# PhilRice Magazine

A quarterly publication of the Philippine Rice Research Institute

## Who is the Filipino rice farmer?

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# About the cover

The face of the Filipino farmers will continue to evolve as they tread the path to success. The farmers of the future are the best versions of who they are today.

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# editor's note

# OUR FARMERS BEYOND THE NUMBERS

We always proclaim that our farmers are important as they produce the food we eat. We perorate that the human race cannot live without them. Their hard work breathes life to our convenience.

But how well do we know and understand them?

At the core of every research-for-development initiative is the welfare of the target beneficiaries. In rice R4D, they are the farmers. All facets of planning and innovations are ultimately geared toward making their lives better through farm productivity and profitability.

However, any effort will be useless if the pursuit does not match the actual needs in the field. Hence, information from the ground – from the farmers themselves – is critical in achieving the desired outcomes from agricultural interventions. Crafting sound policies should be informed and seasoned by their conditions, needs, preferences, and immediate environment.

To sustain the availability of pertinent information that guides decisions and policymaking in agriculture, PhilRice continuously documents the real situation of our rice-based farming households (RBFH). It profiles the farmers and their families, going beyond their current production practices. It endeavors to understand their challenges, dreams, and aspirations in the context of rice farming. It unravels the deeply embedded truth about their lives as farmers.

This magazine now looks into the receiving end of interventions in the rice R&D spectrum, specifically starred by our farmers. We present their information sources on rice from their homes to their farms. We describe their planning-to-planting strategies, crop management techniques, and harvest and postharvest practices. We also include a story on rice marketing chains to expound on their struggles to tread the literally long and winding road from their farms to the market. Seeing them as consumers, too, we also note their preferences on rice eating quality.

The farmer stories we feature here give a human face to the survey data. The stories are enduring reminders of what relevant and compassionate interventions must look like. We substantiate the survey findings as we explain the various aspects of transformation our farmers go through. These changes, we believe, must be incessantly and strategically documented to help refine the R4D process. On a macro perspective, we hope to lighten up the sometimes-overlooked avenues in the congested path of agricultural policy development.

At PhilRice, we make it our business to magnanimously uphold the lives of our farmers. We know most of them by heart and we won't stop trying to know them more. To say the least, we won't stop reaching out. •

news

# OUTSTANDING WORKERS HONORED


PhilRice recognized its outstanding employees during the 2016 *Dangal ng PhilRice* Ceremony in celebration of its 31st anniversary, November 8.

Fourteen awards were given to exemplary research, development, administrative support, laboratory, skilled, and utility workers. Other accomplishments recognized were 14 best papers, 27 best posters, 20 peer recognitions, 4 special awards, 56 scientific productivity (non-ISI and ISI journals), 5 scholastic, and 16 loyalty awards.

"Thirty-one years have enabled us to produce varieties for all seasons, innovate ways to strengthen our extension initiatives, produce rice-based products, and intensify our policy researches. These achievements in turn have gained us recognitions from award-giving bodies," said Dr. Sailila E. Abdula, acting executive director of the Institute.

"More than our gratefulness to receive these awards is our delight that our staff members are also being recognized for their excellence in their respective fields," he added.

The Best Team Award was given to the group that led the DA-funded research study *Benchmarking the Philippine rice economy relative to major rice-producing countries in Asia* in partnership with IRRI. Their research studies are well-cited in national reports and used as references by policymakers and researchers alike.

Meanwhile, the Plant Breeding and Biotechnology Division won the Best Office Award for "developing new varieties in 2015 with durable tolerance to growing effects of climate change on agriculture, and actively forging collaborative studies with national and international research institutes and agencies generating 12 externally funded projects worth P59.6M in research funds."

PhilRice Midsayap snared the Best Station Award.

Guest speaker Dr. V. Bruce J. Tolentino, IRRI deputy director general for communication and partnerships, lauded PhilRice's continued partnership with public and private institutions in helping the country become rice-secure.

"It is crucial that we move forward together. It is not a competitive undertaking; it is a complementary process where we are bound together as one. The partnership must continue with mutual support, admiration, and trust," Tolentino underscored.

**| MARY GRACE M. NIDOY**

## PHILRICE WRITER WINS AGRI-JOURNALISM AWARD

Mary Grace M. Nidoy, the managing editor of this magazine, won the Best Regional Feature Story in the 10th Bright Leaf Awards for agriculture journalism, November 24. The award is given to the most significant regionally published agriculture story among hundreds of entries from the local mainstream media, government, and private communication practitioners. Nidoy's *Lives and terraces intertwined* featured the Bukidnon Iraynons, a community of indigenous people in Western Visayas. She documented how they have protected and cultivated the 600-ha rice terraces built by their ancestors 200 years ago. The story is in the April-June 2016 issue of PhilRice Magazine. Nidoy, 25, is an alumna of Silliman University. She joined us in 2011. **| SONNY S. PASIONA**

# NEW SOFTWARE EVALUATES GRAIN QUALITY

PhilRice has developed an automated classification software to measure chalkiness and identify immature grains in milled rice.

Conventionally, the grain quality evaluation team of the Rice Varietal Improvement Group (RVIG) manually evaluates the physical attributes of 600-800 promising lines every year. They evaluate two sets of 30g milled rice of candidate elite lines using their naked eyes, a process that is tedious and time-consuming.

"This prompted us to come up with the PhilRice Milled Grain Classifier (PMGC), a software that can speed up the conventional classification process," said Imeldalyn G. Pacada, PhilRice senior researcher.

A manual classifier evaluates 30g of milled rice and can assess its physical attributes within 48-96min. By using PMGC, a classifier can evaluate 6.2g of milled rice in less than 5min.

The software provides a quick overview of analyzed milled grain samples that can be enlarged for verification. It validates translucent, chalky, and immature grains and gives a grain ID number and color. It can also determine grain length and shape, and identify broken and brewer grains.

According to Pacada, PMGC was developed by establishing an algorithm using a special programming language for image acquisition, processing, and integration of Artificial Neural Network. The algorithm includes the development of Graphical User Interface to control the hardware and execute the image analysis software. The establishment of models or training samples was the key for increasing the predicting value of the software.

"This consists of image acquisition of different degrees of chalky grains and various samples of immature grains that were used for model development with the help of a neuroshell program," Pacada explained.

The research team composed of Pacada, Evelyn H. Bandonill, Thessa Marie M. Pascual, Fred Jan A. Fracia, Arvin Paul P. Tuaño, Andres M. Tuates, and Thelma F. Padolina hopes that the software can help classifiers and plant breeders evaluate grain quality faster.

The software was developed under the research study titled *New tools for predicting chalkiness and immature grains in milled rice.* | **JOHN GLEN S. SAROL**

## STATE-OF-THE-ART RICE SEED PROCESSING FACILITY INAUGURATED

To provide high-quality seeds to farmers and seed growers, a modern rice seed processing facility was inaugurated at the PhilRice Central Experiment Station, Science City of Muñoz, December 6. Funded by the Korea International Cooperation Agency (KOICA), the facility is expected to improve efficiency in the processing and certification of rice seeds and help increase the usage of high-quality seeds among farmers. It houses advanced equipment that can process up to 2 tons of seeds per hour. Leading the inauguration were Agriculture Secretary Emmanuel Piñol, Minister Kwon Won Jick of the Korean Embassy in the Philippines, Director General Nam Kwon Hyoung of KOICA, and Nueva Ecija Governor Cherry Umali represented by Board Member Belinda Panlilio. | **SONNY S. PASIONA**

# TALISAY CITY LASS IS 1ST MISS RICE WORLD – NEGROS

Claudette Del Castillo, 20, from Talisay City, won the first Miss Rice World 2016: The Search for the Rice Ambassadress of Negros. She took home other awards: Best in Ramp, in Playsuit, and in Evening Gown.

Organized by the PhilRice Negros branch station, the pageant was a spectacle of this year's celebration of the National Rice Awareness Month (NRAM). It increased awareness and participation of the public in the advocacy campaigns of responsible rice production, commerce, and consumption.

Nine candidates from cities and municipalities of Negros Occidental vied for the title during the coronation night, November 27.

"Every single grain of rice is equivalent to a sweat of a farmer. Every single grain is also an extension of our life. And if we continue to save rice, this can help the country become rice-self-sufficient and globally competitive," Del Castillo said during the question-and-answer portion of the contest.

First runner-up is Bacolod City's Kennyveb Casabuena, 20, and also won the Best in Talent award. During the Q&A, she emphasized the significance of the Be Riceponsible advocacy of PhilRice.

"Being RICEponsible means that we value every grain of rice, eat brown rice, mixed rice and other staples, and most importantly, thank a farmer for we should consider them as national heroes," Casabuena elaborated to the delight of the audience.

Meanwhile, 21-year-old Jerica Semiller went home as second runner-up with a key admonition for the audience that self-sufficiency in rice takes collaborative efforts among the producers and consumers.

"Our farmers should equip themselves with the right farming knowledge such as the PalayCheck System, while consumers should be RICEponsbile by eating brown rice and saving every grain of rice," said Semiller who hails from La Castellana.

Candidates were judged through different aspects of beauty, talent, wit, and advocacy. They also prepared rice-based costumes which they used in their opening numbers.

Albert Christian Suñer, overall coordinator of the activity, said that the pageant is a way for people to be directly involved in the advocacies being pushed by PhilRice.

"This is something new for our audience that could lead to greater impact as far as awareness is concerned," said Suñer who is also the R&D coordinator of PhilRice Negros.

Prior to the coronation night, the candidates attended a short-course training on the PalayCheck System and went through a Be Riceponsible Campaign orientation. They also led a Brown Rice Feeding Program for grade school pupils as part of the pageant activities.

"The goal on rice security cannot be attained by simply increasing farm production. It also requires the responsibility and active participation of every Filipino. This pageant will help us in our advocacies, to reach out to more of our brothers and sisters in a fashionable manner," said Edgar Libetario, acting branch director.

"We hope that many LGUs would support this pageant. We intend to hold this with representatives from the other provinces in the Visayas, and hopefully have this pageant conducted nationwide or even elsewhere," he added.

As Rice Ambassadresses, the Miss Rice World title holders will be involved in various campaigns and extension services of PhilRice. | **SONNY S. PASIONA**

# HACKING RICE FARMING

One strategy to attract the youth to venture in rice farming is to strengthen their awareness of the latest ICT tools in modern agriculture.

On November 15, 2016, ICT experts gathered at PhilRice to inspire more than a hundred graduating students from five universities to venture in agricultural ICT.

The 3rd Agrihackathon Symposium showcased the full utilization of ICT in agriculture.

"Where else can we find the next noble ideas and ICT innovations in agriculture aside from our youth?" asked Dr. Flordeliza Bordey, PhilRice acting deputy executive director for development.

"We are encouraging IT students to produce ICT tools to speed up the modernization of rice farming in our country," Bordey added.

Guest speaker Engr. Franch Maverick Lorilla from CloudFarm Innovations, an agri-tech company in Davao City, also discussed business startups on agricultural ICT.

"We can be techno-preneurs and create machinery, software, applications, sensors, knowledge banks, and many other tools to help our farmers," Lorilla challenged the students.

Lorilla is the co-creator of the Heat Stress Analyzer, a smart sensor and app that helps farmers maximize their yield through advance monitoring and analytics of the crop conditions.

The participants also learned about the existing ICT tools used by PhilRice such as the PhilRice Text Center, Pinoy Rice Knowledge Bank (PRKB), Rice Crop Manager (RCM), Minus-One Element Technique (MOET) App, Philippine Rice Information System (PRISM), and the Rice Doctor diagnostic tool app.

"I appreciate that there are already existing ICT tools to help our farmers. I feel motivated since future ICT practitioners like us have the potential to contribute in advancing the agriculture sector in our country," said Carl Angelo Dallo, a student from nearby Central Luzon State University (CLSU).

Dr. Jasper Tallada of PhilRice named infrared imagery, vertical farming, hydroponics, drones, and satellite farming as among the modern ICT tools for agriculture.

Drones are used in rice farming for research activities such as data collection, tracking growth patterns, and pest and nutrient management.

Vertical farming and hydroponics are used to produce crops without relying on favorable weather, high soil fertility, or high water usage.

Infrared imagery helps researchers in analyzing rice leaf nitrogen. This versatile technology, known to analyze data in less than a minute, has potential for soil, chemical, and grain quality analysis.

Satellite farming is used for yield mapping, monitoring, and crop health and damage assessments during calamities. It provides a continual source of information, regardless of weather conditions.

Aside from CLSU, the student participants represented Pampanga State Agricultural University, Nueva Ecija University of Science and Technology, College for Research and Technology in Cabanatuan City, and Pangasinan State University. **| JOHN GLEN S. SAROL**

## PHILRICE EXECUTIVE DIRECTOR IS NATIONAL GAWAD SAKA AWARDEE


PhilRice Acting Executive Director, Dr. Sailila E. Abdula, was awarded as National Gawad Saka's Outstanding Agricultural Researcher, December 12. Abdula is a rice breeder known for his significant contributions in rice science. He helped develop NSIC Rc120 and Rc226 to address the infestation of tungro rice disease in Southern Mindanao. He also initiated a program that mobilizes religious leaders of the Bangsamoro in integrating the Islamic faith in agricultural development. It aims to teach agriculture not only as a community social responsibility but also as a spiritual obligation. Abdula is the former branch director of PhilRice Midsayap in North Cotabato. **| SONNY S. PASIONA**

# THRILLS AND COMPLEXITIES IN THE RBFH

JAIME A. MANALO IV

Data from the 1996 to 2012 Rice-Based Farm Households (RBFH) Survey paint an interesting picture of rice farmers and their households. Their socioeconomic status is, by and large, improving along with their rice yields. More educated people are discovering that they, after all, have a knack for rice farming. Farm work, however, is done mostly by laborers, not by operators. Rice farming now contributes less to the total income of the family.

Mr. and Mrs. Jaime Dela Cruz from Guimba, Nueva Ecija more or less give flesh to the numbers in the RBFHS data.

## Into part-time farming

The Dela Cruzes own a hectare of rice field. They were both born and raised in rice-farming families. While seed-growing is a huge and thriving business in Nueva Ecija, with over 500 seed growers, according to the BPI-National Seed Quality Control Services, the Dela Cruzes are not into it. They are into subsistence farming, with their relatives manning the operations.

"Our parents are into farming as most families here in Nueva Ecija are. Now, we maintain the field to provide for our rice needs," Editha says.

Their income does not come from rice farming but they don't have to buy rice.

While their parents were farmers, the couple has taken on a different path without abandoning the rice-farming tradition.

## We support rice farming

While the Dela Cruzes are not fully physically engaged in rice production, their family business speaks of how they value and how they are intertwined with rice farming. They own the growing JJC Merchandising in Guimba that sells parts of rice machines through their two stores. If the Science City of Muñoz is for rice seeds, Guimba is for rice machines.

> I want to work on something that will enhance our business and IT. It should favor farmers and help us grow our business even more.
>
> - JIJETH DELA CRUZ

Editha says their social awareness of the plight of farmers lifted them up to where they are now. They did not have formal training in running business.

But they had worked with farmers. Agriculturist Editha witnessed the struggles of upland farmers in her work at the Department of Environment and Natural Resources (DENR) while Jaime, a geodetic engineer, worked at the National Irrigation Administration (NIA).

"You can see that farmers are really poor. Aside from that, we are also aware that they pay hefty prices for farm machines. Hence, we thought of entering into this business," Mrs. Dela Cruz reveals.

She added that most of their customers buy from them as their prices are comparatively low. They don't have advertisements in radio, print, or online. Word-of-mouth among farmers helped them grow their business. They have customers from as far as Isabela and Aurora provinces.

"If you are honest, and you ensure that your products are of good quality, your customers will look for you again," Editha maintains.

The business has been operational for more than 20 years, and is employing 11 personnel. They sell machine surpluses from Japan, China, and originally manufactured machines from Japan. During peak months, they are able to sell 50 units of farm machines worth P20,000 to P50,000 each.

## We'll advance rice farming

The interest in farming and farming-related enterprise seems to have been passed on to their unica hija, Jijeth, who is taking her Master's in Information Technology at the De La Salle University (DLSU). Jijeth, during her undergrad years, participated in a game development project at PhilRice for young farmers.

"That game development event broadened my understanding on the plight of rice farmers," Jijeth confesses.

Hence, for her master's thesis, Jijeth is pursuing intersections between business and IT.

"I want to work on something that will enhance our business and IT. It should favor farmers and help us grow our business even more," she says.

Roots, education, creativity, and passion—these are forces that pull people toward rice farming, full- or part-time. It's guessing game on who else will soon join the rice-farming workforce, what ideas they bring with them, or which interests they will push.

Surely, this is an exciting time for the rice-farming communities in the Philippines. •

# WHO IS THE FILIPINO RICE FARMER ?

**54** average age

**87%** are married

**28** years of farming experience

**89%** are males

**Php 104,268** average yearly income of a rice farming household*

*combined irrigated and rainfed areas (DS 2012)

**89%** rely on rice farming as an income source

**5** household members

**41%** attended trainings and seminars

**8** average years of schooling

**52%** own the land that they farm on

average farm area being operated or managed **1.42 HECTARES**

# SEEK AND YOU SHALL FIND

MYRIAM G. LAYAOEN

It has been Frederic Rebusquillo's habit to ask when in doubt, confused, or troubled. When it comes to information, he believes he has the most reliable sources.

In managing his farm, Rebusquillo of Maporong, Oas, Albay treats practical knowledge as a goldmine of useful strategies to improve his farming practices. In deeming so, he gives premium to new information from the various learning avenues that he has relied on through the years.

His favorite run-to informants – his father who gave him the bounties of life including the land he cultivates and a handful of people he considers farming "experts" in their area.

## Common practice

Like many farmers in the country, Fred remains faithful to interpersonal sources of information when it comes to farming. His decisions are often based on recommendations from his relatives, especially his father and uncle who are both seasoned farmers.

"I don't need to look far. Whenever I have a concern in the field, I am just a door knock away from the people who can answer me. My father gives me practical tips directly from his farming experiences," Rebusquillo says.

At 42 and with a degree in marine engineering, Rebusquillo still gives greater weight to the wisdom of old farmers in managing his 4.5-ha farm. Be it traditional or in accordance with his current practices, he always considers suggestions from experiences.

"I only ask others when the elders can no longer provide answers, which only happens in unusual situations. Like now that we have climate change," Rebusquillo adds, emphasizing that most practices he learns from them are organic in nature. Hence, he believes they are safe. Why worry when he yields 180 cav/ha on the average?

Brgy. Maporong is blessed with vast and fertile farmlands. Despite this seemingly perfect condition, typhoons frequent the place. When it happens, the community often goes through the rigor of managing excessive water in the farm. During dry season, however, irrigation remains the problem.

In times like this, Rebusquillo seeks for experts' advice from the local government technologists and, when appropriate, from the sales people of private companies. Farmers in their areas of coverage deem it necessary to consult the sources of seeds, fertilizers, and chemicals as they are the most knowledgeable on these products.

"In as much as we would like to avoid using chemicals, we sometimes have no choice under some field conditions.

So who do we ask? Of course, those who introduced them to us," he explains.

Rebusquillo also acknowledges the value of various training activities by both the government and private sectors. Aside from learning new farming technologies, the training programs also acquaint him with other information sources such as the PhilRice Text Center and knowledge products in print.

"Sometimes, I also chance upon some TV or radio programs on agriculture. Depending on my time, I watch or listen to them. I must say they add up to what I know. Following the recommendations is, however, a different story. I have to know if they really work," Rebusquillo contends.

But when it comes to weather updates and forecasts on the behavior of Mt. Mayon, the whole barangay heavily depends on radio and TV broadcasts.

Before farming, Rebusquillo worked as a seaman for 12 years. Despite his exposure to new communication media and being considered a progressive farmer in the area, it is quite ironic that he does not use the internet or any information and communications technology-based platforms for his farming queries.

"Aside from the poor internet service we have here, I find it harder to search for information from the web than from the people in my immediate surroundings. They are almost always available, anyway. But I am a subscriber of the text center," he explains.

## Value of information

Many of our rice farmers depend on their tacit knowledge or the influences their immediate surroundings echo to them when making farming decisions. The information shared over time through generations may have evolved just as the rice grains transform season after season.

Rebusquillo recounts the significant differences in the information-seeking behaviors of farmers then and now. Taking off from his father's time in the field some 30 years ago, he says they just left the field once planted owing to the belief that everything happens naturally.

"Maybe because we have more sources now, we tend to compare the information we get from them. The more the information seems beneficial, the more we listen and correspondingly act. It also has something to do with trust, and when you see that what they say actually works," Rebusquillo shares.

A study on rice-based farm households' information sources by PhilRice's Rhemilyn Relado and Mary Grace Lapurga in 2012 noted interpersonal means as farmers' major sources of information. These include co-farmers (70%) and agricultural extension workers (30%). Mass media modalities also appeared as top sources (e.g. radio programs).

The study observed that "farmers turn to mass media when face-to-face interaction is difficult under unfavorable weather." As to the demand for and type of information, responses varied from each household. These are mostly influenced by their needs and experiences.

Rice varieties and pest and nutrient management are the top three rice production themes that recurred in the study's results. These topics are directly related to yield, the ultimate measure of productivity for farmers.

The more the information seems beneficial, the more we listen and correspondingly act. It also has something to do with trust, and when you see that what they say actually works.

- FREDERIC REBUSQUILLO

In the same manner, Rebusquillo describes his need to further know the details of integrated crop management. However, his ideas transcend into the bounds of the rice field. He is specifically interested in rice-based farming systems, irrigation technologies, solutions to farm labor displacement, and other policies governing rice production in general.

"We should not be confined to the current scenario that we are in. Although we always have to look back, we also need to look forward to potential challenges. We need to ask and be informed," Rebusquillo stresses.

For concerns like this, Relado and her team recommended in their study capacity-enhancement for farmer key informants, prioritization of farmers' topics of interest in information dissemination, analysis of farming social networks, profiling of rice information consumers, and development of communication models that ensure complementation of modalities.

With every information set in place, Rebusquillo could be right in believing that by simply seeking, he shall find the answers toward a more productive and profitable rice-farming endeavor. •

# WHAT'S EATING FILIPINO FARMERS?

MARY GRACE M. NIDOY

September is largely rainy season. For farmers in Nueva Ecija, the country's rice granary, wet season brings pests and diseases to the field.

For their counterparts in Dagohoy, Bohol, September seems real summer. The heat is scorching and rain comes rarely. The irony has not been this stark to a province still struggling to get back on its feet after a 7.2-magnitude earthquake recently ripped through one of the country's top tourist destinations.

But the lack of water and irrigation systems is not the only problem that the Dagohoy farmers need to contend with.

Arlan Calabio, 43, says he usually suffers from financial loss due to *palay's* low prices.

"If it's not harvest season, the price of *palay* in our town is high. But at the peak of harvest, the traders buy our *palay* at the lowest price."

In Imelda Orevillo's experience, farming is one business where sellers ask buyers to determine the prices.

"As sellers, we are always the ones asking how much the buyers would pay us," the 56-year-old farmer chuckles.

Josephine Felisilda's case is different. Her crisis came when they harvested rice infected by pests and diseases.

"It was as if the field was burned and we had nothing else to reap," she describes.

## Exploring the problems

PhilRice's 2011-2012 Rice-Based Farm Households Survey (RBFHS) saw that the lack of irrigation systems, low prices of *palay*, and incidences of pests and diseases are just some of the most common problems that persecute Filipino farmers. The nationwide survey pinpointed major yield-limiting factors in rice production including high cost of inputs; unavailability and high cost of labor; and lack of capital and postharvest facilities.

High cost of inputs, the all-season worst problem, affects 59-year-old Ilonggo farmer Silvestre Estrao.

To lessen his expenses, Estrao has stopped buying commercial inputs. Instead, he makes his own fertilizers and pesticides using organic-farming practices.

According to PhilRice socioeconomist Imelda Arida, costly farm inputs are crucial in attaining the desired output in rice production.

"I hope the government could do input financing. This is not to the extent of spoon-feeding everything to us but financing could somehow help us recover gradually," Estrao crosses his fingers.

The survey also found more farmers having difficulty in selling their produce at a higher price. The low price of *palay* placed second in their list of most common problems.

Arida explains that the problem could be attributed to "monopolistic pricing" by millers and traders.

"These groups and other non-formal financing institutions have the purchasing power, such that they can impose their preferred buying rates. This is generally experienced during the wet season, particularly during the peak harvest period," Arida says.

Arida adds that the National Food Authority (NFA) is offering dry *palay* price that is about 20% higher than the amount

> As sellers, we are always the ones asking how much the buyers would pay us.
>
> - IMELDA OREVILLO

dictated by the traders. "Several groups of farmers are lobbying that NFA should prioritize buying farmers' produce rather than importing rice from abroad."

Another problem are the rice pests and diseases topped by rice black bugs (RBB), golden apple snails (GAS), green leafhoppers, stemborers, and brown planthoppers.

To PhilRice Integrated Pest Management (IPM) expert Gertrudo Arida, different pests require specific approaches to manage them. For instance, the RBB can be managed using the fungus *Metarhizium anisopliae* while synchronous planting is generally recommended for other pests. This practice will stop the overlapping populations of the pests.

Aside from planting resistant varieties, he emphasizes the importance of monitoring the field to determine the pest populations before it is too late to apply interventions.

"When farmers judiciously spray insecticides, the natural enemies also known as beneficial organisms can feed on pests thus they help reduce pest populations," Arida says.

He adds that the rice plant has the ability to compensate for damage during vegetative stage when insects attack. Thus, spraying insecticides in the early stages of the rice crop is not necessary.

## Future scenarios

In addition to the findings of the study, new challenges have also emerged. Our farmers now need to be more competitive due to the onset of trade liberalization. Natural calamities continue to hit the country, hence our farmers need to be adept with climate change adaptation and mitigation processes. Soon enough, September will probably no longer feel like summer to farmers Arlan, Imelda, and Josephine. •

# EMBRACING CHANGE:
## THE CHALLENGES OF RICE VARIETAL ADOPTION

ANDREI B. LANUZA

Rice farming starts with the seeds. Not just anything available, but quality seeds of modern rice varieties. Every rice farmer hoping for a successful season begins with choosing quality rice seeds appropriate for their community and market. Farmers look for key traits in new varieties such as higher yield, early maturity, good grain quality, seed availability, and pest resistance. But not all farmers adopt new quality rice varieties as quickly as others.

### Trends in rice varietal use

In a survey conducted by Dr. Cheryll C. Launio and Rowena G. Manalili of PhilRice on the trends of rice variety adoption, the average lifespan of irrigated varieties is eight years. This becomes an indicator of how long released varieties planted in farmers' fields are replaced by newer varieties. After 8 to 11 years, depending on the ecosystem, most varieties would have been replaced with newer varieties. This means that for some provinces, varieties in farmers' fields are replaced with newer varieties more quickly (only 6 years on average in Nueva Ecija) while others are slower.

> Right now I no longer just use seeds which came from anywhere. I make sure that the seeds I buy are certified, especially hybrid rice seeds since these are a bit more expensive. And as a farmer-trainer, I've been urging other rice farmers to do the same.
>
> - JOSE VALDEZ

Different factors can come into play on how quickly the latest rice varieties are adopted, particularly hybrid rice, such as: availability and accessibility of newer varieties of rice seeds, lack of information, or simply that some farmers are not willing to give up on their tried-and-tested older varieties to try something new.

### Hearts and minds

Hybrid rice farmer and trainer Jose Valdez of Nancalubasaan, Urdaneta City, Pangasinan knows the struggle of convincing fellow rice farmers about the benefits of using quality seeds. He underscores its importance. Much of the knowledge he shares as trainer stems from personal experience. But it hasn't been easy.

"It's been difficult to convince my fellow rice farmers to use quality seeds,

particularly hybrid rice. One thing that puts them off is the high price [of hybrid seeds]. I explained that the yield they would get outweighs the initial cost. Most farmers here are satisfied getting just 90 cavans per hectare. As long as they are able to harvest something, they're happy. But from my own experience you can get more if you use better seeds. Ever since I started using hybrids, I usually harvest more than 200 cavans/ha," Valdez explains.

Valdez received training on rice farming from the Department of Agriculture (DA) and PhilRice in 2012, and he has been using quality hybrid seeds since then. He also shares that his sources of seeds are DA and mostly private seed companies.

"The problem I usually encounter with DA is that they don't have on stock the varieties I want when I need them. The seeds arrive too late for the regular planting season. On the other hand, private companies always have seeds available. They approach me personally to offer seeds for sale about twice a month. I don't have to go to their stores," Valdez reveals.

## Seeds from anywhere

Reminiscing the past, Valdez recollects that in the 80s, 90s, and early 2000s, a good majority of the rice seeds that farmers planted in their communities came from other farmers.

"If we see a fellow farmer using a variety that seems to be better-yielding, we'd ask to buy some of their seeds to plant on our own farms. We were not particularly concerned with where it actually came from. All we wanted was to harvest at least something

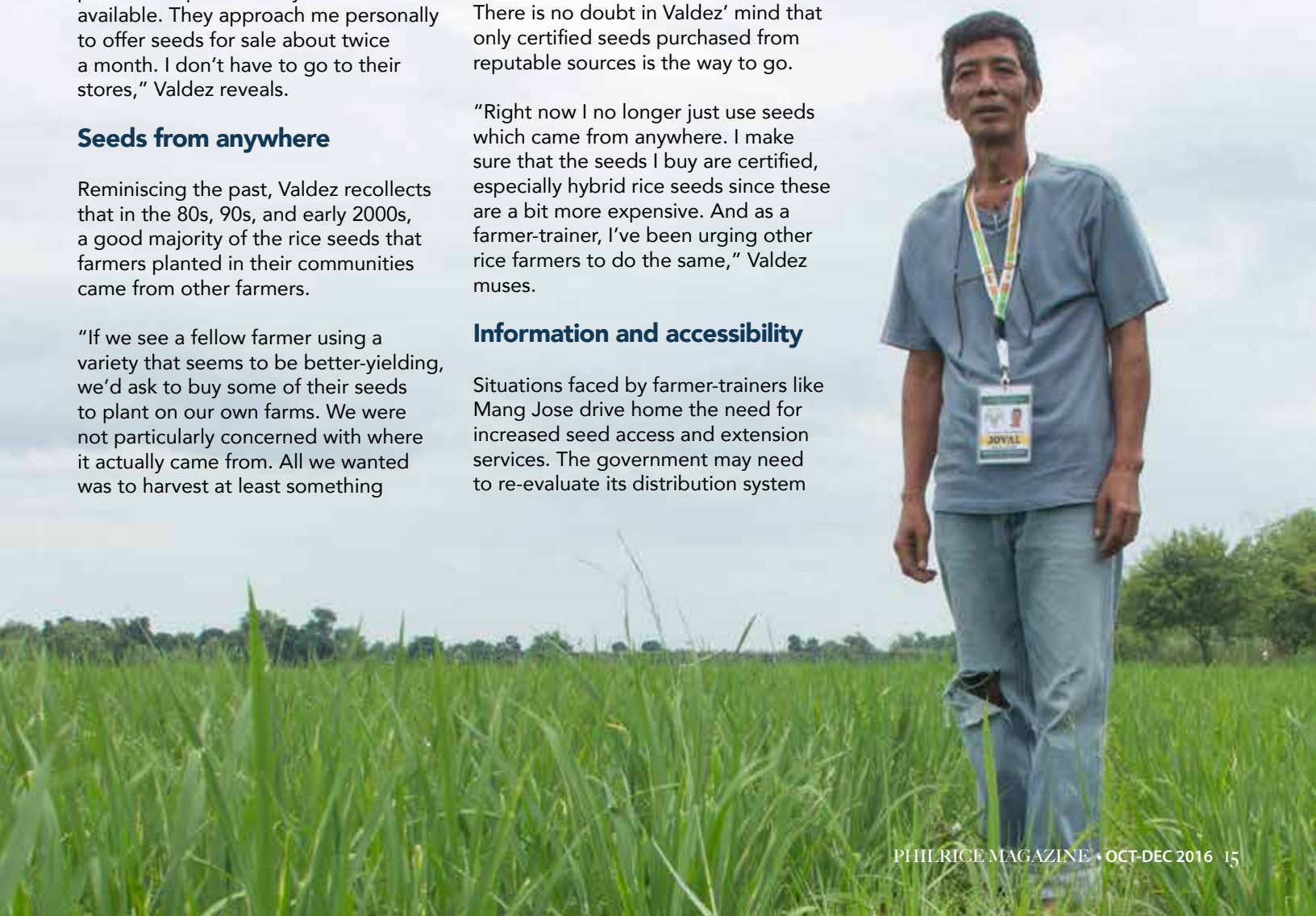

every season. We didn't even do any bookkeeping to record how much we spent or earned from each season," he regrets.

What is his experience in buying and using quality and modern rice varieties? There is no doubt in Valdez' mind that only certified seeds purchased from reputable sources is the way to go.

"Right now I no longer just use seeds which came from anywhere. I make sure that the seeds I buy are certified, especially hybrid rice seeds since these are a bit more expensive. And as a farmer-trainer, I've been urging other rice farmers to do the same," Valdez muses.

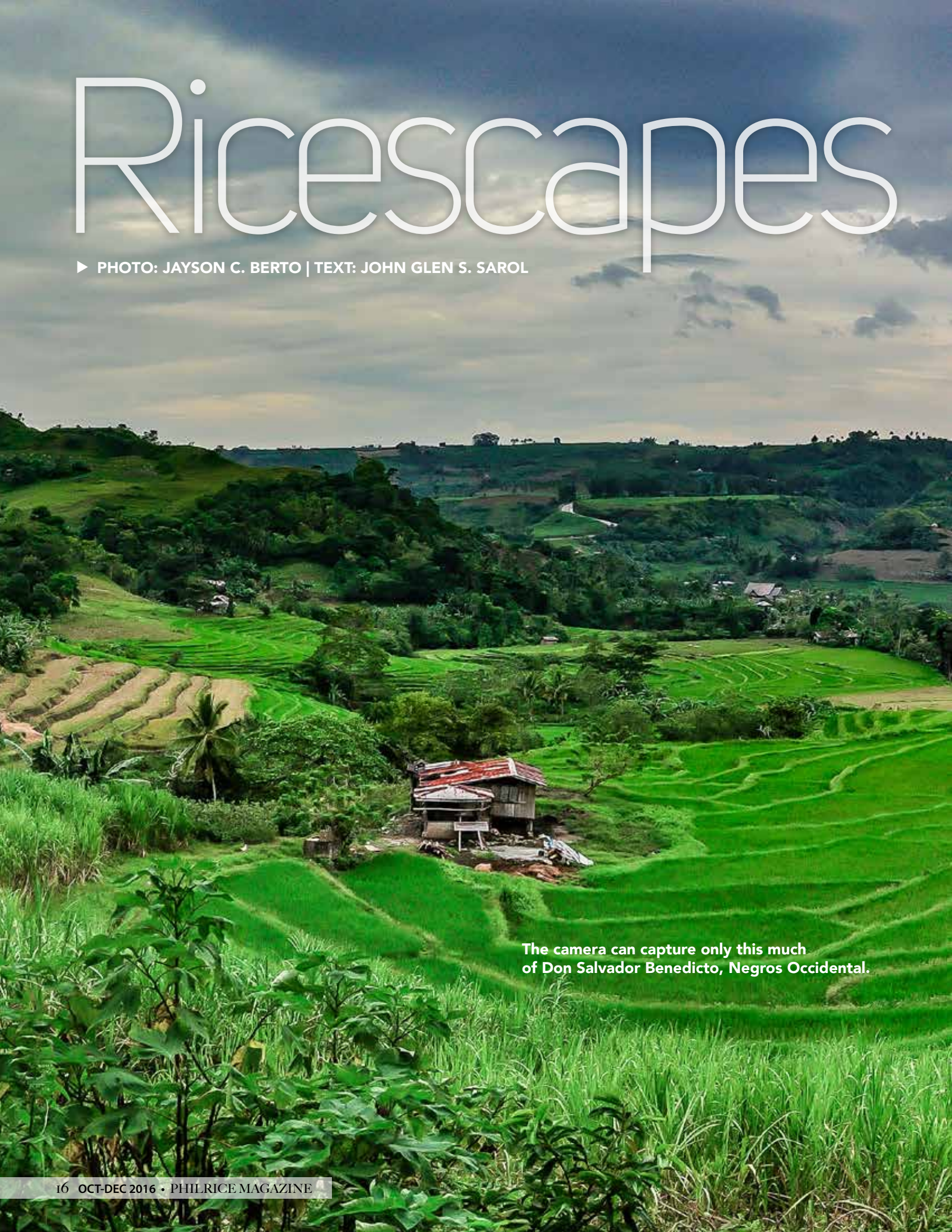
## Information and accessibility

Situations faced by farmer-trainers like Mang Jose drive home the need for increased seed access and extension services. The government may need to re-evaluate its distribution system and step up the dissemination of information on new rice varieties, but more importantly, make quality rice seeds available and accessible to farmers when they need them. •



# Ricescapes

▶ PHOTO: JAYSON C. BERTO | TEXT: JOHN GLEN S. SAROL



The camera can capture only this much of Don Salvador Benedicto, Negros Occidental.


Ascending like a pyramid
A symbol of strides
The cornerstone

Right fertilizer used at the right time and amount can increase the soil's potential to productively grow rice and other crops. However, this resource which has been part of Philippine agriculture since the 1950s, has not been fully optimized by our farmers.

## Delineating factors

Lodelyn Marcos, 34, is accustomed to farming practices common in their rural community in Buenaflor, Tacurong City, Sultan Kudarat.

She and her husband were hired to cultivate a one-hectare irrigated field planted with inbred varieties NSIC Rc158, Rc214, and Rc224.

In managing the nutrient requirements of rice, they usually apply inorganic fertilizers three to four times. They use urea, potassium nitrate, and ammonium sulfate.

"Our landowner buys the fertilizers commonly used by farmers here. We apply these on the 15th, 30th, and 45th days after sowing. We had also used 14-14-14, mixed with other inorganic fertilizers" Marcos says.

Results of a PhilRice study on fertilizer use in local rice production in 1996-2012 show that 86-97% of farmers in irrigated and rainfed areas used inorganic fertilizers, with a few mixing organic fertilizers.

"Farmers in irrigated areas applied more fertilizers due to the timely and sufficient availability of water, which favors the rice plant's capacity to absorb applied nutrients," says Rowena Manalili, research team leader.

Manalili's team also found that urea remained as the most commonly applied fertilizer grade for its proven effectiveness on yield, appropriateness, and visual effect on the rice plant. Complete (14-14-14), and ammonium sulfate (21-0-0) came next. Potassium nitrate (17-0-17) and muriate of potash (0-0-60) are also gaining popularity among rice farmers in both ecosystems.

In the same study, 16-30% of farmers were aware of nutrient diagnostic tools such as the Minus-One Element Technique (MOET) and Leaf Color Chart (LCC), which can be used in deciding the time, amount, and type of fertilizer

> Our farming practices before were based on what was common in the field. With the FFS influence, we learned about MOET, LCC, and other technologies. It increased our harvest and reduced the farm expenses.
>
> - LODELYN MARCOS

to be applied. If truth be told, only 3-12% used these supposedly simple tools.

"Given the low adoption of these tools, information campaign is necessary so that more farmers could benefit from them," Manalili recommends.

## Learning, unlearning

In 2014, Marcos and her co-members of the Bucatill Irrigators Association participated in the farmers' field school (FFS) conducted by PhilRice in their community. It was their first time to learn about the MOET, LCC, and other technologies.

Marcos immediately used the MOET Kit and LCC given after the FFS season. They learned that their soil lacked sulfur, hence, they used ammonium sulfate on the 18th – 20th day after sowing. Through this, they have reduced their fertilizer application from four to only two bags.

They do not use commercial organic fertilizers, except when they avail of the service of their association's combine harvester. When weeds and stubbles are plowed under, they decompose, thereby serving as initial fertilizer.

The other farmer-participants had similar experiences with Marcos after using MOET, LCC, and other technologies they learned from the FFS. As shown in the baseline record of Wynrich Bugtay, a PhilRice technician assigned in the area, the average yield of all farmer-participants for wet season increased from 3.48 t/ha in 2014 to 5.50 t/ha in 2015. Dry season average decreased from 3.91 t/ha in 2014 to 3.88 t/ha in 2015.

"Although they followed the fertilizer recommendations based on MOET and LCC, white stem borer and rice black bug infested their dry-season crop," Bugtay explains.

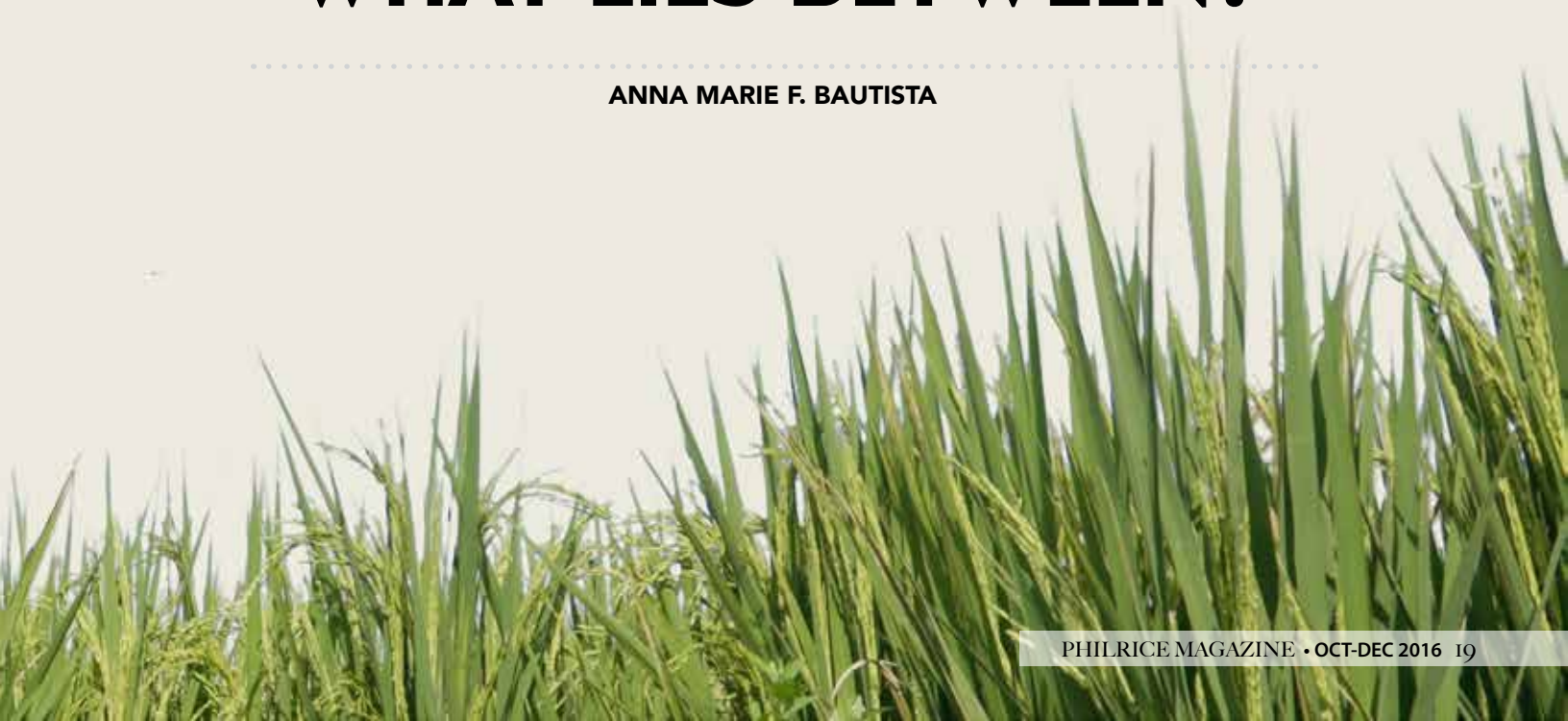
## Changing numbers

"Our farming practices before were based on what was common in the field. With the FFS, we learned about MOET, LCC, and other technologies. It increased our harvest and reduced the farm expenses," Marcos reports.

She and the rest of the rice farmers in their barangay have shown that fertilizer use and skills in nutrient management can be improved through extension and education interventions. In their case, the FFS worked right. •

# FARMERS AND FERTILIZERS
# WHAT LIES BETWEEN?

**ANNA MARIE F. BAUTISTA**



# LAST RESORTS: THE DIMINISHING ROLE OF PESTICIDES

**ASHLEE P. CANILANG**

Jose Bernal and Elizer Salibo of Sta. Barbara, Pangasinan have been farming for 30 years. From their experiences, they believe that pesticide application should be their last resort.

To protect rice from pests and weeds that rob good yields, farmers spray pesticides. PhilRice's 2011-2012 Rice-Based Farm Households Survey (RBFHS) saw less chemical application among top rice-producing areas in the country. Bernal's and Salibo's farming practices since 1986 prove the findings.

Bernal, 59, owns a 5-ha rice field in Sungkil. In his early years of farming, he admits that he used excessive pesticides every cropping season.

"I used to spray herbicides twice and insecticides 4-5 times all throughout the cropping season," Bernal narrates.

He incurred huge expenses then. He spent P600 for every bottle of insecticide enough for a hectare. He also paid two laborers P250 each per day to spray his 5 hectares in two days.

"I used to spend over P20,000 every season on insecticide application alone," he says, smirking.

## The figures

The 1993 study *Pesticides, rice productivity, and farmers' health: an economic assessment*, of IRRI's Agnes Rola and Prabhu Pingali said our top rice-producing areas applied pesticides 7-8 times per cropping in 1979-1990. In 1991 onwards, however, none among their respondent farmers sprayed more than 6 times, attributing it to their increased awareness of pest thresholds and host plant resistance. Results of PhilRice's RBFHS in 2011 sustained the 1993 findings in all ecosystems.

According to Dr. Irene Tanzo, lead of the *Insecticide use in Philippine rice farming* study, only 374 out of 1,704 respondents or 22% applied insecticides on seedbeds; 1% or 31 of 2,399 applied once before transplanting; and 29% or 700 and 25% or 607 of 2,399 farmers sprayed once and twice, respectively, during their crops' standing stage.

Some 97% of 1,647 respondents also did not apply herbicides on seedbeds; 96% of 2,399 did not apply before transplanting; while 1,167 or 49% of 2,399 farmers applied once during standing stage.

"Majority of the farmers did not apply pesticides on seedbeds and before transplanting but more than half of them applied once or twice during standing-crop stage," Tanzo explains.

## The habits

Bernal's spraying habits changed when he learned about integrated pest management (IPM), and started using hybrid seeds in 2009 that were introduced in his area through farmers' field schools conducted by PhilRice and DA.

IPM is an approach that integrates both biological and chemical controls into a cohesive, economical, and environmentally safe pest management system that traces its beginnings to the mid-1950s.

"I was hesitant to adopt IPM because I used to spray whenever I saw insects prowling my fields," Bernal says.

After computing his harvest income over his expenses, however, he stuck with IPM.

"I was able to save P10,000 on insecticide application alone. Even if I removed my monitoring expenses, the savings are still huge," he explains.

> I did not know that I can also save money on weed management.
>
> - JOSE BERNAL

Through the FFS, he also learned that shallow flooding can help minimize weeds in his farm. Before the FFS, Bernal used to apply pre-emergence herbicide twice: during land preparation and early crop growth. He has never heard about shallow flooding.

"I didn't know then that I can also save money on weed management," he says.

Now, he only sprays pre-emergence herbicide once – 2-3 days after transplanting – and resorts to shallow flooding to prevent the growth of many weeds.

The case of Elizer Salibo of Matikmatik is no different. During his early years of farming, he sprayed insecticides whenever he spotted insects on his 0.5-ha farm. After enrolling in FFS in 2010-2013, he now practices AESA or Agro-Ecosystem Analysis.

AESA involves observation of the rice plant (height, number of tillers, crop stage, and deficiency symptoms), pest (count, type), natural pest enemies (parasitoids and predators), diseases, rats, weeds, water, and weather.

Salibo claims he can now identify different pests and insects even at a distance, and even advises his neighboring farmers.

But he applies herbicides twice in contrast to Bernal's practice: during land preparation and 2-3 days after direct-seeding, which is necessary because his farm is rainfed.

Since the 1970s, the government has been promoting IPM to reduce crop losses due to pests. Subsequently, researches focused on farmers' profits, health and environmental safety, and ecological stability and sustainability.

With the obvious effects of climate change that even enhance the tolerance of pests to chemical applications, our farmers should be knowledgeable about other safe and economical alternatives in managing pests. Chemical inputs such as insecticides and herbicides should be our farmers' last resorts. •

# RAIN, SNOW, DROUGHT, AND PUMPS

JOHN GLEN S. SAROL

Rough roads or a boat ride brings people to cold Las Nieves, Agusan Del Norte that borrows its name from the Spanish word *nieve* which means "snow."

According to the Climate-data.org, Las Nieves, being a rainfed area, used to have a high average rainfall of 2,817mm with precipitation even during the driest months--but this doesn't seem to be the case recently.

Jerry Cruzada has farmed in Las Nieves for more than two decades and has witnessed a drastic change in their farming practices.

"I never expected 20 years to have much of an impact on our farming ways, everything is a struggle now," Mang Cruzada laments.

"Before, we had regular rains from November to January and then from June to August. Today, there isn't enough rain and farmers here end up with nothing to harvest," he sounds historical.

Beginning in 2014, rain has been elusive in Las Nieves, slowly devastating its rice-farming community, now experiencing it only in June and July.

Sometimes, Cruzada hears stories of rain happening in Esperanza, the town

nearby, but nothing falls on Las Nieves. And when it fell, the tiny drops lasted for only a few moments. You're right, it was a fleeting drizzle.

"When I go to my farm, sometimes I'd find out that some of my *durian*, *lansones*, and *guyabano* were stolen. People have resorted to stealing, it has become this serious," Cruzada shakes his head, clenching his left fist.

Gener Hudneres, also from Las Nieves, manages a 10-ha rice farm but has failed to produce a good harvest because of the lack of rainfall.

"With the changing climate, if you don't use pumps here, the only thing you'll earn from rice farming is the same money you spent on it," Hudneres delivers as he scratches the back of his head.

Researchers say irrigation contributes up to 25% to the total growth in local rice production, the largest among other factors such as seeds, integrated crop management, extension, and others.

## An alternative

Based on the Rice-Based Farm Households Survey (RBFHS) and the Location-Specific Technology Development (LSTD) project, the use of irrigation pumps for rice-based farming has neccesarily become common.

"In the 2011-2012 survey, 8% and 13% of farmers said they respectively used pumps to irrigate rice farms in their July-December and January-June harvest seasons. Not surprisingly, 23% of these farmers used pumps at least once from 2007 to 2011,"says Dr. Cheryll Launio, former PhilRice economist.

It was in 1999 under the Estrada administration that free water pumps were distributed in Las Nieves. Cruzada was one of the recipients, and has maintained it as an irrigation source for his rice farm, which is near a creek.

RBFHS data have established that the usage of water pumps had increased from 9% in 1996-1997 to 23% in 2011-2012.

"It provides enough water not just for me but also for farmers around our rice farm. It has been the source of our irrigation for years now," Cruzada explains.

Harvesting 96 cavans from his 0.75-ha farm, Cruzada describes his pump as a lifesaver.

"Without this pump, I don't think I would be able to produce this much each cropping," he says.

Cruzada spends P8,000 for fuel per cropping. He says he feels more blessed after fuel prices went down from P56 in 2014 to just P26 per liter these days.

"My dream right now for our community is for farmers to have their own water pumps. It is such an irony to have enough water in the Agusan River but not being able to harness it for our irrigation," Cruzada oozes with disappointment.

## Saving smart

"Having a pump doesn't guarantee an abundance of water source, it must be used wisely," Cruzada advises.

He manages the water in his rice farm to lessen weeds and control pests and diseases.

"The best part is, I also get to save money for fuel and have enough water for future use," he adds.

Statistics from the RBFHS say that farmers are aware of the controlled irrigation option. Overall, 42-45% of respondents practiced intermittent irrigation rather than continuous flooding.

"A closer look at farmers' reasons for the practice sees better growth and tillering, better rooting and soil aeration, to save water, to control water depth, weed management; prevent submergence, and control pests and diseases," Launio enumerates.

Many users of the Small-Scale Irrigation System practiced intermittent irrigation to reduce fuel cost. Others were forced into the practice owing to fixed schedules or insufficiency of water supply.

My dream right now for our community is for farmers to have their own water pumps. It is such an irony to have enough water in the Agusan River but not being able to harness it for our irrigation.

- JERRY CRUZADA

## There is hope in the crossroad

"We have seen changes in our climate, but the way I see it, farmers have to choose between facing the same problems over and over again or finding ways to cope," Cruzada stares for quite a while.

"Farmers here have seen how pumps can help them reckon with the lack of rainfall, and I am glad to see some here starting to invest on it," he adds.

With farmers like Cruzada who are able to showcase farming alternatives and are examples for the community to follow, there is hope in the land of "snow." •

# THE STATE OF FARM POWERS

**JAYSON C. BERTO**

Ninja turtles in a popular cartoon TV series fight mutated animals, petty criminals, and alien invaders. In real life, farmers have their own turtles challenging waist-deep mud on the field.

Called by farmers as *bao-bao* (turtle), the turtle is used to rotavate water-soaked soils with stubbles and turn them into puddles during land preparation.

According to the 2012 Rice-Based Farming Households Survey (RBFHS), the *laboy* tiller is one of the major PhilRice machines that have been adopted by rice farmers in Mindanao.

Emilio B. Diamante, 70, of General Santos City, has been using the machine for almost 10 years. His skills in operating it were basically self-learned. He also uses the hand tractor and carabao as his main farm powers during land preparation.

Like Diamante, many other farmers in Asia depend on man-power, animals, and machines as three main sources of power in the rice farm. However, their level of utilization varies among nations.

According to the PhilRice-IRRI book *Competitiveness of Philippine Rice in Asia*, ours is one of the most labor-intensive among the major rice-producing countries in Southeast Asia.

PhilRice socioeconomist Alice Mataia, team lead of the study *Mechanization in Philippine Rice Production*, noted that labor use for crop establishment, harvesting, and threshing has the largest share to our total labor input and cost.

Our labor use of 69-71 man days per hectare (md/ha) in both wet and dry seasons costs P4.42/kg of the *palay* produce, the second highest among Indonesia, India, China, Thailand, and Vietnam.

## Muddy paddy

During wet season, Diamante and his fellow farmers in their community use the hand tractor with disc-plow attachment for the first plowing, *bao-bao* for tilling, and the preferred carabao for the final leveling.

"Our carabaos are well-trained for the deep-mud paddy. They could even understand our language, *Bisaya*!" he says in jest.

Diamante's case is consistent with the RBFHS data, noting that 82% of farmers in Mindanao are still using carabaos during land preparation.

The survey also documented that crop establishment is purely through human muscles, whether manual transplanting (99.6%) or direct seeding (97.9%).

But for Diamante, the practice of transplanting seedlings is waning.

"Most of us do direct seeding because we invest so much time and effort in land preparation, so we make it quicker in planting. It saves time and labor," he says.

Ronald Briones, a farmer and chairman of the Pangi Multi-Purpose Cooperative (PAMULCO) in Sarangani, says that machines, particularly the combine harvester, are not suitable in their community.

"Paddies are really soft and muds are deep," he says. This, then, drives them to manual harvesting.

Diamante confirms that manual harvesting is still practiced because laborers know this by default.

"We have tried the combine harvester here in our community but it didn't work. We even drain our fields two weeks before harvest," he explains.

## Altering behavior

While farmers have started adopting machines, full mechanization still has a long way to go in the Philippines.

"Given the results of our study on mechanization, we encourage farmers to use labor-saving technologies to reduce production cost and enhance competitiveness, although appropriateness of technology and human labor displacement have yet to be addressed accordingly," Mataia explains.

In the cases of Diamante, Briones, and their farming communities, knowledge alone cannot alter their behavior. While they are aware that machines can help them reduce labor cost, it is hard to fully adopt the technologies due to their unsuitability to their environments.

"Having farm power assets is more efficient as long as they fit into your working environment. That is why you invest in something you believe would make work easier," Diamante reasons out. •

Having farm power assets is more efficient as long as they fit into your working environment. That is why you invest in something you believe would make work easier.

- EMILIO B. DIAMANTE

# SMART CHOICES

CHRISTINA A. FREDILES

There is a peculiar reason why the Rose *Kambingan Kainan* in Sapang, Jaen, Nueva Ecija is a long-time favorite of its loyal customers. Aside from their delectable goat meat-based dishes, the humble restaurant is known for serving the best variety of rice – soft, white, and steamy.

In a day, the restaurant cooks 25kg of rice from 7AM to 8PM. Cashier Epifania Ramos identifies NSIC Rc160 and Rc218 rices as their top choice.

"With these varieties, rice is soft, whiter, and yummy - the kind of rice that makes customers don't stop until they get enough," Ramos says.

## Rice at home

The eating quality of rice is one of the factors of Filipinos' preference for buying the staple food.

But for Josie Clemente, 41, of Pansinao, Candaba, Pampanga, her preference has nothing to do with color, taste, or aroma; it largely depends on the availability of her financial resource. If there are organizations that provide rice as relief good, she would definitely accept and cook it for her family.

"If the rice donated to us is not as attractive as the other choices, at least in terms of color and scent, I add *pandan* leaves and wash it three times," Josie says.

Given enough money, Josie buys rice at P34 per kilo. For her, expensive rice means better eating quality.

Marivic Manalastas, 34, also of Candaba, shares her technique in buying rice. First, she smells the lower part of the rice container to make sure its quality is consistent from top to bottom. According to her, there are rice retailers who mix aromatic rice with *laon* (long-stored rice). Her price limit is P42/kg.

## Know the facts

In a study titled *Changing preferences of Filipinos for eating quality of rice*, PhilRice's Dr. Bienvenido O. Juliano attested that consumers prefer cooked rice with softer texture.

"The per capita rice consumption (PCRC) of Filipinos is increasing, accompanied by a decrease in the amylose content of rice from high in the 1980s to intermediate and low," Juliano explains.

Amylose determines the softness or hardness of cooked rice. Low amylose content corresponds to softer texture.

Based on National Nutrition Surveys, PCRC continued to increase from 103kg in 1993 to 119kg in 2010. Juliano reported that since 1980, most of the released varieties from the National Seed Industry Council (NSIC) have lower amylose. Then popular IR64 had 83% consumer acceptability while today's NSIC Rc160 and Rc170 have 94%. This is evident with the demand of consumers for softer cooked rice.

But eating the best quality comes with a price and a warning. Excessive eating of white rice with low amylose content such as *Sinandomeng* and Rc160 may cause the incidence of type 2 diabetes. The disease is aggravated by rice that has low amylose resulting in higher glycemic index (GI), which is responsible for the increase of blood glucose in our body.

Alma Mesa, 37, also from Candaba, was diagnosed with close to type 2 diabetes. Her doctor advised her to eat the healthier brown rice instead of white.

If rice consumers only know and acknowledge the benefits of eating brown rice instead of white, the demand for brown rice would grow and its price would shrink.

- ALMA MESA

## The alternative

Brown rice is the unpolished version of white rice. Any rice variety can be milled into brown rice. It also has lower glycemic index than milled rice with low amylose content.

"If rice consumers only know and acknowledge the benefits of eating brown rice instead of white, the demand for brown rice would grow and its price would shrink," Mesa hopes. She buys brown rice at P54 per kilo.

Obviously, brown rice and white rice differ in taste and texture. Brown has an almost nutty flavor and chewy texture; white has softer and more delicate texture.

Brown rice has carved an increasing popularity and solid fan base among *Pinoy* health enthusiasts wanting to curb their carbohydrate intake and eat nutritious food. If the trend persists, who knows, our preferences for eating quality rice might change. By then, *Pinoys* will choose rice not only for its aroma and texture but also for its built-in nutritional benefits. •

# THE MARKET PAIN POINTS OF A SENIOR FARMER

**SONNY P. PASIONA**

At 61, he still toils the fields — plowing, sowing the seeds, and growing his rice crops.

Farming for over four decades now, Reyjoel Tajunio finds refuge in his 1-ha rice farm at Dagatkidavao, Valencia City, Bukidnon. A father to 8 and a grandfather to 5 children, his senior age does not seem to hinder him yet from farming.

Arthritis, hypertension, and back ache. These are the physical pains that he has to tolerate every day. Despite these, he does not complain and just works hard to put food on his family's table.

Setting aside his bodily pains, his battlecry now, and perhaps ever since, is the ill effect of his financial pain with the rice market system — one that does not enable him to get the income he deserves from 3-4 months of rice cultivation.

In his most recent harvest, Reyjoel's take-home cash was supposedly P35,000. But with his loan, irrigation fees, and other accountabilities, he found himself going home with only P15,000 — barely enough for their living expenses in the coming months.

At his age, farming gets even harder and the income he gets from it does not seem to serve him well. So where are the loopholes coming from?

## Rice farming income

The 2006-2007 Rice-Based Farm Households Survey (RBFHS) of PhilRice already saw that increase in farm productivity does not necessarily render a higher income. Why? Farmers simply don't get the best price for their produce as far as marketing is concerned.

The same survey conducted in 2011-2012 confirmed that many Filipino farmers remain poor having an annual average income of only P50,000/ha.

"A more disturbing state of rice farming is that farmers earn only P118/day, which is much less than the daily wage rate of farm workers. Hence, farmers cannot meet the daily basic requirements of their families if they rely solely on rice production," the study furthered.

Noting these statistics, Dr. Sergio Francisco and Debbyriza Taylan listed market-related factors that would increase the income of Filipino rice farmers. These included access to credit and market information, selling to wholesale buyers, and better farm-to-market roads. On the other hand, transaction costs, distance of farm to market, and method of sale (pick up or deliver) were noted to be income-decreasing.

For an ordinary farmer like Tajunio, how would he assess that a market environment is in his favor? If not, where are his market pain points?

## Credit access

Access to credit has served Tajunio well. When his wallet is empty, a credit facility lends him a helping hand.

"I largely rely on credit to pay my debts and finance my farm inputs such as seeds and fertilizers," he said. Access may not be an issue but the process is. Talk about bureaucratic procedures in government offices at the city hall to secure important paper requirements.

"It takes me two months to process all the necessary documents to get a loan. I have to go back to these offices, some located in a different city, at least thrice," he sorely shared.

Just imagine the energy and money he could have saved had these processes been expedited. A senior-citizen tag may save some time and effort in lining up but the transaction cost the process incurs is at least P10,000 covering mostly taxes and certifications from various government offices.

## Transportation costs

The income-decreasing factors identified have not spared Tajunio. Upon harvest, he'd pay P10 per sack to a rice porter for hauling from the field to the farm road. Then he uses a converted power tiller to transport part of his dried paddy to the miller which is 5km from his house.

Unfortunately, the makeshift carrier could only have a maximum load of 10 sacks – forcing Tajunio to haul the produce in 3 batches, which takes him at least 2 hours overall on a gravel road.

Ready to sell his produce, he'd travel about 10km to the city market and canvass for the best price. The following day, he'll deliver the milled rice to the buyer that would cost him at least P400 for a jeepney ride with his harvest. In total, his transportation costs from hauling to delivery could go as high as P1,000.

"On average, farmers who deliver their produce to the buyer have P1,300 less income than those who have their produce picked up," the RBFHS results established.

## Market information

Dr. Roehlano Briones, senior research fellow at the Philippine Institute for Development Studies (PIDS), said that farmers like Tajunio should keep contact numbers of many traders operating in their localities to better access market information.

"He must join a farmers' coop or other associations where they can meet and get news about markets and pricing," Briones recommended.

As a member of the Valencia Organic Producers, Processors, Traders, Trainers Association (VOPPTTA), Tajunio relies on the association's information about traders offering the best price for their produce.

Yet, when it comes to his organic rice, it is bought at the same price as the rice grown with chemical fertilizers!

"That's very unfair," he sourly said. But he has no other choice since he's already selling it to the buyer that offers a premium price. Even VOPPTTA does not have the power yet to change the game for organic rice pricing.

## Policy directions

Reyjoel's plight needs to be heard and heeded by our leaders. Other farmers may even be living through far greater pains with low incomes in an unfavorable market environment.

A recent study on the competitiveness of Philippine rice relative to other ASEAN countries found that the market system in the country is inefficient. It argued that there has to be parallel efforts in improving the system along with enhancing rice production.

For policy directions, a similar study has recommended to develop quality roads and increase market competition by establishing wholesale paddy markets. With this, we're turning the tables for the farmers and traders. When a farmer brings his produce to the market, traders would come to him competing and giving the farmer a bargaining power. Ultimately, he goes home getting the best price he deserves and thereby increasing his net farm income.

Tajunio, a fundamental Baptist, is one of the Filipino food producers who anchor high hopes on the new administration - that other than reaping a handsome yield, policies and interventions will pave the way to a fair and enabling market system. •


# MOVING RICE FROM FARM TO PLATE

HANAH HAZEL MAVI B. MANALO

Producing rice doesn't happen overnight, neither does rice marketing.

"From the farm, rice passes through a channel composed of a myriad of interdependently linked intermediaries who move rice from the producers to the consumers," Dr. Jesusa C. Beltran, PhilRice economist, says.

Beltran and her team did the study *Rice marketing chains and margins* to trace the flow of rice from the producer to the consumer in several parts of the country, including Isabela. Beltran in 2015 compared marketing channels in the Philippines, Indonesia, Vietnam, and Thailand.

## Farmer as retailer

Joel G. Pilar, 45, of San Mateo, Isabela tends a 8,000-$m^2$ rice farm that yields more than 5 tons. He usually plants NSIC Rc160 and Rc222 (6,000 $m^2$), and pigmented rice (2,000 $m^2$) that produces 1.3 tons.

"Selling produce directly to traders or *viajeros* (agents) upon harvest is a common practice among farmers. But I once tried processing my harvest and the outcome was better," Pilar says.

For higher income, he would rather have his produce dried, milled, and sold in his stall in the San Mateo public market that also caters to customers from as far as Alfonso Lista in Ifugao, Santa Maria in Isabela, and Maddela in Quirino.

However, on a larger scale, marketing flow of rice in Isabela is quite unique as more than 50% of the *palay* produce is traded through *viajeros* to Bulacan and Nueva Ecija where big rice millers are located. They supply rice to Metro Manila and Northern Luzon.

Pilar articulates, "If I were to sell my *palay* right after harvest at P15/kg, I would have an average net income of P55,000 per season at P20,000 production cost (excluding non-cash expenses). If I process and market it as milled rice, I gain P75,000 from selling 3,100kg at P34/kg."

> From the farm, rice passes through a channel composed of a myriad of inter-dependently linked intermediaries who move rice from the producers to the consumers.
>
> - DR. JESUSA C. BELTRAN

Pilar acknowledges that marketing milled rice entails costs of more than P10,000 for hauling, drying, milling, and packing. He says hauling and transportation fee is P5/cav/transfer, drying is P10/cav, milling is P70/cav, and laminated sack for 25kg is P12 each. He avails of the milling service of a local cooperative at a discounted rate owing to his membership.

Pilar's case, Beltran explains, allows a lower gross marketing margin (GMM) with better profit as it involves no several channels or intermediaries performing similar marketing functions. GMM is the price difference between what the consumer pays for milled rice and the amount the farmer receives for his equivalent paddy. The margin covers the marketing costs and the profits of marketing agents or intermediaries. As maintained in the book *Competitiveness of Philippine Rice in Asia*, GMM is higher in the Philippines than in Indonesia, Thailand, and Vietnam.

With traders involved, farmers share is about 60-75% of the consumer's peso at the retail, while 30% of it would be divided among the market players. Rice millers, who are among the market players, would collect a bigger share of the margin due to their wider marketing functions and larger investments on inventory, facilities, and overall operations. Market players that handle larger volumes of paddy would realize more income.

Beltran adds that not all intermediaries or market players exist in the chain for the purpose of market control or manipulation of prices but more of making the market competitive.

Rice marketing is indeed profitable but also risky as high investment is needed. Hence, there's wisdom in developing marketing cooperatives, better market infrastructure such as drying and grading facilities, and sturdier farm-to-market roads to reduce marketing costs, Beltran concludes. •

# KURU-SAKA

IBINAHAGI KAY JAYVEE P. MASILANG

# YAMAN PA MORE!

*Kwento ni Dante Pajaron, 46, ng Valencia City, Bukidnon*

Sa panahon ngayon, karamihan ng mga tao, lalo na mga kabataan, ay ayaw nang magsaka. Ito ay dahil sa wala raw ditong pera o hindi mabilis ang pag-asenso sa propesyong ito. Ngunit para sa aming mga magsasaka, hindi lang pera ang basehan ng kita.

Nagsimula akong magsaka ng palay kasama ang aking maybahay na si Armeda noong 1998 sa 1.3 ektaryang lupa na bigay sa amin ng *Department of Agrarian Reform* (DAR). Sa simula ay gumawa kami ng plano upang may direksyon kami sa nais naming mangyari. Upang lalo pang maging maayos ang aming sakahan ay nagsimula kaming makiisa sa mga pagsasanay at *seminar* tungkol sa pagsasaka.

## Yaman sa kalusugan

Isa sa mga natutuhan namin sa mga pagsasanay ay ang pag-oorganik. Hindi naging madali ang pagsisimula namin nito dahil halos bumaba pa noong una ang aming ani. Sa kalaunan, umayos din ito at tumaas pa. Para sa amin, makatutulong ito sa lupa upang bumalik ang nutrisyon nito. Kasabay nito, di na tayo makadaragdag sa pangit na epekto ng *global warming* na nararamdaman natin ngayon.

Mula nang mag-organik kami ay malaki ang naitulong sa amin lalo na sa aming kalusugan. Dati ay kapag nagkasakit ang aming mga anak ay isinusugod kaagad sila sa ospital dahil mahina ang kanilang resistensya. Nang mag-organik kami ay wala na akong matandaan na na-*confine* sila dahil sa sakit.

Sa ngayon ay marami na kaming ginagamit na organikong pamamaraan tulad ng paggawa ng *vermicompost,* paggamit ng dumi ng hayop bilang pataba, *rice-duck farming, agroforestry*, at paggamit ng darak bilang pagkain ng hayop. Hindi na rin kami gumagamit ng pestisidyo sa bukid kaya nakababawas din ito sa aming gastusin.

## Yaman sa taniman

Nagsimula kaming magdagdag ng produkto noong 2002. Nakita kasi namin na mas kikita kung marami at iba-iba ang pagkukunan ng ani. Nagsimula kaming magtanim ng sitaw, talong, ampalaya, at mga punongkahoy upang walang espasyo na masayang sa aming bukirin. Dagdag pa rito, nag-alaga rin kami ng baboy, bibe, manok, at isda.

Hindi lang iba-iba ang aming itinatanim kundi konektado pa ang mga ito sa isa't-isa. Ang mga ipa at dayami ay nagagamit bilang pakain sa mga hayop. Ang mga dumi ng hayop naman ay nagsisilbing pataba sa palay at sa iba pang tanim. Nakatutulong naman ang mga bibe sa pangkontrol ng peste sa bukid kaya mas madali itong pamahalaan.

Isa rin sa magandang naidudulot ng ganitong pamamaraan ay hindi namamatay ang kita. Kung malugi ka man sa isang produkto ay maraming ibang produkto na maaaring sumalo dito. Marami kaming pitaka, kumbaga. Pagdating naman sa aming pagkain ay hindi na kami kailangan pang dumayo sa palengke dahil nasa bakuran na lahat ang aming kailangan. Gusto mo ng prutas, gulay, karne, itlog, bigas, kumuha ka lang diyan sa bukid.

## Yaman sa pagtutulungan

Masaya ako bilang magsasaka dahil maging ang aking pamilya ay





nakatutulong sa bukid. Ang aking mga anak ang siyang nag-aalaga ng mga hayop kapag wala sila sa eskwela at tumutulong din sa pagtatanim at pag-aalaga ng gulayan. Ang aking maybahay naman ang naghahanda ng pagkain ng mga hayop samantalang ako ang namamahala sa buong bukid.

Miyembro kaming mag-asawa ng *Araneta Farmers Agrarian Reform Beneficiaries Multipurpose Cooperative* o AFARBMCO kung saan nagsilbi akong presidente nang 11 taon. Dito ay nakakukuha kami ng tulong tulad ng pagsama sa mga *seminar*, paghiram ng mga gamit sa bukid, at pagbebenta ng produkto sa mas mataas na presyo kumpara sa palengke. Bago pa kami maging mag-asawa ni Armeda ay miyembro na kami parehas ng kooperatiba at dito nakakakilala kami ng mga tao na napagkukuhanan namin ng ideya kung paano pa mapapaganda ang aming kabuhayan. Nang dahil sa kooperatiba, nagbuklod ang aming tadhana.

## Yaman sa kaisipan

Dahil sa paggamit namin ng mga angkop na teknolohiya at pamamaraan ay gumanda ang aming kita at kabuhayan. Nakabili na kami ng mga lupa at sa ngayon ay limang ektarya na ang sarili naming sakahan. Nakapagpundar na rin kami ng mga makinarya tulad ng *laboy tiller* at *thresher*, dagdag pa rito ang dalawang kalabaw at isang motorsiklo.

> Sa ngayon ay marami na kaming ginagamit na organikong pamamaraan tulad ng paggawa ng vermicompost, paggamit ng dumi ng hayop bilang pataba, *rice-duck farming*, *agroforestry*, at paggamit ng darak bilang pagkain ng hayop.
>
> - DANTE PAJARON

Nakapagpatayo na rin kami ng sariling bahay at kasalukuyang nag-aaral ang aming tatlong anak. Mayroon din kaming ipinapagawa pang bahay ngayon sa Cagayan de Oro City at may mga lupa na nakasangla din sa amin. Wala man kaming hawak na malaking pera, kung iisa-isahin natin na lagyan ng halaga ang lahat ng aming ari-arian ay masasabi naming malaki ang katumbas ng mga ito.

May pera naman talaga sa agrikultura, at kung minsan hindi mo kailangan itong hawakan upang masabi mo na kumikita ka. Kailangan mo lang ng plano, determinasyon, at pagkakaisa ng inyong sambahayan upang maging wagi sa pagsasaka. Dapat may positibo tayong perspektibo upang makita natin na may iba't-ibang uri ng yaman sa kabukiran. •

# Rice-secure PHILIPPINES

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