recently, the coop participated in various agri-trade fairs and exhibits.

In a two-week garden show and exhibit during the 41st founding anniversary of the Mariano Marcos State University, the coop averaged P3,000 in daily gross sales largely from NSIC Rc 160 brown rice, pickled onions, and other products. The coop attracted a good number of regular customers.

The RiceBIS community also took part in the Pamulinawen Festival of Laoag City, fiesta exhibit of the Mariano Marcos Memorial Hospital and Medical Center, and trade fair and exhibit during the Farmers' Festival in Batac City. - **MARIBEL B. ALUPAY**

Developing packages of technologies

Targetting a 10t/ha yield at P5/kg production cost, PhilRice Isabela is currently putting together packages of technologies (POT) each for Cagayan, Isabela, and Kalinga.

This is under the project "On-Farm Validation and Analysis of the 10-5 technology for POT Development", led by Andres L. Dela Cruz, Jr. *Palayabangan:* The 10-5 Challenge, a nationwide competition in 2013 to 2017 that provided opportunities for rice sector players to showcase technologies that enhance yield and lessen production cost inspires the project team. PhilRice Isabela was one of the grounds of the competition.

Dela Cruz confirmed the competitors yielded 6-9t/ha, superior to the regional average yield of 4.2t/ha as reported by DA-Regional Field Office 2 in 2017.

"Based on municipal data in the region, certain farmers attained 10t/ha, but they were not properly documented", he added.

Dela Cruz explained that to develop the POTs, on-farm trials will be established using technologies derived from *Palayabangan*, farmers' practices, and the *PalayCheck* System. The POTs are expected to be disseminated by 2020. - **MARITHA M. BALOY**

Sariaya RiceBIS teaches marketing strategies

The RiceBIS community in Sariaya, Quezon conducted "Pagbabahagi ng Kaalaman at Karunungan sa Pakikipagsapalaran sa Merkado" that aims to strengthen its members by developing and improving their selected rice and rice-based enterprises.

Members from Brgys. Antipolo and Manggalang participated in the event, facilitated by PhilRice Los Baños and partners from local government units. They discussed and shared learning experiences in marketing and agripreneurship. - **RUBY MOSELLE O. TUMANGIL**

Bicol typhoon victims helped

PhilRice Bicol brought cheers and some material help to a community devastated by flash floods and landslides in December 2018, no thanks to Typhoon Usman.

The community of indigenous people (IP) in Brgys. Joroan, Misibis, and Mayong in Tiwi, Albay were spared rice, dry goods, and clothing. The 74 grateful families are involved in the project "Phase II: Enhancing the Capabilities of Bicol Agta IPs through Palayamanan Approach" being co-implemented with PhilRice Los Baños. - **KRISTINE R. PALIZA**


KRISTINE PALIZA


ALONA D. TAPE

PHILRICE AGUSAN

VANESSA A. TINGSON

PHILRICE NEGROS

MOHAMADSAID B. GANDAWALI

PHILRICE MIDSAYAP

the country

Students immerse in Negros

The Guihulngan National Agricultural School in Negros Oriental deployed 31 of its senior high school students to undergo a two-week immersion program at PhilRice Negros. They operated handtractors in the field and did edible landscaping using hot chili pepper, upland kangkong, pechay, tomato, lady finger, sweet potato, eggplant, and bottle gourd within the station. Advisers Anastacio Pardo and Jannette Ledon helped plan and supervise the students' exposure to actual work. - **VANESSA A. TINGSON**

Agusan to open rice garden full of butterflies

Flowers and butterflies will soon add color and thrill to PhilRice Agusan's rice technology demonstration farms. The branch station, in partnership with the Gawad Kalinga (GK) Eastern Mindanao Chapter, will open a half-hectare rice garden to be co-populated by butterflies in a saline-prone area at the GK Enchanted Farm in Pagatpatan, Butuan City. The project concept was sealed during the launching of the Butuan Agri-Eco Tourism Park.

Project head Sharen Rivas of PhilRice Agusan creatively put together his juicy ideas through a miniature *Palayamanan* Plus and rice garden frequented by butterflies.

The rice garden-butterfly haven will catch the curiosity of rice-farming enthusiasts and environmentalists, and stir up interest in agriculture among urban inhabitants.

The idea of integrating a distinct element in a usual *Palayamanan* Plus farm is hoped to influence and persuade the youth to deeply appreciate agriculture.

"The integration of various elements in one garden wishes to promote the productivity, profitability, sustainability, and beauty of agriculture," Rivas said.

Prior to the conception of the Butuan Agro-Eco Tourism Park project, the station already planned to establish a rice technology demonstration site in the area to make better use of the idle land. The techno-demo farm will convince residents of the GK Enchanted Farm that they can grow rice in a saline-prone ecosystem. - **ALONA D. TAPE**

Matanog upland rice farmers trained

The JICA-supported Upland Rice-Based Farming Technology Transfer Program for the Bangsamoro has stirred up the appetite of non-participating farmers to also engage in upland farming. To heighten this interest, a two-day training was conducted for 29 rice farmers.

The farmers, who observed the fields of the participating farmers, are from Sitios Mapantao and Langkong in Matanog, Maguindanao. They till fields that are very suitable for rainfed or upland rice production.

The training introduced location-specific rice production technologies to the farmers and updated them on rice and rice-based production, especially concerning rainfed or upland rice varieties. Seed purification and storage were also covered in the training.

The program for the Bangsamoro is a two-year collaboration project of JICA, PhilRice, DAF-ARMM, Bangsamoro Transition Commission, and Bangsamoro Development Academy. - **MOHAMADSAID B. GANDAWALI**

What's new in Rice Research?

CHRISTINA A. FREDILES

Makahiya, Lantana extracts as biopesticides?

Bacterial leaf blight (BLB) pathogens can easily develop resistance to bactericides. Considered as one of the most destructive diseases, BLB in rice is known to be aggravated by excessive use of fertilizer.

Scientist Dindo King M. Donayre of the Crop Protection Division and his team found out that extracts from Makahiya and Lantana are potential biopesticides for BLB.

Samples at 200 grams each were air-dried, ground, and soaked in 1,000mL bioethanol 80% solution. These were incubated for a day at room temperature, filtered and passed through the rotary evaporation method. Treatments used in the study were water, copper oxychloride, and extracts of Makahiya and Lantana with 100% and 75% ethanol extracts. Rice plants sprayed with the biopesticides had less BLB severity than those treated with copper oxychloride.

One seeder for three crops

Farmers who have a multi-purpose seeder do not anymore need another machine to plant corn and mungbean after rice.

According to Engr. John Eric O. Abon of the Rice Engineering and Mechanization Division, the seeder can be attached to any ordinary handtractor. The seeder has four rows for rice and two rows for corn and mungbean, with adjustable seeding depth and spacing. Seeds are evenly distributed using a replaceable rotary seed metering plate that controls the amount of seeds dropped in the furrows. This process facilitates soil covering of seeds thereby protecting them from birds, rodents, and heat exposure. Separate metering plates are available for corn and mungbean.

The seeder requires a driver and loader of seeds. It can be loaded with 16kg of rice, 6kg of corn, and 8kg of mungbean in one operation. The recommended seeding rate for rice is 60kg/ha, 18kg/ha for corn, and 24kg/ha for mungbean. The seeder has a disengaging mechanism to avoid dropping of seeds when maneuvering at headlands. Operation time is estimated at 3-4h/ha.

Farmers in Tarlac, Pangasinan, and Ilocos have tried and tested the seeder, which is sold for P25,000 per unit.


ROYETTE C. SANTOS

GAS attract male rice bugs

In irrigated areas, rice bugs attack rice regardlesss of growth stage, more intensely from maximum tillering to the ripening stages. In rainfed farms, rice bug damage could result in severe to complete crop loss under heavy infestation.

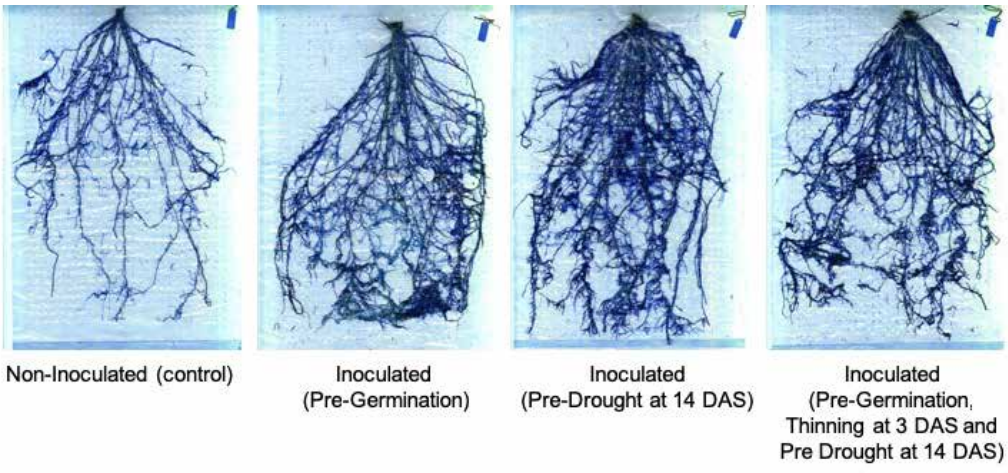
In a study conducted by Dindo King M. Donayre of the Crop Protection Division, 200g of spoiled golden apple snail (GAS) packed in plastic net and placed in the ricefield attracted mostly male rice bugs, especially during the flowering stage.

The study envisions simultaneous control of rice bug and GAS populations.

200g of spoiled golden apple snail (GAS) packed in plastic net and placed in the ricefield attracted mostly male rice bugs, especially during the flowering stage.

- Dr. Dindo King M. Donayre

PHILRICE PHOTO



ROEL R. SURALTA

Bacteria boost drought tolerance in rice

Senior scientist Roel R. Suralta of the Crop Biotech Center and his team found out that improved root system development enables rice to increase its soil water uptake during progressive drought conditions.

Their study showed that inoculation of Rhizobacteria (***Streptomyces mutabilis***) improved root elongation rates, root hair formation, and shoot growth during the germination of NSIC Rc 192 under favorable conditions. In addition, one-time inoculation of Rhizobacteria either at pre-germination or pre-drought stress at 14 days after sowing (DAS) resulted in more improved rice root system development and greater shoot dry matter production than three-time inoculation at pre-germination, thinning period (3 DAS), and at 14 DAS.

Rhizobacteria can produce plant growth-promoting compounds, such as ACC deaminase, indole-3-acetic acid, and phosphatase.

Getting to know RA 11203:

The Rice Trade Liberalization Act

1

Allows the private sector to import rice subject to a tariff.

2

Removes the regulatory and import licensing functions of the National Food Authority (NFA).

3

Requires importers to obtain Sanitary and Phytosanitary Import Clearance (SPSIC) to be issued by the Department of Agriculture - Bureau of Plant Industry (DA-BPI) to protect our agriculture and consumers from diseases, pests, or contaminants.

4 Reduces the mandate of the NFA to emergency buffer stocking of rice that will be sourced solely from local farmers.

5 Shifts to a purely tariff system with the following rates:

- 35% if rice is imported within Association of Southeast Asian Nations (ASEAN)
- 40% if within the minimum access volume (MAV) of 350,000 metric tons for imports coming from countries outside of ASEAN
- 180% if above the MAV and from non-ASEAN countries

6 Creates the Rice Competitiveness Enhancement Fund (RCEF) or Rice Fund with a P10 billion annual appropriation for the next six years, to be allocated and disbursed as follows:

- **Rice farm machineries and equipment (50%)** - will be released to and implemented by the Philippine Center for Postharvest Development and Mechanization (PhilMech)
- **Rice seed development, propagation, and promotion (30%)** - will be released to and implemented by the Philippine Rice Research Institute (PhilRice)
- **Expanded rice credit assistance (10%)** - will be made available in the form of a credit facility with minimal interest rates and minimum collateral requirements to rice farmers and cooperatives, to be managed equally by the Land Bank of the Philippines (LBP) and the Development Bank of the Philippines (DBP)
- **Rice extension services (10%)** – will be made available for extension services such as teaching skills on rice crop production, modern rice farming techniques, seed production, farm mechanization, and knowledge and technology transfer provided by the Agricultural Training Institute (ATI), PHilMech, PhilRice, and Technical Education and Skills Development Authority (TESDA).

7 Tariff revenues **in excess of the P10 billion** will be earmarked for the following:

- Rice farmer financial assistance;
- Titling of agricultural rice lands;
- Expanded crop insurance program on rice; and
- Crop diversification program.

Source: Department of Finance

Rice trade lib:

What's in it for the Filipino people?

Consumers

There would be more available, accessible, and affordable rice for 106M Filipinos at all times. Price of rice is projected to decrease by ₱2-7/kg.

Taxpayers

As of December 2018, the subsidy to NFA has cost taxpayers P140.5 billion in outstanding debt. This debt is paid for by taxpayers and the poor who are deprived of social services while paying for high rice prices.

Workers

Workers will see their real income increase. In the past, the high price of rice has put undue pressure on the minimum wage rate over the decades, increasing labor cost and making manufacturing uncompetitive.

Children

One in three children below 5 years old in the Philippines is stunted (based on the National Nutrition Survey). This is equivalent to 4.2 million children who will be able to eat better as the country's staple becomes more affordable.

Poor

Lower rice prices will significantly improve the welfare of the poor as rice accounts for 20 percent of a poor household's consumption. Food security requires that our nation's food staple is available, accessible, and affordable at all times, and not force the poor to pay double when they can pay half.

Farmers

The RICE Fund complements existing DA rice programs, and is designed to help achieve the vision "Rice-Secure Philippines" of the Philippine Rice Industry Roadmap 2040.

Some 1.1M of our 2.9M farmers are net rice consumers (they buy rice for food).

Aside from cheaper rice, farmers will benefit from the ₱10B Rice Competitiveness Enchancement (RICE) fund aimed at providing basic support to improve their competitiveness and increase their income.

Source: Department of Finance

How can Pinoy farmers become competitive?

To achieve this, medium-yielding provinces (3-4t/ha) must increase yields to 5t/ha; high-yielding provinces (>4t/ha) to 6t/ha; and their maximum cost must be ₱8/kg fresh *palay* (a 30% reduction from ₱12/kg current average rice production cost). All this can help increase income from rice farming by at least 50%.

Increase yield

The use of high-quality inbred seeds and appropriate integrated crop management practices will be promoted.

USE HIGH-QUALITY INBRED SEEDS

- Use of certified seeds of a recommended variety can increase farmers' yields by 10% or more.
- High-quality seeds are free from visible insect pests and diseases, full and uniform in size, relatively pure, viable, and with 85% or above germination rate.
- Recommended seeding rates per hectare are: 40kg for transplanted and 60kg for direct-seeded rice.

Reduce cost

Farm mechanization will be espoused to help reduce cost. Research asserts that farm machines can cut labor, which eats up the highest production cost in rice farming.

USE FARM MACHINES

- Farmers can use the plastic drumseeder or mechanized transplanter in crop establishment.
- 1-3 people who man a rice combine harvester can do the job in 2h/ha of at least 20-25 workers in both manual harvesting and mechanical threshing.

PalayCheck System

An Integrated Crop Management system highlighting 9 Key Checks for better inbred rice (seed) production

KEY CHECK 1
SEED AND VARIETY SELECTION
Used high-quality seeds of a recommended variety

KEY CHECK 2
LAND PREPARATION
Well-leveled field

KEY CHECKS 3&4
CROP ESTABLISHMENT
Practiced synchronous planting after a rest period

Sufficient number of healthy seedlings

KEY CHECK 5
NUTRIENT MANAGEMENT
Sufficient nutrients from tillering to early panicle initiation and flowering

KEY CHECK 6
WATER MANAGEMENT
Avoided excessive water or drought stress that could affect the growth & yield of the crop

KEY CHECK 7
PEST MANAGEMENT
No significant yield loss due to pests

KEY CHECK 8
HARVEST MANAGEMENT
Harvested the crop at the right time

KEY CHECK 9
POSTHARVEST MANAGEMENT
Dried, cleaned, & stored the grains properly

FEATURE

Keen eyes for high-quality inbred seeds

HANAH HAZEL MAVI B. MANALO AND DONNA CRIS P. CORPUZ

He drags his left foot when he walks. He has to slowly move his left arm. He uses his teeth to remove the cogon leaf bundling the rice seedlings. Despite this, he still chooses to farm and puts to full use his sharp eyes for high-quality inbred seeds.

A retired professor, Greg Hermosa, now 61, is a heart stroke survivor. His heart jolted him in 2002 and had to be confined at the Philippine Heart Center for 5 years for rehabilitation. Though too far from full recovery, he persuaded his doctors to allow him to go back to Sta. Lucia, Ilocos Sur to relax in his farm.

He did not simply relax, he farmed! Much to his surprise, farming now helps him recuperate. For one, it intensifies his mobility. But, for the farmers in his community, his decision to farm means that high-quality inbred seeds are within their reach, and their dream of a bountiful harvest will cease to freeze as a mere wish.

Producing high-quality inbred seeds

For Hermosa, the quality of seeds highly depends on their source.

"I travel all the way to Nueva Ecija to purchase seeds. I do this twice a year. I always check where the seeds come from. If they are guaranteed PhilRice seeds, then I readily mass-produce them," Hermosa said.

Farming for 13 years, Hermosa had known about PhilRice from his fellow Filipino professors at the College of Agriculture and Marine Fisheries in the Sultanate of Oman where he taught for 15 years. PhilRice experts had once supervised his fellow professors.

He recalled that when his preferred seeds were not available at PhilRice, he bought seeds from a big agricultural supply store but ended up growing seeds infected with seed-borne pests and diseases.

Apart from securing seeds from a credible source, Hermosa explained that the high quality of seeds should be maintained through proper crop management practices highlighting the importance of seed treatment, roguing, cleaning of thresher, and proper seed drying.

He treats the seeds prior to sowing. He uses fungicide and insecticide to manage seed-borne pests.

The use of high-quality seeds ensures sufficient number of vigorous seedlings.

JAYSON C. BERTO

Hermosa also told us that he rogues his field thrice in a cropping season particularly when the rice is at vegetative and booting stages, and when it's ready to be harvested. "I personally rogue my field to ensure that off-types or mixtures are removed."

He cleans the thresher before and after using it. He also recognizes the importance of proper drying before storing to maintain the quality of seeds. He dries his seeds twice. To check if his seeds need another round of drying, he usually places the seed sample in a tightly sealed bottle and observes if the bottle moistens. A dry bottle assures him not to dry the seeds again. Sometimes, he brings the seed sample to a *palay* buying station to check its moisture content using a moisture meter.

Now, he as president of the Barangobong Farmers' Association, is reputed in their community as a reliable source of high-quality inbred seeds of varieties recommended in their area or even of newly released varieties. Producing high-quality inbred seeds for his fellow farmers, and encouraging and teaching them to produce their own high-quality inbred seeds are the responsibilities he willingly accepted to also help them increase their yields and their community thus valuing cooperation. His fellow farmers exchange seeds with him.

Spotting seeds with high quality

Exchanging seeds with their fellow farmers for years has improved their skill in spotting seeds that are of high quality.

Isidro, 63, and Clarito Suño, 47, also of Sta. Lucia, Ilocos Sur disclosed that they make it a habit to visit and observe the farms of their fellow farmers including Hermosa's to scout for a potential source of high-quality inbred seeds.

Isidro counts the grains in the panicles. The more grains he counts, the more yield to expect. Having farmed for more than 3 decades, he recalled that he produced 64cav in his 0.5ha using NSIC Rc 240 that averages 128cav/ha.

Clarito, on the other hand, watches for rice plants that have longer panicles with denser grains. A farmer for 2 decades, he had produced 50cav in his 0.5ha planted with PSB Rc 82 that averages 108cav/ha.

Meanwhile, Cesar Fabro, 60, also from Sta. Lucia sets aside a portion of his yield from plants that had more tillers and longer panicles as seeds for the next cropping season. Like the Suños, he also exchanges seeds with his fellow farmers including Hermosa.

Hermosa, Fabro, and the Suños have different ways on how to spot a potential source of high-quality inbred seeds but they all agree on achieving an abundant harvest from using these seeds.

How experts ensure high quality of inbred seeds

Farmers and experts both recognize the importance of using high-quality seeds as the first step in achieving a bountiful harvest as highlighted in Key Check 1 of *PalayCheck,* an integrated crop management system. Research findings and farmers' experiences maintain that the use of high-quality seeds increases farmers' yield by 10% or more.


CARLO G. DACUMOS

> Seed is the foundation of any crop. It must be grown, harvested, and processed properly for higher yield and quality results.
>
> - Dr. Oliver E. Manangkil
> PhilRice Plant Breeder

High-quality inbred seeds are also sown at lower seeding rates that result in more vigorous and uniform crop germination, less pest problems, and more efficient harvesting activities as they mature at the same time**.** Hence, it is best for farmers to follow the proper crop management practices especially land preparation, roguing, harvesting, drying, cleaning, and storage to ensure high-quality inbred seeds.

Dr. Oliver E. Manangkil, a PhilRice supervising researcher and plant breeding expert, said farmers must remember the criteria in assessing seed quality like the presence of seeds of other varieties or weeds. Germination percentage, seed vigor, appearance, presence of pests and diseases, inert matter, and varietal characteristics should also be reckoned with.

Manangkil stressed certified seeds are relatively pure, free from foreign seeds and visible insect pests and diseases, full and uniform in size, and are viable.

"Seed is the foundation of any crop. It must be grown, harvested, and processed properly for higher yield and quality results," Manangkil explained.

Another way for farmers to ensure high quality of seeds is to understand how the Rice Seeds Systems (RSS) program of PhilRice works.

Program Lead Glenn Y. Ilar said RSS covers both formal and informal seed systems. Hermosa, Fabro, and the Suños are part of the informal seed system or the "*palit* system".

"Under the "*palit* system", farmers themselves produce the seeds that they will use and share these seeds within their community. This system is most commonly used in areas where there are no seed growers or access to seeds is limited," Dr. Ilar said.

He admitted that it is challenging to check the quality of seeds under the informal system because seeds do not undergo the certification process, unlike in the formal seed system.

On account of this setup, farmers must learn how to purify their own seeds since seed purification is the most critical part of ensuring its quality," Ilar added.

He also encourages farmers to attend training and seminars that teach them how to conduct germination tests prior to seed soaking to determine vigor or the potential to perform well during germination and seedling ermergence, and in terms of germinability or the ability to sprout.

"Since the goal of the informal seed system is to facilitate seed exchange among farmers, they themselves must know how to assess the quality of their seeds, so that they can be assured that the seeds they share among themselves are of high quality, too," Ilar explained.

The presence of Hermosa in their community ensures that high-quality inbred seeds are accessible and available to his fellow farmers. Good thing he found farming therapeutic. Even better, he meticulously chooses the seeds that he mass-produces and eventually exchanges with his fellow farmers. •


MARY GRACE M. NIDOY

Farmer Arnel Ortega monitors his farm in Tacurong City, Sultan Kudarat.

FEATURE

Pest management begins with proper land preparation

MARY GRACE M. NIDOY

On full-moon nights, as many farmers know, rice black bugs (RBB) swarm their irrigated rice fields. Like the mosquitoes that suck blood, RBBs fly to the plants and land at the base, stems, and nodes, drying up their sap or juice.

RBB, locally called *itim na atangya,* is just one of the many pests that inflicted damage on Arnel Ortega's 2-ha farm in 2009.

Since he started farming at 15 years old, he had lost battles against the brown planthopper in the 1980s to the more recent ones, such as the rice *tungro* disease and weeds.

"We had to use pesticides heavily; chemical warfare against the pests," the lanky 51-year-old farmer from Tacurong City, Sultan Kudarat confessed in their local language.

Pesticides come last

That many farmers rely too much on pesticides is no longer surprising. The US Environmental Protection Agency claims that at the producer level, the world used nearly 6 billion pounds of pesticides in 2011 and 2012.

While pesticides may help minimize crop losses, their excessive use puts the environment and human health to risk.

In 2015, Mindanao State University–Iligan Institute of Technology researchers saw prevalent symptoms of occupational and non-occupational pesticide poisonings among many Filipino farmers.

The researchers largely attributed the poisonings to the farmers' long exposure to pesticides, unsafe storage practices, improper disposals of empty containers, washing of backpack sprayers along the irrigation canals and near water sources used by the general public, and non-compliance with the use of personal protective devices in handling pesticides.

When Ortega became a local farmer technician (LFT) in 2012, he learned various integrated pest management practices from training, study tours, and seminars, thanks to the Regional Crop Protection Center (RCPC) in Region 12 and Tacurong City's Agriculture Office.

"For one, I learned that pesticides spare no life in the field; they kill even the beneficial insects or natural enemies that could easily weaken the pests," he recalled.

PhilRice entomologist Genaro Rillon said that among the most effective natural enemies of insect pests are wasps, spiders, lady beetles, crickets, and water bugs.

A farmer conducts proper land preparation as his first line of defense to prevent pests from damaging the crops.

ASHLEE P. CANILANG

> Farmers need to have a correct diagnosis of the disease. If they find that the variety is susceptible to the disease and all the said factors are met, only then could they use pesticides
>
> - Dr. Fe A. Dela Peña
> PhilRice Plant Pathologist

"Farmers should not misuse pesticides. Otherwise, pest resurgence and resistance will occur," Rillon reminded.

Misuse of pesticide means that the chemical is not for the right pest, applied at the wrong time or dosage.

When is the right time for farmers to spray? When beneficial insects can no longer contain the insect pests.

Meanwhile, a PhilRice plant pathologist affirmed that farmers may use pesticides only when the other options have failed.

Dr. Fe Dela Peña cited factors to consider before they decide to use pesticides. These include variety, crop stage, location, history, cultural management, and cropping system and season.

"Farmers need to have a correct diagnosis of the disease. If they find that the variety is susceptible to the disease and most of the said factors are met, only then could they use pesticides," De la Peña advised.

Tariffied rice

Scientists tolerated pesticides as farmers' last recourse because other preventive measures and solutions are more practical and are less harmful to the environment.

Now that taxes have pushed import limits aside, farmers are advised to use yield-enhancing and cost-reducing technologies and practices to compete with their counterparts particularly in Vietnam and Thailand, and survive the influx of cheap imported rice.

PhilRice and IRRI agreed that Filipino farmers produce close to 4t of ***palay*** in a hectare at a cost of P12/kg, at an average production capital of P48,000/ha.

As prices of pesticides and fertilizers spiral up, farmers have to lower their production expenses by using cost-effective technologies. One of these is a basic and simple practice most farmers have yet to perfect – proper land preparation as emphasized in Key Check 2

of the *PalayCheck,* an integrated rice crop management system.

Why proper land preparation?

"When I attended an RCPC training, experts taught us that crop protection starts from proper land preparation," Ortega said.

A classic example of an old adage, prevention-is-better-than-cure.

Thorough land preparation, crop protection experts maintained, reduces weed infestation, insect pest population, and yield loss.

"Plowing the field helps separate the weed shoot and roots, buries them, and they decompose under the soil. It also allows the buried dormant seeds to germinate that are then killed by harrowing the field twice," weed scientist Dindo King M. Donayre explained.

Donayre also emphasized that leveling the field evenly facilitates good water, nutrient, and pest management.

Farmer Ortega supported this claim with their hands-on experience. He added farmers would know if the field is well-leveled if no mounds of soil are seen above the water surface after final leveling.

With proper land preparation, farmers can easily maintain the water level so that egg masses of insect pests deposited at the base of the host plant would rot to death even before they are hatched.

Up to 2012 when Ortega became an LFT, pests robbed 50% of his harvest even if he spent approximately P6,000/ha for pesticides.

"I have stopped using insecticides when I learned the importance of proper land preparation. This helped me bring down the cost of my production," said the satisfied farmer who is also president of the Sitio Bag-o Irrigators Association.

He used his accumulated savings and earnings to buy farm machines, such as thresher, power tiller, and above all, build their house.

> Plowing the field helps separate the weed shoot and roots, buries them, and they decompose under the soil. It also allows the buried dormant seeds to germinate that are then killed by harrowing the field twice.
>
> - Dindo King M. Donayre
> PhilRice Weed Scientist

How to properly prepare the land

Prior to his trainings, Ortega ignored the recommended fallow period in between cropping seasons. He would immediately plant even if the rice straw was still close to being fresh. He was compelled to do so because he was planting rice thrice a year, a common malpractice of farmers in Tacurong City. Technocrats call this as "quick turnaround" farming. Ortega was persuaded during his training to plant only twice a year.

"Farmers should let the field rest for 30 days after harvest to break the life cycle of pests," said Fredierick Saludez, a PhilRice agriculturist.

He figured out that as most insect pests have an average life cycle of one month, leaving the field idle for some 30 days would decimate, if not wipe out, pest populations before the next planting season.

PhilRice preached that farmers must start plowing 21-30 days prior to transplanting, simultaneously allowing the seedlings to grow 18-21 days old. Plowing and repeatedly harrowing the field reduces clod size, allows thorough decomposition of rice straw and stubbles, controls pest and water flow, and triggers the early germination of drop seeds. Leveling the field with a wooden plank or power tiller-attached leveler caps the land preparation process, which further debilitates the surviving pests.

Saludez also advised farmers to regularly clean and repair the dikes and canals to remove weeds as pests' alternate host, help facilitate efficient water distribution, and prevent seepage.

"The dikes must be 15cm high and 20cm wide to discourage rats from burrowing," he noted.

Bonus tips

While proper land preparation is the first crucial stage in rice production, RCPC-12 Head Michaela Cantila said that preventive measures and associated technologies will complement to continue neutralizing the pests.

"We also teach our farmers to use varieties that either tolerate or resist pests and diseases, conduct synchronous planting, and patrol their fields regularly," Cantila elaborated.

For Ortega, aside from helping one's self through willingness to adopt new practices and technical knowledge from experts coupled with diligence and assistance from the government is also vital in helping to defeat pests.

"Fortunately for us, the support from our city agriculture office, RCPC, and other agencies is always there," Ortega said with gratification. And he has all the reasons to be proud Tacurong City is among the five top rice producers in Sultan Kudarat.

And at least for now, he can be sure that the full-moon nights will not drive him lunatic. •

FEATURE

Let the rice plant EAT right

ELSIE E. REYES

Rice experts hold on to "just the right EAT" - right **E**lement, **A**mount, and **T**iming - in managing nutrients as reiterated in Key Check 5 of the integrated crop management system called *PalayCheck*. The mantra may sound pretty simple but to practice it may be difficult as it means unlearning many of the old ways of managing nutrients.

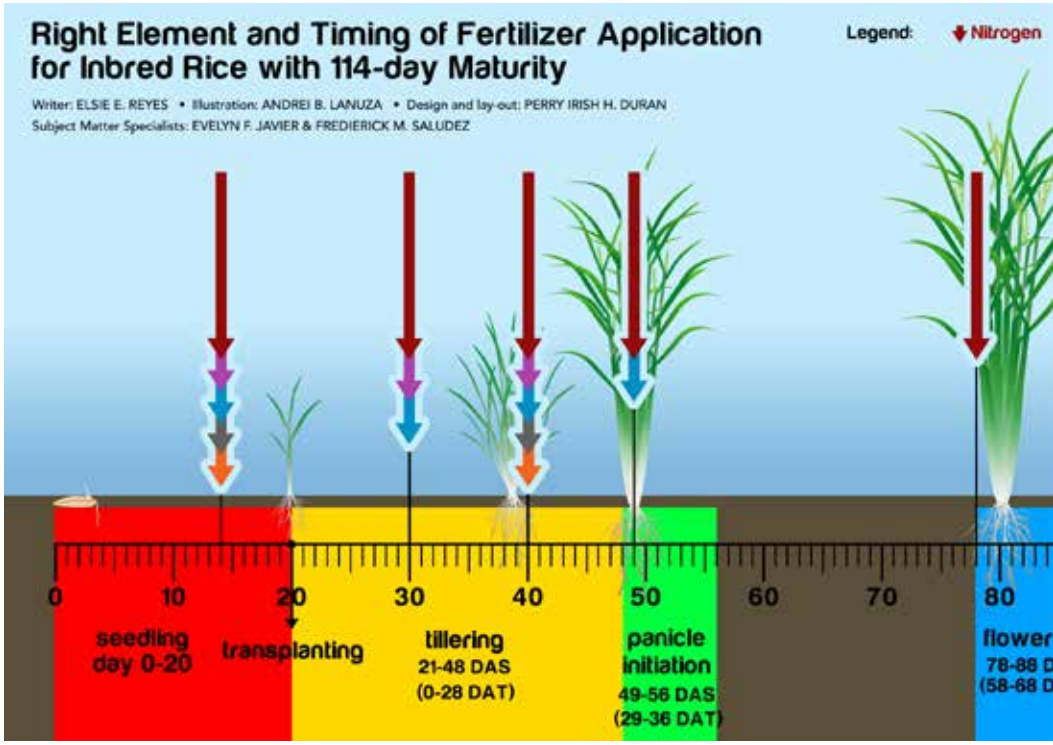
Right EAT 101

To know the right element of nutrient is to be familiar with the functions of the essential ones in fertilizers.

Nitrogen (N), phosphorus (P), and potassium (K) are the most important nutrients. N gives rice the green appearance, P stimulates root development, and K provides strength, contributes to root development, and increases size and grain weight.

Other important elements are zinc and sulfur, the former being critical for seedling development and synthesis of auxin, a plant hormone to regulate plant growth; and the latter for vitamin formation and photosynthesis.

Excessive NPK could do harm to the rice plant and may result in: pest infestation from lavish N; unavailability of zinc from P; and limited N absorption from K. They collectively threaten to limit yields. Overspending on fertilizers can also hurt technical efficiency, leading to higher cost of production and lower net income.



Split application of N from the vegetative until flowering stages promotes tillering, and increases height, leaf size, spikelet number, and protein content. Application of P at the early growth stage of rice leads to excellent crop stand. Likewise, applying K from vegetative to grain filling provides strength to the rice plant and increases grain size and weight.

Practicing the mantra

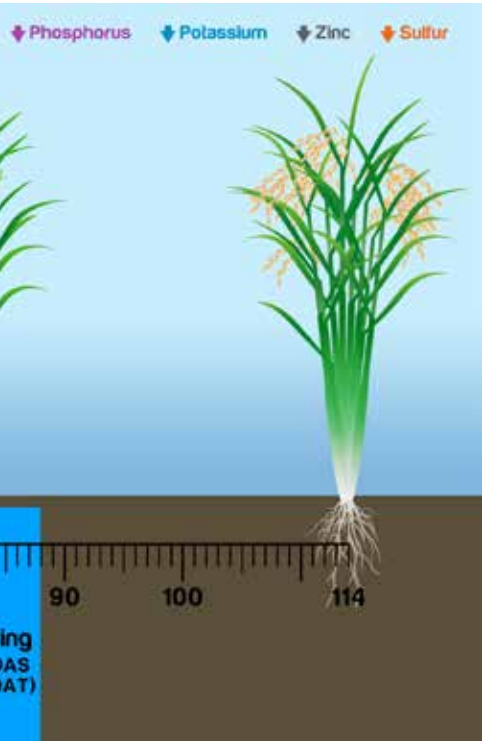
Genaro "Genie" Tamon, 56, is an integrated rice-based farmer from Magarao, Camarines Sur. For 10 years, his nutrient management practices per hectare for inbred rice start with incorporating 120kg chicken and pig slurry to the soil before land preparation, followed by basal application of five bags of complete fertilizer (14-14-14), 10kg of zinc sulfate, 10kg of zinc phosphate, and 1kg of trichoderma a day before transplanting. Trichoderma is a fungus that facilitates easier breakdown of organic matter, such as rice straw and manure.

Roughly approaching the tillering stage at 15 days after transplanting (DAT),

he would apply four bags of ammonium phosphate (16-20-0), followed by two bags of urea (46-0-0) at 30 DAT near panicle initiation except during wet season (WS) when no urea is applied, and then three bags of 17-0-17 at 45 DAT close to flowering stage.

Hence, Genie's inbred rice usually receives 92.5kg N, 75kg P, and 60.5kg K. This is complemented by irrigating his sandy-loam soil with 3-cm water level for three consecutive days weekly. After these days, no water is visible on the surface, implying that his water management practice allows aeration.

At that rate of fertilizer application and water management practice, his average



yield for inbred is 180cav (50kg/cav) during the dry season (DS) and 150cav during WS with a production cost of P15/kg.

Soil health

Evelyn F. Javier, a PhilRice researcher specializing in organic fertilizer, concurred that manure is beneficial. She outlined that soil health has three components: physical, biological, and chemical. The first two components are mainly the functions of organic fertilizers and the third by inorganic.

Soil physical attributes, like being too silty/sandy (buhaghag) or too clayey (malagkit), can inhibit nutrient uptake. Thus, organic matter fills the hollow parts of silty/sandy soils or separates the highly compacted clayey soils. Organic matter also maintains the biological component by feeding the microorganisms that make nutrients readily available for rice.

To illustrate better, microorganisms, Javier said, are like chefs who prepare food from raw materials such as fertilizers, crop residues, and inherent soil materials. By incorporating manure during land preparation, Genie prepared the soil to efficiently process the nutrients for uptake.

Javier noted that while NPK are available in organic fertilizers, most NPK needed by rice still comes from inorganic, making it as a dominant factor in the soil chemistry.

She also recognized Genie's application of appropriate fertilizer during the critical stages of rice growth, adding that chicken manure is rich in P that is vital in its first growth stages.

Right EAT in action

Generally, Genie's nutrient management is close to ideal. The only thing to look out for, Javier said, is the amount of P given that the typical nutrient recommendation for rice is 90kg N - 40kg P - 40kg K in WS and 120kg N – 40kg P, - 60kg K in DS. Javier figured out Genie's water management and soil type facilitate better soil aeration, work well with his fertilizers even if they are a bit over the maximum amount of P. She added that Genie's application of zinc phosphate and zinc sulfate was also another layer of defense against the threat of zinc deficiency.

More lessons to learn

Genie also works as a local farmer technician in Magarao. His experience reflects that some farmers are still practicing hit-and-miss, just guessing the right EAT. But with his great diligence, he could help farmers change their old ways in managing nutrients.

Besides this, misconceptions on chicken manure containing weed seeds stood on his way to encouraging its use. Javier clarified that farmers should not worry about the use of chicken manure because these only eat few grasses. In fact, there's a higher possibility that carabao manure contains weed seeds.

Cost efficiency

Wilfredo B. Collado, a PhilRice researcher specializing in inorganic fertilizer, reiterated that amidst the rising fertilizer cost, farmers should be more conscious if they are using it efficiently. Otherwise, nourishing rice will remain as a money-depleting effort done in vain.

With the motive of increasing yield and lowering cost, farmers are advised to keep in mind the nutrient management mantra - Just the right EAT. •

VOXPOP

*How can our farmers triumph in an open rice market?

COMPILED BY ALLAN C. BIWANG JR AND FREDIERICK M. SALUDEZ
***Crowsourced through PhilRice Facebook Page and Text Center**

Jose G. General, 56, Manila, Agriculturist
Farmers must organize their own marketing cooperative in every city or municipality. This way, they can be involved in the value-adding activities from harvesting to trading without the middlemen, therefore they can earn more. Cooperatives must invest on value-adding activities rather than offering financial loans to its members. I encourage farmers to sell milled rice instead of just fresh *palay*.

Antonio V. Doblon Jr., 46, Camarines Sur, Agricultural Technologist
Farmers can avoid the excessive use of pesticides by planting pest-resistant varieties, such as PSB Rc 18 and 10, and NSIC Rc 238, Rc 214, Rc 112, Rc 124H, Rc 226, and Rc 240.

Ernifel Bryan A. De Guzman, 30, Pangasinan, Farmer
The government needs to subsidize fuel, seeds, and fertilizers for farmers. I suggest to get funds from rice tariffication and initiate cash-based incentives to poor farmers.

Nemartch Halasan, 25, Zamboanga del Sur, Agriculturist/OFW
I think the government should provide more post-harvest facilities, such as solar and mechanical dryers. This will enable farmers to sell dried *palay*, which commands higher price compared with fresh *palay*, especially during harvest season. Buying prices of *palay* should be monitored by our government to avoid malpractices by abusive buyers. In granting machines, they must prioritize cooperatives for proper usage and maintenance.

Fred Dela Cruz, 55, Isabela, Farmer
The use of high-quality seeds is one of the ways to increase farmers' yield. To reduce the cost of inputs, farmers can use organic fertilizer, such as chicken manure. Farmers must also learn the right timing of fertilizer application to maximize the absorbed nutrients.

Alegria Manalac, 66, Pampanga, Farmer
Irrigation systems must be improved. Weeds can be controlled when there is enough water supply. With that, farmers will no longer need to spend money for herbicides. We can also recommend the use of controlled irrigation to lessen fuel cost for water pump-dependent farmers.

Marleth Temporal, 21, Bulacan, Agricultural Biotechnology Student
Let more farmers access hybrid rice seeds or other rice varieties recommendeded in their areas. Government should assist farmers in selling their produce directly to consumers.

Dolce Fe Baquiran, 60, Isabela, Farmer
Mechanizing rice production is one of the key solutions in reducing production cost. The DA must produce localized and affordable mechanical transplanters, which can reduce labor cost for pulling of seedlings to manual transplanting.

Jesus Saldo, 68, Bataan, Farmer
They need to mechanize land preparation, use the right variety, practice proper water and pest management, apply the right fertilizer, and use combine harvester and mechanical dryers.

Top rice-producing provinces

and their adoption rates of selected technologies

	NUEVA ECIJA	ISABELA	PAMPANGA	BUKIDNON	ZAMBOANGA DEL SUR
PRODUCTION (t)					
Irrigated	1,737,108	1,223,410	423,177	410,606	290,905
Rainfed	146,983	62,275	6,229	46,496	89,147
AREA HARVESTED (ha)					
Irrigated	290,864	258,309	90,814	84,917	61,721
Rainfed	33,178	20,982	1,474	13,185	23,229
YIELD (t/ha)					
Irrigated	5.97	4.74	4.66	4.84	4.71
Rainfed	4.43	2.97	4.23	3.53	3.84
NUMBER OF FARMERS	70,877	37,176	23,835	19,105	30,571
ADOPTION RATE (%) OF SELECTED TECHNOLOGIES					
HYBRID RICE SEEDS					
Jul-Dec 2011	4	3	0	3	0
Jul-Dec 2016	4	9	2	5	7
CERTIFIED INBRED RICE SEEDS					
Jul-Dec 2011	73	66	69	26	38
Jul-Dec 2016	84	76	76	36	62
COMBINE HARVESTER					
Jul-Dec 2011	0	3	0	0	0
Jul-Dec 2016	72	69	37	31	17

Sources: Philippine Statistics Authority, 2017
Department of Agriculture, 2012
Philippine Rice Research Institute, 2017

FEATURE

The triad behind Cordillera's thriving farmers

ANNA MARIE F. BAUTISTA

Several initiatives for the agriculture sector have come and gone. Some last, others are easily forgotten. In rice-producing provinces of the Cordillera Administrative Region (CAR), the High-Yielding Technology Adoption (HYTA) project of the DA is among those that brought positive change to the lives of the farmers and to the continuity of its farmers' groups.

What is their key? Is it the project scheme? Firm implementer? Responsible beneficiary? The truth is, it's a combination of everything.

Self-sustaining scheme

Focusing on rice farmers' groups, which they call as institutional partners (IPs), the DA introduced the HYTA project in the six provinces of CAR in 2015 wet season. It operated under the grant-recover-roll-over scheme (see infographics), mainly providing private hybrid seeds and fertilizers to its recipients.

Under the scheme, the IPs are to infuse funds for their operation while helping their farmer-members learn about new rice agriculture technologies as means to increase their yields.

"We do not only aim to increase rice production. We also want to empower and strengthen our IPs so that they can become productive and eventually stand on their own," DA-CAR Alternate Regional Rice Program Coordinator Edwin Joseph Franco explained.

Kalinga shines

In the 4th class municipality of Rizal, Kalinga dwells the Macutay Farmers' Association (FA), a group of 97 farmers who from scratch, became a model IP with over P2.4 million worth of total current assets.

"We were convinced by the DA in 2013 to form a group so that we could avail of programs from the government. From being recipients of the community seed banking initiative and the Modified Plant-Now-Pay-Later program, we were tapped as their partner in the HYTA Project two years later," Macutay FA Manager Generoso Espera narrated.

From 14 members in 2013, their number eventually grew to 97 when the other farmers saw the benefits that the FA members were enjoying.

HYTA project scheme

**Maximum of 2ha/farmer; Additional package of fertilizer will be determined based on the recommendations of the Rice Crop Manager.*

For one, Dominador Umenge, 47, joined the group when he learned that there were several forms of assistance provided to members of the Macutay FA. Before he joined, Umenge used to plant inbred seeds in his 1-ha ricefield. Every cropping season, he would borrow money from individuals they called as 'loan sharks'. On top of that was a 5% monthly interest. He was also chained to his creditor who was the exclusive buyer of his farm produce.

"The loan sharks call the shots. I bring them my harvest and they dictate the price of my fresh *palay*. So, when they deducted my debt from the payment, I was almost empty-handed. A lot of times, the receipt was the only thing I could bring home. I realized I could not send my children to college or have our home fixed, given my circumstance. Nevertheless, I still had to farm," Umenge recollected.

He experienced a 180-degree turnaround when he joined Macutay FA and received assistance from the HYTA project. He sold his tricycle and paid all his debts so he could unchain himself from his creditor and start anew in the association.

Like him, other members of the association experienced improvement from their farming activities after becoming members of the Macutay FA and recipients of the project. Maria Rebecca Cuaresma, 52, and her husband noticed that their rice yield increased; from 80-90 sacks/ha to a minimum of 120 sacks. They acquired a rice mill for business purposes two years after she joined the FA in 2015. Maria Cristina Duran, 41, revealed that she used to harvest 75 sacks/ha, now almost doubled at 145 sacks/ha. She attributed her high yield to the RCM recommendations rationalizing her fertilizer use, amount, and timing.

Apayao takes pride

Malayugan FA in Flora, a 3rd class municipality in Apayao, is also delighted to be among the top-performing farmers' groups in the HYTA Project. Unlearning many of their traditional farm practices and learning new ways to improve their rice yields may be considered as the best thing that farmers ever gained from being FA members and project beneficiaries.

us by the project, I found that my harvest could be further raised," Tolentino claimed.

Oliver Duque, 46, president of Malayugan FA, also mentioned that their members eventually learned about proper seeding rates and the presence of friendly insects in the farm, after constantly communicating with their agricultural technologists (AT) who guide them in the HYTA Project.

"We didn't realize that we were sowing double the rate of needed seeds in a hectare. We used to spray pesticides immediately upon seeing any kind of insect in the farm. Learning about the *PalayCheck* System from Sir Willen Catubag, our AT, our farm expenses have shrunk while our harvest increased," Duque noted.

With over 172 active members now benefitting from the project, Malayugan FA disclosed that they collected a total roll-over fund of P1.4 million. They are also gaining from renting out a combine harvester, which was granted to them as incentive for performing well in the project.


Malayugan FA

JAYSON C. BERTO


Macutay FA

JAYSON C. BERTO

Now, he does not only gain income from his farm produce which has been increasing through the years; Umenge also receives compensation as operator of the farm machines that their FA rents out to farmers. He was able to see his three children through college, two of whom earned degrees in agriculture, the other in education. His youngest is an elementary pupil. They had their house fixed, as well!

"I can now bring home more income for the family, not just the receipt!," Umenge rejoiced.

Rodel Tolentino, 40, auditor of the association, was proud to harvest more than 120 sacks of fresh *palay* at an average of 60kg/sack after learning that fertilizer application must be done with proper timing and amount.

"Before, I used to apply fertilizer at any stage of the crop as long as I had time. In my 1-ha ricefield, the most that I could get during those seasons was less than 100 sacks. I was already contented with that. Because of the RCM recommendations that were brought to

"After one harvest season, we gained a net income of P300,000 from renting out the combine harvester," FA's Treasurer Orencio Pilotin confirmed.

Firm and secure

Like Macutay and Malayugan FA, St. Thomas Credit Cooperative (STCC) of Tabuk City, Kalinga and Bayog-Imelda-Sipa Irrigators Association (BISIP) of Sta. Marcela, Apayao are also standing firmly for their farmer-members. Thanks to the HYTA Project.

> With enough funds, capability enhancement seminars, and proper guidance from the implementers, we believe we could stand stronger for our members. We fervently hope that this kind of project would stay for us and our fellow members.
>
> - BISIP President Arthur Bitibit

"We tied up with the project so we can implement the agriculture credit assistance program for our farmer-members. A total of 292 farmers or 712-ha rice farms have benefitted from this project," Rolando Carbonel, 50, STCC executive officer said.

"With enough funds, capability enhancement seminars, and proper guidance from the implementers, we believe we could stand stronger for our members. We fervently hope that this kind of project would stay for us and our fellow members who are waiting for their turn to also grow," BISIP President Arthur Bitibit voiced out.

Lessons from the ground

While the HYTA Project is implemented in all regions in the country, fruits of the initiative vary in every area. For the farmers of the Cordillera, the project is one of the most sustainable blessings they have received thus far.

"If not for the project and its implementers, we might still be a petty organization that could not even raise P100,000.00," Macutay FA Treasurer Alfredo Jallorina acknowledged.

According to DA-CAR's Franco, being a firm implementer tops all the best practices that he gained from operating the project.

"We once had a similar project before but our goals did not materialize because the guidelines were not strictly implemented. We're executing the HYTA Project from that experience," he remarked with caution.

Every cropping season, farmer-members keenly follow the requirements set beforehand because they know that they're there for a reason. They also added some guidelines based on the peculiarities of their region.

St. Thomas Credit Cooperative Officials

JAYSON C. BERTO

When the project reached the IPs, Franco was hands-on in guiding the groups' officers. Decision-making was participatory and he only left them when they could already handle things on their own.

He also believes that the project must be driven by true-blooded farmers.

"I always encourage the IPs to put in place trusted officers that are actual tillers of the soil," Franco highlighted. True enough, most of the successful IPs in the project have the heart to serve and be of help to their fellows.

"Few of our members could not pay immediately owing to certain circumstances. We impose penalty but only at a minimal amount. After all, we are farmers alike. We know the feeling," Malayugan FA Secretary Roland Tolentino emoted.

Franco also noted that rewards boost the morale of those who perform well. Macutay and Malayugan FAs were gifted with their own combine harvester, which they now rent out to members and non-members at a cheaper price compared with private machine owners.

Since political agenda cannot be easily set aside, Franco also talked with LGUs. He said he needed to sort things out so that the project would reach the farmers without any intervening issue. He also said strong partnership with the LGUs is key to a more successful ground implementation.

Indeed, cultivating a competitive farming community exacts a lot of effort. Guidelines must be followed, stakeholders must have synergy, and the beneficiaries must be accountable. Good thing, Kalinga and Apayao farmers were exemplary. After less than a decade of hard work, they became millionaire associations. They have themselves, the project, and its implementers to be thankful for and be proud of. •

RICE BLENDS

COMPILED BY HANNAH MAE A. TOLENTINO

Horchata

From Authentic Mexican: Regional Cooking from the Heart of Mexico

Horchata is a refreshing Mexican drink made with rice. Find out how you can make this drink at home by following these simple steps!

INGREDIENTS:

- 1 cup uncooked white rice
- 5 cup water
- 1/2 cup milk
- 1/2 tbsp vanilla
- 1/2 tbsp ground cinnamon
- 1/3 cup white sugar

PROCEDURES:

1. Pour the rice and water into a blender and mix for 1min. Let rice and water sit in the blender for 3h.

2. Using cheesecloth over a fine-mesh strainer, strain the rice-water mixture into a pitcher to remove rice residue.

3. Add milk, sugar, cinnamon and vanilla to the mixture. Mix well and chill before serving.

Makes four small glasses.

https://www.afamilyfeast.com/horchata/

Bonus tip: If you're not a fan of cinnamon, you can use pandan leaves, fruits or any flavoring you want! **Serves four small glasses.**

https://natashaskitchen.com/cheesy-rice-balls-recipe-arancini/

Cheesy Rice Balls *(Arancini)*

From Lidia's Favorite Recipes Book

This recipe puts a spin on Arancini or traditional Italian rice balls for an appetizer that you can't say no to! Serve it with marinara sauce, and your guests will surely be coming back for more.

INGREDIENTS:

- 2 tbsp olive oil + 2 tbsp unsalted butter
- 1 cup onion, finely diced
- 1 cup ham, finely diced
- 2 cup unrinsed medium-grain rice (Jasmine)
- 1/2 cup tapuy (rice wine)
- 5 cup chicken broth
- 1 tsp salt
- 1 cup frozen peas (thawed)
- 1/3 cup fresh parsley, finely chopped
- 1 cup shredded parmesan cheese
- 4 oz mozzarella cheese, cut into 24 (1/2-inch) cubes

For Breading/ Frying:

- 1 cup all-purpose flour
- 3 large eggs, beaten
- 1 ½ cup bread crumbs
- Vegetable oil for frying

PROCEDURES:

1. Using a heavy-bottomed pot with tight-fitting lid, add 2 tbsp olive oil and 2 tbsp butter over medium/high heat. When hot, stir in diced onion and sautee until soft and golden (4-5min). Add finely diced ham and cook for another 2min or until golden. Add rice and stir to coat with oil.

2. Pour in 1/2 cup rice wine and cook until it evaporates (2min). Add 5 cup chicken broth and 1 tsp salt then cover and cook until liquid is absorbed by rice (15min). Add the peas, then cover with a tight-fitting lid and finish cooking (2 min). Rice should be soft and the liquid should be mostly absorbed. Spread rice mixture on a flat dish to cool.

3. Once rice is cooled, add 1/3 cup finely chopped parsley and 1 cup parmesan cheese. Form rice balls using a heaping ice cream scoop. Stuff each rice ball with a cube of mozzarella cheese and form a tight ball with the rice mixture to enclose the cheese.

4. Set up 3 shallow bowls, the first one will have 1 cup flour, the second with 3 beaten eggs, the third with 1 1/2 cup bread crumbs. Dredge each rice ball in flour, shaking off the excess flour, then dip one-by-one in the beaten egg allowing excess egg mixture to drip back into the bowl. Finally, roll balls in breadcrumbs until evenly coated. It's best to coat all the rice balls with breadcrumbs before frying.

5. Add an inch of vegetable oil into a deep skillet or pot over medium heat. Once oil is hot, add the breaded rice balls in batches without crowding the pot and cook until they turn golden brown. Transfer to paper towels and serve warm with marinara sauce, or any sauce you prefer.

Makes 24 rice balls.

We thank our retirees

ALLAN C. BIWANG JR.

Evelyn S. Perialde, 51
Kidapawan City, North Cotabato
Position: Senior Science Research Specialist, PhilRice Midsayap
Length of Service: 17 years

Perialde was the Business Development Division (BDD) coordinator in 2015 when her station had the highest income among branch stations at P13.6M.

She managed and sustained the station's *Palayamanan* demonstration farm for five years, establishing a vermicompost shed funded by DA-RFO 12. She developed a rice seed storage technique and evaluated different substrates for vermicompost production, among other feats.

She was the Outstanding Middle Manager Awardee in 2016.

Elaine E. Joshi, 62
Angeles City, Pampanga
Position: Librarian III, CES, ODED for Research
Length of Service: 22 years

In 1991, Joshi helped establish the PhilRice Library that met the high library standards as assessed by the Board for Librarians of the Professional Regulation Commission. She was involved in the conduct of IT Productivity Seminar Series or IT Roadshows from 2014 to 2017 to capacitate staffers in the branch stations on the use of existing PhilRice information systems and resources.

She led the implementation of the enabling mechanism component of the Project IPaD by providing access to full-text online databases and other e-resources, such as Science Direct, SpringerLink, Gale, Proquest, Taylor & Francis, ACSESS, EBSCO, OECD iLibrary, CAB Abstracts, Crop Protection Compendium, and GREENR.

CONGRATULATIONS!

Ommal H. Abdulkadil

Birthplace: Indanan, Sulu

Academic Profile:

- Master in Development Management (Development Academy of the Philippines [DAP])
- Master of Science in Agriculture Major in Phytobacteriology (UP Los Baños)
- BS in Agriculture Major in Plant Pathology (University of Southern Mindanao), *magna cum laude*

Abdulkadil was involved in the implementation of the project *"Rice-Based Farming System for the Autonomous Region in Muslim Mindanao"*.

His re-entry project *"Rice Doctors and Friends to the Barrios: A Pilot Rice Extension Delivery Modality"* was recognized as Best Capstone Project by DAP.

He now leads the project *"Accelerating the adoption of sustainable agriculture"*, which aims to increase adoption of rice production technologies in Zamboanga Peninsula, SOCCSKSARGEN, and ARMM.

Abdulkadil was the Outstanding Development Staffer in 2010 and Special Citation recipient for Outstanding Senior Development Worker in 2016. He is a Chief SRS, and OIC branch director of PhilRice Midsayap.

HATS OFF TO OUR NEWLY APPOINTED AND PROMOTED STAFFERS!

May O. Palanog, SRS I, Negros

Joselito A. Kalaw, Development Management Officer IV, CES

Imelda A. Arida, SRS II, Socioeconomics Division, CES

Genevive A. Nemeño, Supervising SRS, Research Sector, Agusan

Jasmin J. Reyes, Chief SRS, Development Sector, Agusan

Alice B. Mataia, Supervising SRS, Socioeconomics Division, CES

Mario R. Ramos, Chief SRS, Development Sector, Isabela

Sonia V. Pojas, SRS I, Research Sector, Batac

Salvacion E. Santiago, SRS I, Crop Protection Division, CES

Alona P. Tape, SRS I, Development Sector, Agusan

Melanie Aileen C. De Peralta, Senior SRS, Bicol

Sophia T. Borja, Chief Administrative Officer, CES

Marco Antonio M. Baltazar, SRS I, Socioeconomics Division, CES

Recille G. Aquino, Development Management Officer III, Corporate Services Division, CES

Edelweiss E. Sajise, Supervising SRS, Los Baños

Elgie M. Lataza, Administrative Officer III, Los Baños

Gerald E. Bello, SRS I, Negros

Peter Llyod P. Sabes, SRS II, Midsayap

Sylvia Therese C. Quiring, Executive Assistant III, ODED for Administrative Services and Finance

Aurora M. Corales, Chief SRS, Technology Management and Services Division, CES

Jesusa C. Beltran, Chief SRS, Socioeconomics Division, CES

Ronan G. Zagado, Chief SRS, Development Communication Division, CES


HANNAH MAE A. TOLENTINO

DR. SEGFREDO R. SERRANO

Birthplace: Arayat, Pampanga
Length of service: 40 years

Academic profile:
PhD (Agricultural Economics), UPLB Graduate School, 1992;
MS (Agricultural Economics), UPLB Graduate School, 1982;
BS Agriculture (Agricultural Economics), UPLB College of Agriculture, 1978

Serrano was DA Undersecretary for Policy & Planning, Project Development, R&D, and Regulations from 2005 to 2019. His 14 years of service in that position made him the country's longest-serving agriculture undersecretary in the 21st century.

Prior to his DA stint, Serrano was a Chief Science Research Specialist and head of the Social Science and Policy Research Division, now Socioeconomics Division of PhilRice.

As DA Undersecretary, aside from program planning, project development, and regulatory policy, his responsibilities extended to international trade policy and negotiations, and other general international affairs. He was also in-charge of crafting and implementing climate change policy and doing R&D work for agriculture and fisheries. Since 2010, Serrano was designated as the permanent alternate of the Agri-Secretary as ex-officio chair of the PhilRice Board of Trustees.

Serrano started working in DA in 1998 as assistant secretary for policy and planning. He advocated for the welfare of farmers and agriculture workers, and highlighted the importance of long-term planning in the agriculture sector. One of his most remarkable innovations in DA was the establishment of Task Force World Trade Organization Agreement on Agriculture Re-negotiations.

This task force is a multisectoral group that amplifies the views of industry stakeholders in trade negotiations and strengthens the bond between government and private sector involved in agriculture. Representatives from different farmer groups, industry associations, business federations, non-government organizations, people's organizations, and government agencies were members of this task force.

He earlier worked as instructor at the Pampanga Agricultural College, now Pampanga State Agricultural University (1979- 1992), and Mountain State Agricultural College, now Benguet State University (1978-1979).

Now a retiree, he wishes to focus on his passion as an aspiring bird photography enthusiast, a husband, and a father to his five children. - **DONNA CRIS P. CORPUZ**

AWARDS

Title of Award: Longest-serving Technical Working Group member
Awardee: Ms. Thelma F. Padolina
Award-giving body: Bureau of Plant Industry-National Seed Industry Council (BPI-NSIC)
Date: 28 March 2019

Title of Award: Best Paper Presenter (How can farmers become entrepreneurs: Designing a behavior-driven communication strategy towards agro-enterprise in Barangay Mayamot, Zaragoza, Nueva Ecija)
Awardee: Ronan G. Zagado
Award-giving body: 2nd International and 4th Annual Conference on Language, Kultura, and the Integration of Technology (LangKIT 2019)
Date: 22-24 February 2019

Title of Award: Recognition Award for Culture and the Arts
Awardee: Dr. Diadem G. Esmero
Award-giving body: Central Luzon State University
Date: 9 February 2019

A well-leveled field can prevent 5% or 4 cav* yield reduction.

*4t/ha national average rice yield

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