

ANIHAN

magazine

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Mechanization

The 21-year old Brown Rice
Impeller Micro Mill adopter and
farmer from Mayantoc, Tarlac

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About ANIHAN

The *Anihan* magazine is a bi-annual publication of the Philippine Center for Postharvest Development and Mechanization (PHilMech). The *Anihan* magazine showcases the success stories of the agency's technology adopters, technology generators, and partners in the field.

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CONTENTS

- | | |
|---|--|
| 4 Editor's Note | 12 Filled to the BRIMM |
| 5 Securing the Country's Food Needs Amid Pandemic | 16 "Halimaw" Saves the Farmers' Harvest |
| 6 All Out with the Mechanical Transplanter | 18 Cheers to Higher Yields! |
| 8 Shifting the Youth's Perspective Towards Mechanization | 20 Partner for RD&E: Gearing Towards a Unified Goal |
| 10 Magaan ang Buhay sa Grain Probe Moisture Meter! | 22 PHilMech Gem: Engr. Domingo R. Miranda |
| | 24 Mekanikomiks |
| | 26 He said, She said |
| | 27 Ito ang PHilMech |



EMBRACING THE INNOVATIONS OF

Rice Mechanization

Editor's note

At first, the task of mechanizing rice operations from the farm to off-farm seemed impossible. So many people are against it because of the cultural issues, labor displacement, and the like.

Three years after the implementation of the Rice Tariffication Law, rice mechanization in the Philippines is becoming a realization. With access to rice machinery, Filipino farmers are now embracing mechanization after seeing its benefits.

Testimonials of farmer leaders of the Farmers, Cooperatives and Association (FCA) who are beneficiaries of the Rice Competitiveness Enhancement Fund (RCEF) are proof that, indeed, rice mechanization in the country is possible and this can do wonders in the lives of the sector.

Reduced production cost, reduced losses, reduced drudgery of operations, increased income - these are just some of the benefits echoed by the farmers as a result of rice mechanization.

This issue of the magazine tells the story of the rice farmers and how mechanization changed their lives for the better. We are featuring their stories to show that rice mechanization can be done and will be done with PHilMech leading the way under the RCEF Mechanization Program and other rice-related programs.



SECURING THE COUNTRY'S FOOD NEEDS AMID PANDEMIC

by JOHN C. ARAYAT

One of the most remarkable achievements of the Duterte administration was to keep the Philippines food secure during the Covid-19 pandemic.

One proof of this is that domestic palay (unmilled rice) production which reached new records in 2020 and 2021. These were the years when the pandemic was at its peak.

"We have posted record harvests for the last two years at 19.2 million metric tons (MMT) in 2020 and 19.96 MMT in 2021," former Agriculture Secretary Dr. William D. Dar said.

He added that agriculture and food production activities continue to be the saving grace of the Philippine economy.

"I have been and continue to advocate for prosperity in rural communities that became more intense when we were appointed by President Duterte in August 2019, implementing programs that continue to make our 'food heroes' — small farmers, fisher folk and entrepreneurs — more empowered, progressive, and prosperous," he said.

Also, Secretary Dar reaffirmed the Philippine government's commitment in increasing aggregate public investments in agricultural innovation for climate-smart agriculture and food systems in the next three years.

"The Department of Agriculture (DA) invests modestly in mainstreaming climate resiliency as the core of all its programs and activities, attributing over \$480 million (roughly P24 billion) for climate change in the

2022 GAA (General Appropriations Act)," Secretary Dar said virtually during the 1st Agriculture for Innovation Mission (AIM) for Climate Ministerial Meeting, held on February 22, 2022, in Dubai, United Arab Emirates.

In this year's AIM ministerial meeting, Dr. Dar took the opportunity to remind governments and policymakers on the urgency of accelerating agricultural research and development (R&D) and innovation to help raise global ambition and underpin more rapid and transformative climate action in all countries.

A GAME CHANGER

Dr. Dar also said Filipino farmers are now reaping the gains from the programs and project under the Rice Competitiveness Enhancement Fund (RCEF). He added that the rice sector also got adequate budget last year. Counting the P10-billion per year from RCEF, the rice sector got P62 billion in 2021.

With the adequate budget for rice, the DA is able to implement science-based initiatives, effective farm systems and technologies, as well as distribute seeds, fertilizer and farm machines.

"We are pleased to report for the first two years of implementation of the Rice Tariffication Law (RTL) that created the RCEF, farmers are producing additional harvests, averaging 400 kilograms per hectare (kg/ha) or roughly eight cavans (at 50kg each), which is equivalent to an additional income of P7,000 per hectare," said Secretary William Dar in early 2021.

The additional income per hectare reached P10,000 as early as this year.

ALL OUT WITH THE MECHANICAL TRANSPLANTER

by **JETT MOLECH G. SUBABA**

In a conservative community of farmers, this young woman is a risk-taker.

Her first time using the riding-type mechanical rice transplanter (MRT), Judith M. Ellean, 32, never gave it a second thought to plant her entire 1.5-hectare land.

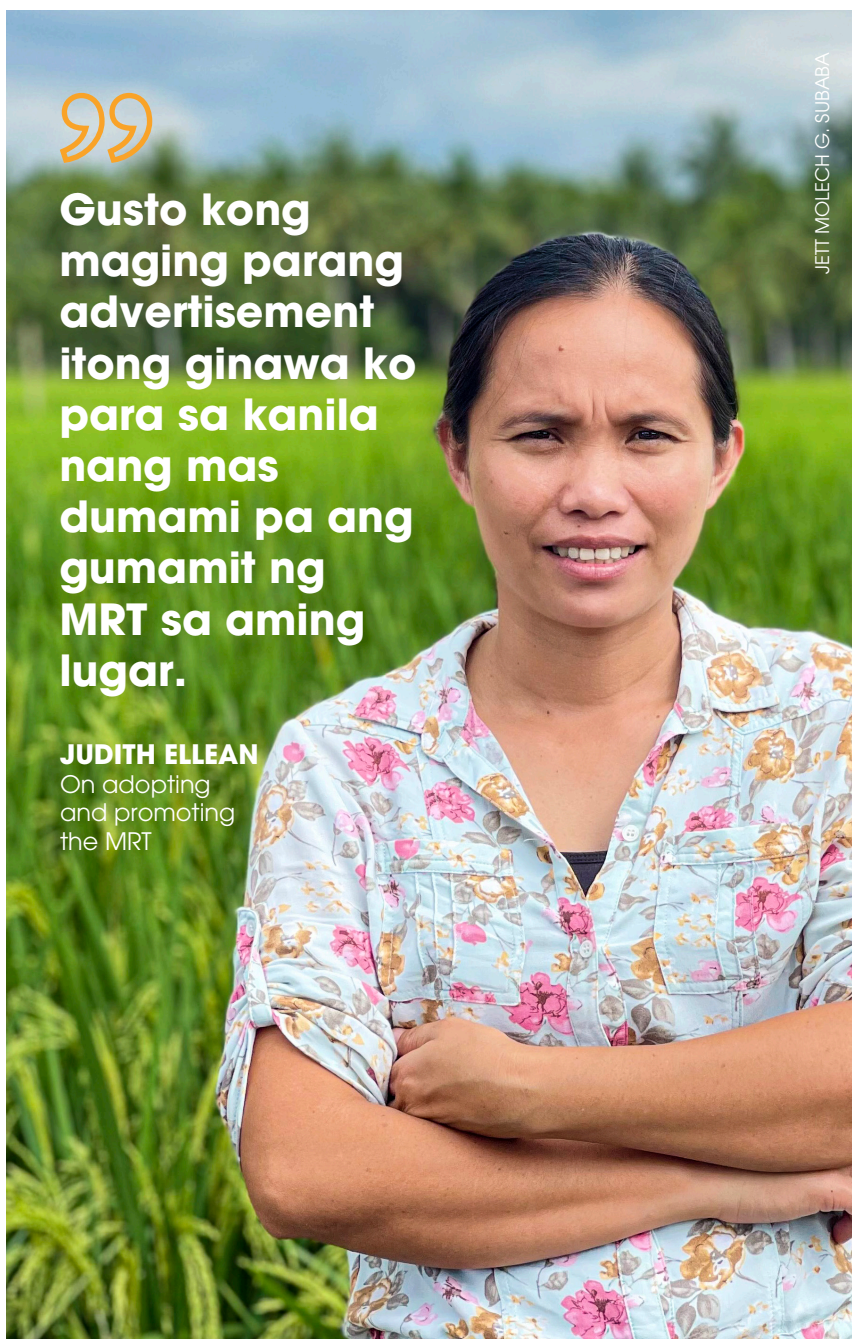
One would think that this would be a reckless move since her whole farm, hence, her livelihood, would be at stake if it fails on this endeavor but Judith was driven by her mission to promote among the farmers in Nabunturan, Davao de Oro, the potential benefits of using the MRT. Consequently, more farmers would believe and finally adopt the technology in their rice production.

"Kasi kung walang magsisimula, walang susunod. Kapag walang makikipagsapalaran, walang makakakita na maganda ang mechanization," the young innovator said.

"Gusto kong maging parang advertisement itong ginawa ko para sa kanila nang mas dumami pa ang gumamit ng MRT sa aming lugar," Judith added.

BACK STORY

In 2021, Judith was exposed to the MRT through a demonstration in a training course conducted by PHILMech after their cooperative, the Nabunturan Agrarian Reform Community Integrated Cooperative



99

Gusto kong maging parang advertisement itong ginawa ko para sa kanila nang mas dumami pa ang gumamit ng MRT sa aming lugar.

JUDITH ELLEAN

On adopting and promoting the MRT

JETT MOLECH G. SUBABA

Judith M. Ellean is a staunch advocate of using farm machines in regular farm procedures. Using the MRT in her land for the first time was her way to promote the technology.



Manager of NARCICO, Carmencita E. Valdez (left) and Judith (right) understand how beneficial it is to have the MRT at their disposal. Together, they are on a mission to promote the benefits of the MRT to their fellow members.

(NARCICO), received one unit of MRT under the Rice Competitiveness Enhancement Fund (RCEF) Mechanization Program.

Originally, it was her husband who was sent by their cooperative to undergo training on using the MRT. However, since she was there already, she observed intently and became interested in the technology.

In her passion to begin adopting the technology, she, and their manager, Carmencita E. Valdez, tried to prepare seedlings for the MRT. After a few trials and with the guidance of PHilMech, they were able to learn how to properly prepare seedlings for the MRT.

Working hand-in-hand with her husband, a trained operator, and Judith, who prepares the seedlings, they were able to plant on their 1.5-hectare land area. Their passion for the MRT was contagious that her conservative father-in-law also committed his 1-hectare land to be included in the pilot planting.

THE EXPERIENCE AND RESULTS

In terms of the planting duration, the couple was able to plant 2.5 hectares in just one day with less labor requirement of at least two people. Compared with manual planting, one would need at least 15 people and a few hours to finish the area.

Cost-wise, operating the MRT is also cheaper because the rental fee only costs PHP 3,000. That is clearly 67 percent less than the manual operations with PHP 9,000 (pakyawan). Besides, with the MRT, they

won't need to provide food to 15 people anymore. Judith admits that despite the early challenges of preparing seedlings, she would still go for the MRT method because it's significantly cheaper.

"Mahirap ang magprepare ng seedling pero dahil mas mura, susubok pa rin ulit," she emphasized.

On the quality of planting, Judith observed a significant difference after using the MRT.

"Sa manual, stressed ang seedling dahil bubunutin pa tapos itatanim ulit. Tapos unlike MRT, hindi kaya ng manual ang pantay-pantay na tanim. Yung machine kasi naka-measure na y'an, consistent pa," she explained.

During harvest, they were still able to harvest 244 sacks of rice with an average weight of 62 kilograms per sack in their 2.5-hectare land despite rat infestation in their area. Had they prevented infestation, Judith believed their yield would be definitely higher.

THE OUTCOME OF RISK-TAKING

Their cooperative expects to service an additional 5.5-hectare area in the next planting season using the MRT. This is after the neighbor-farmers of Judith expressed their intention to finally try the technology upon seeing promising results in her farm.

All thanks to the all-out interest of Judith to the MRT! Indeed, innovators play an important role in increasing the adoption rate of MRT in the country.



ESSAY:

SHIFTING THE YOUTH'S PERSPECTIVE TOWARDS AGRICULTURE

by **Aida Luz H. Paulo**

Agricultural mechanization continues to progress from the use of hand tools to the use of draft animals to the use of mechanically powered or advanced technology. However, the level of mechanization in the Philippines is still low compared to other countries.

The development of new technologies in mechanization is undeniably needed by the country. The fresh minds of the youth could be one of the possible solutions to address the country's needs.

FARMING AS THE ROAD LESS TRAVELED

If you were to ask the young about the career path that they opt to take, they would surely pursue a career that is relevant in the fields of medicine, engineering, teaching, business

management, and so on. Only a few would dare to claim that they will endure the path of agriculture and unravel the sector's problems. These few significant individuals surely understand the importance and the needs of the agricultural sector, while most of the rest of the youth would say that they will not go into agriculture as it is a "dirty" job, time-consuming, labor-intensive, and poor compensation.

Most of the youth have this perspective regarding agriculture, but no one can blame them for having such a perspective as it was not solely their fault if they lacked awareness of the current situation in the agricultural sector, especially those that were not yet exposed to the real-life scenario of farming and those who were immersed in agriculture but still in the practice of conventional



PhilMech's 'Youth 4 Mechanization' (Y4M) advocacy is the agency's effort to identify youth farmers nationwide in the hopes of enticing the young to take on farming. PhilMech believes that promoting farm machines is a way agriculture can become more attractive to the youth due to the convenience it brings.

farming and were not yet reached by the agricultural mechanization programs.

INFUSING AGRICULTURE IN EDUCATION

Applicable laws and policies were made by the legislative body to ensure that the young people are educated accordingly in such a way that the institutions properly disseminate the information, promote agriculture, raise awareness among the youngsters, spark their concern, and accept the challenges in providing for the growing needs of the nation, especially in food security and sustainability.

One of the laws included in Republic Act 10618, also known as the Rural Farm Schools Act, encourages the Department of Education to establish one public rural farm school at least in each province. Furthermore, some bills were relevant to agriculture education, such as Senate Bill No. 214, 18th Congress of the Republic, which integrates the Agricultural Strand into the Academic Track of the Senior High School Program; Senate Bill No. 2075, 16th Congress of the Republic, which aims to integrate Agricultural Science Subject into elementary and high school educational systems; and Senate Bill No. 766, 16th Congress of the Republic, which focuses on establishing Agriculture Education Institutions.

Furthermore, Section 8 of Article III of RA 10601, or the AFMech Law, engages the State Universities and Colleges (SUCs) in the development of agricultural and fisheries mechanization through training and scholarship programs. Relevant to this, scholarships for courses such as Agricultural Engineering and other courses on agricultural

and fisheries mechanization will be prioritized by the DA, CHED, and DOST. Additionally, RA 10915, also known as the Philippine Agricultural and Biosystems Engineering Act of 2016, strengthens and regulates the Agricultural and Biosystems Engineering practices in the country.

SEEING AGRICULTURE IN LIGHT OF MECHANIZATION

Despite the efforts to infuse agriculture into the youth through education, it is still not enough to encourage them to venture into agriculture. Why? Because it is not enough for the youth to just see agriculture. They had to experience it. Schools are already teaching the youth basic farming skills, but they have limited access to the agricultural machinery that is currently used in real-time farming, so they must rely on traditional farming methods. The youth must see the types of agricultural machinery and know how they are operated and how they can improve today's farming system. Seeing the machinery excites the youth and probably tickles their curiosity, which can spark their interest in agriculture.

The youth has to see agriculture in the light of mechanization. They have to realize that just like any other job, agriculture requires time and diligence, but not as much as they think agriculture was before. Various kinds of machinery shift the face of farming from being time-consuming and labor-intensive with a low yield to being easier, more efficient, and productive systems with an increased yield. The importance of agriculture and how mechanization can help the sector must be ingrained in the minds of the youth.

ABOUT THE SEGMENT AND WRITER:

This new segment features essays from its recognized 'Youth 4 Mechanization' advocates.

Aida, 21, is an Agricultural and Biosystems Engineering student from the University of Rizal System in Tanay, Rizal.



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to be a part of the
Y4M movement!**



MAGAANANG BUHAYSA

GRAIN PROBE MOISTURE METER!

by **JONA T. PAULO**

“Five-star para sa akin ang teknolohiyang ito dahil sa dali at gaan nitong gamitin”

Ito ang paglalarawan ni Jaime Blanco, 67, at chairperson ng Hillside Multipurpose Cooperative sa Villasis, Pangasinan, na isang technology adopter ng PHilMech-developed Grain Probe Moisture Meter.

PAGPAPAKILALA SA TEKNOLOHIYANG PHILMECH

Si Jaime ay tatlong taon ng chairman ng Hillside Multi-Purpose Cooperative. Siya ay matatawag na rin na pioneer sa naturang kooperatiba sapagkat mula ng itinatag ito noong 2009 ay kasapi na siya at nagsilbing Entrepreneur Officer hanggang sa maging chairperson noong 2019.

Taong 2018 naman noong nakilala ni Jaime ang PHilMech Grain Probe Moisture Meter sa pangunguna ni Engr. Arlene Joaquin - ang project leader mula sa Agricultural Mechanization Division. Una pa lang na magamit nila Jaime ang teknolohiya ay agad na silang napabilib sa teknolohiyang ito dahil sa gaan at pagka-dali nitong gamitin. Hindi nga ito maikakatwa sapagkat hanggang ngayon ay ginagamit pa din ito ng kooperatiba.

“Personal na nagpunta ang grupo ng PHilMech dito sa pangunguna po ni Engr. Arlene Joaquin at nagustuhan po namin yung teknolohiya sapagkat noong sinubukan po namin ay magaan gamitin at eksakto ang kanyang reading” sabi ni Jaime.

Ang teknolohiyang ito ay ginawa para mapabilis habang nagbibigay ng eksaktong pagkuha ng moisture content sa palay at mais. Ang test chamber ay may kapasidad na 100 grams at mayroong menu panel at handle para magaan at episyenteng paggamit. Hindi na kailangan pang magpabalik-balik para kumuha ng



May mga nagamit na kaming moisture tester, ngunit talagang hindi mapagkakaila na itong galing sa PHilMech ang pinakamagandang gamitin

- JAIME BLANCO

On the ease of using the Grain Probe Moisture Meter

samples at ilagay sa moisture meter at maghintay ng matagal para makuha ang reading.

Ayon kay Jaime, kayang tumagal ng dalawa hanggang tatlong araw ang baterya kapag ito ay puno. Dagdag pa dito, nagagamit nila ang teknolohiyang ito sa isa hanggang dalawang daang kaban na bigas o mais kada araw.

Sa ilang moisture meter na nagamit na ng kanilang kooperatiba, masayang naibalita ni Jaime na ang moisture meter na gawa ng PHilMech lamang ang nakapagbigay sa kanila ng kagaanan at episyenteng panukat ng moisture content.

"May mga nagamit na kaming moisture tester, ngunit talagang hindi maipagkakaila na itong galing sa PHilMech ang pinakamagandang gamitin," ani Jaime.

Ayon kay Jaime, sa 13 years niya sa industriya ng pagsasaka ay nasubukan niya na ang iba't ibang klase ng moisture meter ngunit dito lamang sila sa ginawa lang ng PHilMech sila nagtagal.

ENHINYERONG MAGSASAKA

"Nasa agrikultura ang pera."

Iyan ang tumimo sa isipan ni Jaime mula 1982 nang

piliin niyang magsaka kaysa ituloy ang karera bilang Electrical Engineer. Nakita ni Jaime ang kahalagahan ng agrikultura lalo na sa ating bansa kaya't hindi siya nagdalawang isip na pasukin ang pagsasaka kahit malayo ito sa kaniyang tinapos na kurso.

Ayon sa kaniya, lalo pa siyang nagpapasalamat dito dahil sa mga iba't ibang makabagong makinaryang pansaka na ibinibigay ng gobyerno na ayon sa kanya ay malaking tulong sa pagpapaunlad ng industriya ng pagsasaka.

Isa ang Grain Probe Moisture Meter ng PHilMech sa nagpabago ng kanilang nakagawian sa pagbili ng palay sapagkat nakukuha kaagad nila ang moisture content ng isang palay at nadadala pa nila umano ito sa iba't ibang lugar dahil hindi naman ito kabigatan at matagal din siyang magagamit kumpara sa ibang moisture meters. Ayon kay Jaime, kumpara sa gamit nilang panukat bago dumating ang PHilMech Grain Probe na kailangan pang kumuha ng sample ng palay o mais at ilagay sa moisture meter at hihintaying mabasa ang moisture content nito.

"Dito sa PHilMech Grain Probe Moisture Meter ay itutusok na lang namin sa sako ng aming susukatin at segundo lang ang bibilangin, lalabas na kaagad ang reading," ani Jaime.

Ayon pa kay Jaime, talagang eksakto ang pagbasa ng PHilMech Grain Probe Moisture Meter sa moisture content ng palay o bigas. Kailangan lang maglaan ng 0.5-0.7 percent na pagkakaiba, ngunit ito ay maliit lamang at ikinokonsidera pa rin ito na tamang moisture content reading.

GAAN SA KABUHAYAN

"Kapag bibili kami ng palay sa ibang lugar ay dala-dala namin itong Grain Probe Moisture Meter. Napakagaan lang, handy at efficient talaga. Kung ikukumpara ito sa mga nagamit na namin dati ay talagang mas handy ito at hindi pa nasasayang ang oras sa pagkuha ng sample at ilagay pa sa moisture tester. Dito ay itutusok mo lang at mababasa na agad," sabi ni Jaime

Ayon kay Jaime, napakahalaga na matukoy ang moisture content ng kanilang inaning palay o mais upang hindi agad masira ang mga ito kapag inimbak na. "Magtatagal din ang shelf life nito kapag tama ang moisture content at hindi agad mabubulok" dagdag pa niya.

Hiling lamang ni Jaime ay tuloy-tuloy pa sana ang paggawa ng ahensya ng katulad ng PHilMech Grain Probe Moisture Meter na teknolohiya na malaking tulong sa katulad nilang koperatiba at magsasaka.

Filled to the BRIMM

by **DON MIGUEL C. CAPARIÑO**
and **GIO ANTON T. BARROGA**



**DA-PhilMech
BROWN RICE MICRO-MILL**

The specs that matter:

MILLING CAPACITY: 91.5 kg/hr
INPUT CAPACITY: 151.4 kg/hr*
MILLING RECOVERY: 74.52%*
HEAD RICE RECOVERY: 89.7%*
COEFFICIENT OF HULLING: 1.00*
PRIME MOVERS: 0.5hp, single-phase
electric motor
POWER CONSUMPTION: 0.82 KWh
DIMENSIONS (w/o cyclone):
(L) 93 cm x (W) 36 cm x (H) 71.4 cm

OPERATORS: 1 Person

*BASED ON AMTEC TEST RESULTS



Jay Four (front right) along with his father (front left), wife (behind Jay Four), mother (behind Jay Four's father) and a few of the small but strong members of the association

The youth screams “*Ang pagiging magsasaka ay para lang sa mahirap!*” (Farming is only for the poor!) Thus, when it comes to farming, it’s a scary reality. There’s almost little to no appreciation for how food is produced because, at the end of the day, all that matters is one’s ability to pay for the food they eat.

However, the power of agriculture is a door that never closes. It continues to provide food, labor, and opportunity to those who seek it. Quoting a famous farmer in Brenda Schoepp: “Once in your life, you may need a doctor, a lawyer, a policeman, and a preacher, but every day, three times a day, you need a farmer.”

With an agency-developed technology by his side, a supportive family, and local government behind him, a young farmer from a humble sitio in Mayantoc, Tarlac puts a lot of faith in what fortune good agricultural practices can bring to farmers.

BUILDING A FOUNDATION

The Philippines is known as one of the largest rice-producing countries in the world. Locally, Region III, owns the title of “Rice Granary of the Philippines,” for producing most of the country’s rice. Inside the region is a rising organization from the province of Tarlac who is focused on advocating organic farming using traditional rice varieties and other vegetables, while promoting a healthier alternative produced with the help of an agency-developed machine.

The Mayantoc Organic Farmers Association (MOFA) was established on August 20, 2021, with more than 30 active members who aren’t afraid to try out organic farming. Led by Jay Four C. Javier (a.k.a Kwatro), the 21-year-old MOFA president and co-founder, willingly shares his knowledge in organic rice farming among the members of their small association. These farmers share the same ideas as Kwatro - there is value in organic farming and its potential is great.

Credit is given, however to both Eduardo Pablo Jr. and Gloria Pablo – the couple who discovered Jay Four in an online interview published on the Department of Agriculture Central Luzon’s YouTube page during their “Ani Kita sa Agrikultura: Outstanding Young Farmer from Mayantoc, Tarlac” segment back in June 2020. As of writing, the video itself has more than 7,000 views.

Sharing the same goals and objectives, the Pablo couple knew that working with Jay Four to help and organizing farmers to improve and increase their farming income would be an easy decision. This was the time that the farmers are barely earning enough money from their harvest because of the price drop of rice grains. Contacting Jay Four through Facebook, they eventually established MOFA, co-founding the association with Jay Four and his wife, Stiffany Grace. Together, they were able to draft the association’s by-laws and resolutions to be presented in the legal office using materials sourced from the internet.

Kwatro was recognized by the DA-RFO III as an asset because of his impressive portfolio as a young farmer.



Jay Four credits his love for farming to his father Jodie, whom, at a young age, exposed him to the benefits agriculture has to offer.

99

MALAKI ANG NAITULONG SA AMING MGA MAGSASAKA AT SA AMING MGA PAMILYA NA RIN NA KABILANG SA ASOSASYON AT PATI NA RIN ANG MGA KAPWA NAMING MAGSASAKA RITO SA AMING LUGAR NA HINDI PA MIYEMBRO NG AMING ASOSASYON

- Jay Four JAVIER

On being chosen as one of the recipients of the agency-developed BRIMM

Acting as what one might say as an ambassador for the youth farmers in the region, Jay Four was fortunately supplied with seeds that he used for his and his association's land. Kwatro is thankful for the fact that he and his association are looked after by their local DA office.

"Building an association is not just for the sake of obtaining blessings from DA but to provide a channel in showcasing the beauty of organic agriculture," Kwatro said.

ENGAGING IN ORGANIC FARMING

Kwatro's love for agriculture stemmed from an early age. His mother, Monica Javier, recalled how Kwatro was already an enthusiast, planting different types of vegetables in front of their house even at a young age. He even substituted for his father in farming, having managed their field successfully without the help of his parents (eventually).

Before the pandemic came to Philippine shores, Jay Four and his family were curious about marketing brown rice, keeping in mind that the market for brown rice is not the same as regular white rice, which means it can be sold at a higher price to the right market.

Marketing brown rice was a risky venture since brown rice was more of an acquired taste due to its more fibrous texture. However, research by the Philippine

Rice Research Institute (PhilRice) shows that brown rice contains greater health benefits as it is rich with dietary fibers and anthocyanin that is associated with protection from type 2 diabetes, cancer, and heart diseases, which served as Jay Four's green light to produce brown rice.

His passion led him to where he is right now. Having been involved in the production of pigmented rice as well as discovering its marketability, he was eager to share his newfound knowledge with his fellow members. He was able to reproduce the seeds given to him by DA-RFO III during a training program and he was able to distribute this to other farmers so they, too, would become witnesses.

When the farmers came around to the benefits of pigmented rice, sought for more. This allowed Jay Four to create a loan program or *pautang* where farmers must return the capital that they've loaned through the earnings of their harvest before they can get another set of seeds.

Luckily enough, Kwatro's also able to share his own carefully formulated organic sprayer to keep the pests away from the rice fields of his fellow members. Jay Four has reported no such incident happening at their rice fields. No pests, higher yields!

MECHANIZED MILLING THROUGH BRIMM

Kwatro opened his mind to mechanized farming at a very young age.

As of writing, he is currently taking his bachelor's degree in Agricultural and Bio-System Engineering at the Tarlac Agricultural University (TAU). Aspiring to become an Agricultural Engineer, Kwatro constantly looks for solutions to solve his everyday farming problems.

In March 2022, MOFA became the recommended cooperator of the PHilMech-developed Brown Rice Impeller Micro Mill (BRIMM) under the agency's Covid-19 Response Program after having passed all the requirements set by the agency.

To put into context, Jay Four and his team would travel to Gerona, Tarlac to dehull their produce. The trip alone can take as long as three hours one way due to their truck's inability to operate at high speeds as it was carrying heavy loads. The process of dehulling alone can take a week with an additional PHP 2,000 for gas.

Having the BRIMM made MOFA's procedures a breeze, allowing them to mill brown rice at any given time so long as there are operators available. They collect all

the grains first for milling from different members as well as non-members so it would be done for a single batch of hulling to save time, effort, and electricity (especially since this can plugged into any wall socket).

"Kayang-kaya po siyang i-operate ng maski-sino. Hindi naman delikado ang makinarya sapagkat wala naman pong exposed na moving parts," Jay Four said.

It was easier for Jay Four to convince his members to switch to organic farming after the BRIMM arrived. Having easy access to a portable rice mill that only required a PHP 4.00 to PHP 4.50 milling fee with flexible payment options while also letting the association take care of its member's sales became an attractive proposition to those who aren't convinced yet.

The BRIMM also presented them with an opportunity to sell their milled products at a higher price since the technology was able to preserve the quality of the milled rice, which meant becoming a greater earning opportunity for MOFA.

The regular price for unpolished, pigmented rice was sold for PHP 50 per kilogram. A better quality, BRIMM-produced rice can be sold for up to PHP 70 to PHP 80 per kilo. They are even claiming that they could possibly reach PHP 100 per kilo when they get their organic certification.

Farmers who have joined Jay Four's cause in organic farming have well and truly reaped the benefits. Previously, their farmers would only mill rice for the sake of personal consumption but after having switched to organic farming paired with the availability of the BRIMM, they are now able to mill more than what they need and now have enough left over to sell.

Selling was also made easier due to the presence of social media since it made it easier for them to connect with their buyers and potential buyers. Customers, in turn, would leave positive reviews through word of mouth. Such customers would be his professors in TAU who once ordered 80kg of his product. Jay Four believes that this rise in demand is enough to convince other farmers to make the switch so that he can help them to help others.

"Maraming salamat sa PHilMech sa pagpili sa amin bilang isa sa benepisyaryo ng BRIMM. Dahil dito, malaki ang naitulong sa aming mga magsasaka at sa aming mga pamilya na rin na kabilang sa asosasyon at pati na rin ang mga kapwa naming magsasaka rito sa aming lugar na hindi pa miyembro ng aming asosasyon," Kwatro said.

Jay Four is not just climbing the goal by himself. Instead, he is bringing everyone with him toward success.

"HALIMAW" SAVES THE FARMERS' HARVEST

by MILA B. GONZALEZ

It is feared upon. Cursed. Burned.

This thing they call "halimaw", the Tagalog term for a monster, had earned the ire of farmers because it displaced many farm workers from their jobs, and deprived them of their wages.

Years back, Filipino farmers were wary of this machine's entry into their farm landscape. However, the sentiment has changed now.

Thanks to the mechanization efforts of the Department of Agriculture, specifically the Philippine Center for Postharvest Development and Mechanization (PHilMech).

MANUAL HARVESTING

About 10 to 20 (or more) people are required to manually harvest a hectare of rice land. Starting early morning and clad in their multi-colored long-sleeved shirts and polo blouses, paired with their long pants or skirts, farm workers cut the paddy stalks with their sickle. They rest to take their snacks usually of bread and water. They go back to harvest again under the scorching heat of the sun, resting only during lunchtime. The toil continues until sundown.

The harvests are left on the field, piled and hauled, and made ready for the next day's threshing operation. Threshing is the process of separating the paddy grains from the straw.

The manual harvesting of paddy is laborious and costly, especially on the part of the farm owner. It causes a lot of worries especially when the labor is scant. This would require a lot of hours or even days to finish one hectare of land to harvest.

Worse, if there is an incoming typhoon and there is no worker left to harvest the paddy, farmers are helpless. Manual harvesting incurs huge postharvest losses. According to PHilMech, about 2 to 3% are lost as a result of improper and outdated harvesting practices. Incorrect timing of harvest, mold, and insect damage, pests like rats and birds, and hauling spillages are just some of the culprits of harvesting losses. These comprise the lost harvest of farmers from the field.

THE RICE COMBINE HARVESTER

PHilMech deploys and promotes the rice combine harvester to Farmer Cooperatives and Associations (FCA) nationwide. This is under the Rice Competitiveness Enhancement Fund (RCEF)- Mechanization Program which PHilMech spearheads.

The combine harvester is a machine that combines several harvesting operations. These operations include cutting paddy stalks, threshing, cleaning, and bagging or grain collection.

The machine has cutting knives, a threshing system, a cleaner, and a collection system for the paddy grains. The cutting knives cut the paddy straw above the ground which is then conveyed into the threshing unit where the grains are separated from the straw. The combine harvester also has a cleaner that separates the grains from impurities like chaff, small straw particles, and immature grains. After cleaning, the machine then collects the grains into a grain tank or bag.

According to PHilMech (2020), the use of combine harvesters has several benefits. It reduces drudgery in farm labor because the machine harvests a hectare of land in just an hour or two. It reduces production costs because only two to three people are required to operate the machine, thus saving on labor costs. It reduces postharvest losses because of the reduced time and





Richard Hidalgo (R) inspects a combine harvester that will be granted to their cooperative, along with PhilMech's Engr. Edgar Testa (C).

handling of grains. Most importantly, it saves the precious harvest of farmers because combine harvesters harvest fast, just in time before any typhoon ravages the rice fields.

WHAT FARMERS SAY

One of the farmers of the Baclay Multi-Purpose Cooperative in Sto. Nino, Tukuran, Zamboanga del Sur, Richard Hidalgo, attests to the benefits of the rice combine harvester.

"...Mas malaki ang natipid. Tapos, isang oras lang tapos na ang pag-aani. Samantala, noong wala pang harvester ay tatlong araw ang paggapas sa isang ektarya" (Bigger savings. In one hour, harvesting is finished. Before, when there was still no harvester, it took three days to harvest one hectare).

Alexander Lagmay, another rice farmer from the Pinagbuklod na Adhika Multipurpose Cooperative in Zaragosa, Nueva Ecija adds to the benefits of the combine harvester, *"Mabilis ang trabaho. Kung bukas nandyan na ang bagyo, pwede mo na pa-harvester agad-agad. Matipid pa. Mas mababa percentage share kesa sa manual harvesting... Dati, sa manual harvesting, 10% share sa manggagapas at 7% share pa sa thresher. Ngayon, sa combine harvester ng koop, 7% share lang... At less losses sa tapon ng palay sa bukid."* (Work is fast. If a typhoon comes tomorrow, you can request for the services of the combine harvester. The percentage share using the combine harvester is also smaller (7%) compared to manual harvesting, 10% and threshing, 7%. And there is less losses of spilled grains on the field).

"HALIMAW" NO MORE

What seems to be *"halimaw"* for farmers turned out to be a savior of the farmers' precious harvests. It saves on harvesting time and the needed labor force. It ensures lower postharvest losses compared to manual harvesting.

Because the rice machine harvests fast, it is a climate-resilient technology. Upon harvest, the farmer's produce is bagged and hauled from the farm to either market or storage just prior to any inclement weather or disturbance.

Indeed, the rice combine harvester is *"halimaw"* no more.



99

Mabilis ang trabaho. Kung bukas nandyan na ang bagyo, pwede mo na pa-harvester agad-agad.

ALEXANDER LAGMAY

USER SUBMISSION

Cheers TO HIGHER YIELDS!

by **GIO ANTON T. BARROGA**

Resiliency is a word often used to describe Filipinos in the face of disasters.

Be it the numerous typhoons that the country experiences in a single year or other natural disasters such as the eruption of the Taal Volcano back in 2020, Filipinos have been known to pick up right where they left off and move on with their lives.

When the pandemic came to the shores of the country in early 2020, agriculture was one of the hardest-hit sectors in the country. In the face of the pandemic, just how did the country manage to keep its rice production on an upward trend since 2019 (DA-PhilRice), with 2021 giving the country's best yield at 19.96 million metric tons (MMT) – an increase of 3.4 percent from the previous year?

HOW DID WE DO IT?

Let us acknowledge the efforts of our hardworking farmers who battle through long hours under the sun. Truly, we wouldn't have been able to achieve this record-breaking feat without them.

The effect of the pandemic was unseen and brought many to their breaking points. The general census of farmers was the most affected as restrictions and lockdowns disrupted deliveries, which created a domino effect that would see farmers lose more than they would

gain. We saw how social media was filled with posts from farmers who cried to the masses to buy their produce at unbelievable prices just to make ends meet despite usually earning more during pre-pandemic times.

In hindsight, the implementation of the Rice Competitiveness Enhancement Fund (RCEF), which is working hand-in-hand with the existing National Rice Program, and the Rice Resiliency Program (RRP) – a sub-program of the Plant, Plant program – couldn't have come at a perfect time, given that the RCEF was launched in 2019 and the pandemic followed the year after.

The program includes the distribution of farm machinery, seeds (tailored to the needs of the farmer), credit assistance, and training for its beneficiaries. Despite the challenges brought by the pandemic, farmers are now reaping the benefits of the six-year program, with the program already at its halfway point.

The RRP is in charge of distributing inbred and hybrid seeds to both rain-fed and irrigated areas on top of the RCEF program while also supporting the inbred and hybrid farmers of the NRP. As for PhilMech – the major implementer of the RCEF program – the distribution of farm machines to farmer cooperatives and associations will continue in a bid to mechanize farming in the country.

This means that the support given to our farmers in recent years has been working. From the PHP 15 billion budget of the NRP and RRP; the PHP 10 billion budget for the RCEF; the PHP 7 billion budget for the National Food Authority (NFA); and the PHP 30 billion budget for the National Irrigation Administration (NIA), having adjusted to the restrictions brought by the pandemic meant that the implementing agencies under the Department of Agriculture (DA) have been able to progress with their distributions.

WHAT'S NEXT?

In light of recent events between Ukraine and Russia, it is the country's priority to achieve food security in the years to come.

Many countries rely on Russia for their oil and natural gas. The economic sanctions the United States and other western countries placed were meant to disrupt Russia's economy, hoping that Russia would discontinue the war against Ukraine. This, in turn, affected the global economy as the price of goods skyrocketed.

Farmers rely heavily on gasoline as they are natural users of this commodity. Higher gasoline prices mean that the production of agricultural products would also rise. Outgoing DA Secretary William Dar already warned the country of an impending food crisis, which means that the country should now, more than ever, be preparing itself to

become food-secure, should the war continue.

While the problem is not confined to rice alone, farmers can rest assured knowing that a program such as the RCEF will continue for at least three more years – which could help cushion the threat to the country's food security.

The NRP and RRP will also continue for the foreseeable future. The signing of RA 11524, or the Coconut Farmers and Industry Trust Fund Act, will also boost the country's coconut industry. Secretary Dar's Plant, Plant, Plant program will continue to push through as he finishes his term.

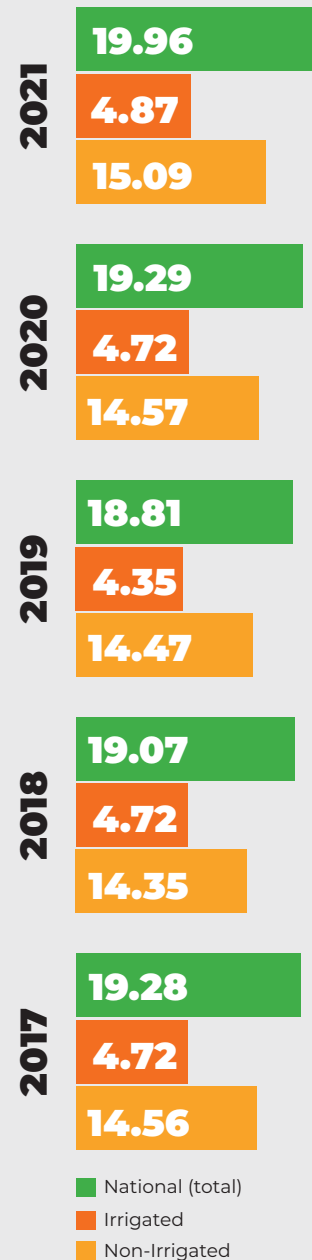
Our initiative must be to become food secure ourselves. The idea of becoming a *plantito* or a *plantita* would help kick start that initiative as we must also learn how to provide for ourselves, and learning how to grow our food could at least offer some help in achieving our household food security.

However, that solution is only temporary as we are only at the tip of the iceberg. It must be the duty of the next president and DA secretary to ensure that we exert all efforts into becoming food secure. Whether the plan is to create new programs or continue existing programs, we must have a concrete plan to help resolve the impending food security crisis.

After all, in the face of disasters, that's when Filipino resiliency shines.

Palay production since 2017

IN MILLION METRIC TONS (PSA, 2022)



NUEVA ECIIJA
1,884,324 mt

ILOILO
1,018,989 mt

MAGUINDANAO
622,850 mt

The provinces of Nueva Ecija, Iloilo and Maguindanao were the top rice producers for Luzon, Visayas and Mindanao, respectively.

GEARING TOWARD A UNIFIED GOAL

by **GIO ANTON T. BARROGA**

Just a few kilometers away from PHilMech at the Science City of Muñoz is its sister agency in the Department of Agriculture. In this article, we talk to two lady executives about its partnership with PHilMech. (Photos from PhilRice)



FLORDELIZA H. BORDEY, Ph.D.
Deputy Executive Director for Special
Concerns on the Implementation
of RCEF
PhilRice

According to Doc Liza, the professional relationship between PhilRice and PHilMech can be likened to a sibling, such that there would undeniably be times when both agencies would seem to compete. Often times, they collaborate for a common good.

While the mandate of these two agencies differ, this sibling-like relationship goes as far back to the early days of NAPHIRE, having shared directors in Dr. Santiago R. Obien and Dr. Silvestre C. Andales

Apart from that, as Doc Liza recalls, both agencies, along with the International Rice Research Institute (IRRI) were part of

the Philippine Rice Postharvest Consortium in its early days. In 2018, PHilMech's Dr. Michael Gragasín partnered with the Rice Business Innovations System Community (RiceBIS Community) of PhilRice Negros in Murcia, Negros Occidental. The brown rice-making community welcomed Dr. Michael's Brown Rice Impeller machine, signifying another successful collaboration between the two agencies.

Most recently, the implementation of the Rice Competitiveness Enhancement Fund (RCEF) saw both agencies become lead distributors of seeds and activities farm machines and co-implementers in extension activities.

next page ►



KAREN ELOISA T. BARROGA, Ph.D.
Deputy Executive Director
for Development
PhilRice

For RCEF interventions to become sustainable, PhilRice Deputy Executive Director for Development, Dr. Karen Eloisa T. Barroga, and the rest of the RCEF Extension team make sure that farmers, farm workers, and their dependents – including those who help them, are equipped with the knowledge and skills that improve farm productivity.

"Doc K" serves as one of the vice-chairpersons of the RCEF-Rice Extension Services Program. Having worked at PhilRice for more than 30 years in various leadership capacities, she knows how crucial development and extension initiatives are in changing lives in farming communities.

With the RCEF program, PhilRice and PHilMech get to work together and complement each other's experiences in the strategic delivery of extension and advisory services.

"While PhilRice may have its own Rice Engineering and Mechanization Division, we strongly value the inputs of PHilMech in terms of approach and content of the different training courses that RCEF offers in extension," Doc K said.

The recent strong push for the convergence of all the RCEF implementing agencies ensures harmonization of extension efforts that minimizes duplication and optimizes the use of resources.

When RCEF was launched in 2019, all implementing agencies created their own guidelines as the program was not designed to be integrated at the time. The idea was that the more you could reach, the better. However, working individually on a project shared by multiple agencies became a hurdle.

"As we moved along with the implementation, we saw that it was better if we combined our efforts because it creates a synergy. For instance, if you mix the seed and mechanization components, you can create something. It's as if the sum of the two is greater than the individual components. The same goes for extension and credit. As we move along, we create efforts towards convergence," Doc Liza said.

But even if there's an effort to converge with all the components of the RCEF, Doc Liza said that there was still a natural hindrance despite having a common goal of helping our farmers.

For instance, seeds can be distributed to both individual farmers or farmers who belong to an organization. Machines, on the other hand, cannot be given to an individual farmer as they would not be as utilized compared to giving a whole organization the machine. Despite this, efforts are still created where possible.

"All the components eventually decided that there will be 120 model farmers' cooperatives and associations (FCAs) that PHilMech will cater to. These FCAs will also be provided with seeds, training courses, and credit. This is where we can show the integration of all the components," Doc Liza explained.

As RCEF moves from its halfway mark, Doc Liza sees the opportunity to digitalize as a way to further strengthen the relationship among the implementing agencies of the program, especially with PHilMech, which can be incorporated even after RCEF.

An accessible, centralized digital database would allow IAs to gain information regarding the beneficiaries of each component. This can help IAs determine what the beneficiaries are receiving, at the same time, help farmers with their needs.

"Farmers who would want to venture into the rice milling business would be able to specialize in a particular variety suited to their area or market. If we can find out which FCA plans to do this with the use of this database, we can make a specific intervention for them. Farmers could also use this database to find out if there are machine beneficiaries near their area so that they can avail of their service giving them more options," Doc Liza said.

Overall, the sibling-like relationship between the agencies is something that Doc Liza is happy to have. While competition is often there, at the end of the day, both agencies pull each other to become better and united in one Science City of Muñoz.

There are also new learnings gained by the different agencies that can eventually be adopted/adapted in their respective current programs while also expanding their network and sphere of impact from working together.

"PHilMech's 'Youth for Mechanization' (Y4M) advocacy, for example, is a good initiative that PhilRice may adopt or collaborate with PHilMech. The same with PHilMech's holistic approach in assisting farmers' cooperatives and associations," Doc K said.

With PHilMech's research and development of postharvest machines not limited to the rice crop, the RCEF program, Doc K believes, enriched PHilMech's experience in rice production.

Combining the competencies of PhilRice and PHilMech will allow for more innovative rice-related work beyond the RCEF program.

Additionally, the machines developed by PHilMech for rice production can be used by PhilRice in their interventions among the rice-based farming communities in the country.

This is what happened to PHilMech's Brown Rice Impeller Micro Mill, which became part of the PhilRice RiceBIS community in Murcia, Negros Occidental a few years back.

"I think the relationship between the two agencies greatly improved under RCEF and expanded our area of impact because we can tap each other's technologies and capacities," Doc K said.

Doc K believes that there would be more opportunities for the two agencies to work together in the future to make the value chain more efficient now that the professional and even personal relationships have been strengthened and with a more holistic understanding of what each one is doing in different parts of the country to help Filipino farmers.

"As partners, we should always aim to complement and harmonize our efforts. We need to be generous in sharing our best practices. When we do this, farmers win," Doc K concluded.

DANGAL NG PHILMECH

DANILO T. ESTEVES



ENGR. DOMINGO R. MIRANDA

Leader, achiever

by **GIO ANTON T. BARROGA**

When the Rice Competitiveness Enhancement Fund (RCEF) was implemented in 2019, one of the glaring problems the implementing agencies faced was how they were going to push through with the program given the restrictions brought by the pandemic in the following year.

That is, until, you work with someone like Engr. Domingo “Dong” Miranda, that any hurdle becomes easy to jump over.

THE MAKINGS OF AN ENGINEER

Born in 1984, Engr. Dong had long been passionate about agriculture and the principles of engineering. Combining the two piqued his interest as it presented him with a challenge that he was more than willing to tackle, dreaming of the day when he could design and create his own machines that would help Filipino farmers at work.

Fortunately, Central Luzon State University offered what Engr. Dong was looking for. He graduated from the university in 2006 with a bachelor’s degree and eventually, a licensed Agricultural Engineering. Later on in 2016, he graduated with a master’s degree in Agricultural Engineering.

Engr. Dong started his career at the agency as a Research Assistant in 2006, when the agency was known as the Bureau of Postharvest Research and Extension. In 2017, he became a permanent staff of the agency, working as a Science Research Analyst before becoming a contractual Senior Science Research Specialist in 2020 at the height of the pandemic and a year into RCEF.

LEADING FROM THE FRONT

Having utilized his profession at the agency for almost 16 years, Engr. Dong has applied much of what he learned from his mentors at the agency’s Socio-Economic and Policy Research Division and Bio-Process Engineering Division, paired with his knowledge as a licensed agricultural engineer, to the work he has now with the Facility Management and Field Operations Division.

As the RCEF-Mechanization Program gained momentum in 2021, Engr. Dong was assigned as the Cluster head for the Mindanao B cluster team, which covers Regions XI, XII, and the Bangsamoro Autonomous Region in Muslim-Mindanao, including the high-risk areas in those regions. His job as team leader was to promote the program while collaborating with regional field offices, local government units, and other government agencies under the Department of Agriculture.

Leading from the front, Engr. Dong and his team were able to identify potential beneficiaries for the area of his coverage, and they were also able to facilitate the delivery of agricultural machines to Farmers’ Cooperatives and Associations (FCAs) and Local Government Units (LGU) beneficiaries.

In particular, he was able to coordinate with local partners from BARMM, having been able to reach out to local farmers situated in the identified critical RCEF areas in the region, which allowed FCAs/LGUs from the region to be included in the 2021 fund of the RCEF-Mechanization program.

After a successful stint as the Cluster Head for Mindanao B, Engr. Dong was made the cluster head of the Luzon A cluster team starting July 2021. Luzon A covers Regions I and III – regions that are notorious for strong political dynamics and interventions.

Yet, he overcomes. Applying his experiences from leading the Mindanao B cluster, he was able to significantly reduce the errors in the identification, validation, and selection of program beneficiaries, as well as in the deliveries of agricultural machinery and equipment in a short period.

Through the strict and proper implementation of the program, Engr. Dong was able to achieve 100% of his and his team’s targets from identification, validation, selection, and facilitation of deliveries, as well as the submission of pertinent documents to the FMFOD central office.

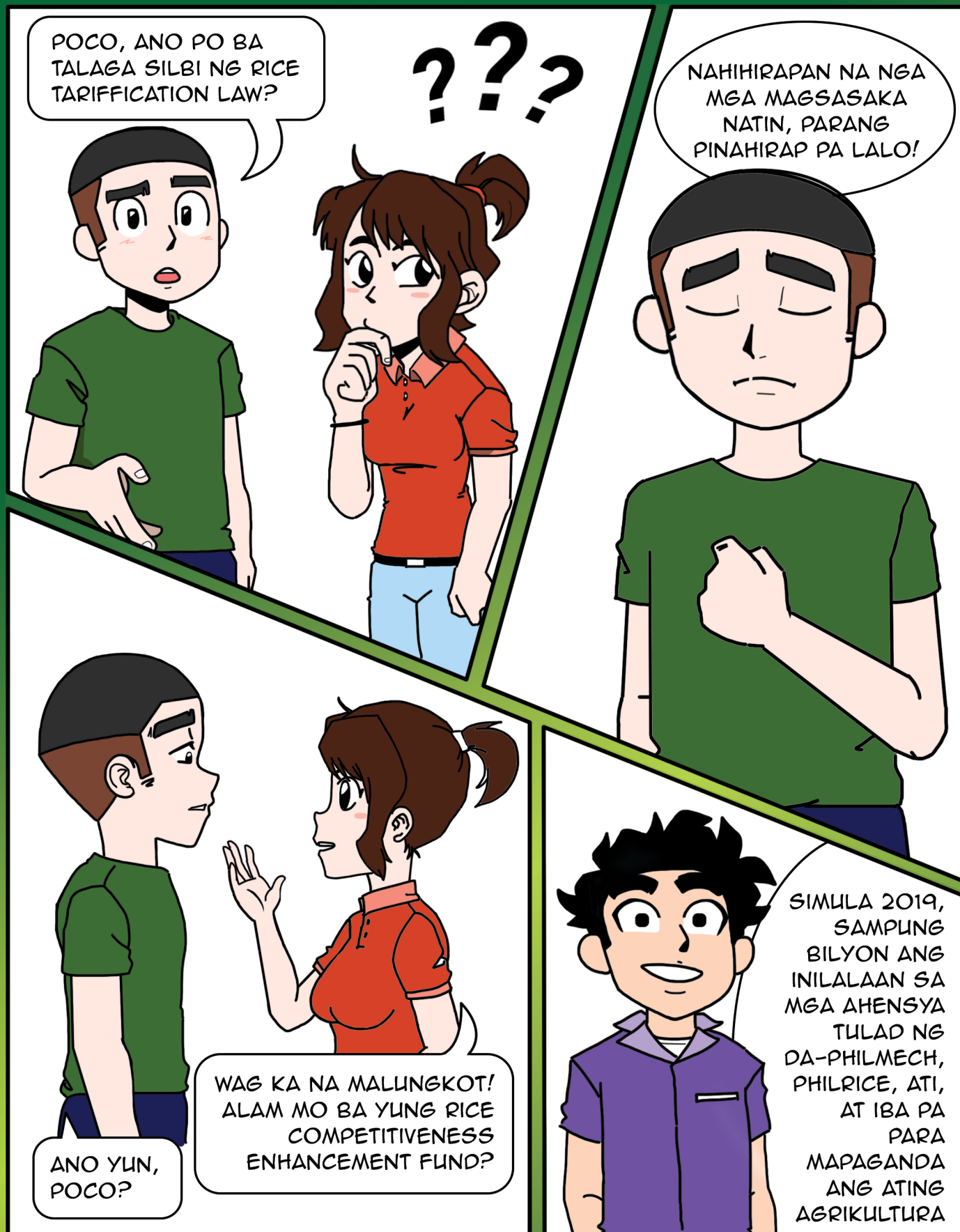
He was also able to achieve a 100 percent accomplishment in selected beneficiaries of postharvest facilities which were compliant with the technical requirements but was also able to repossess machines and equipment that were found to be not properly utilized according to the objective of the program.

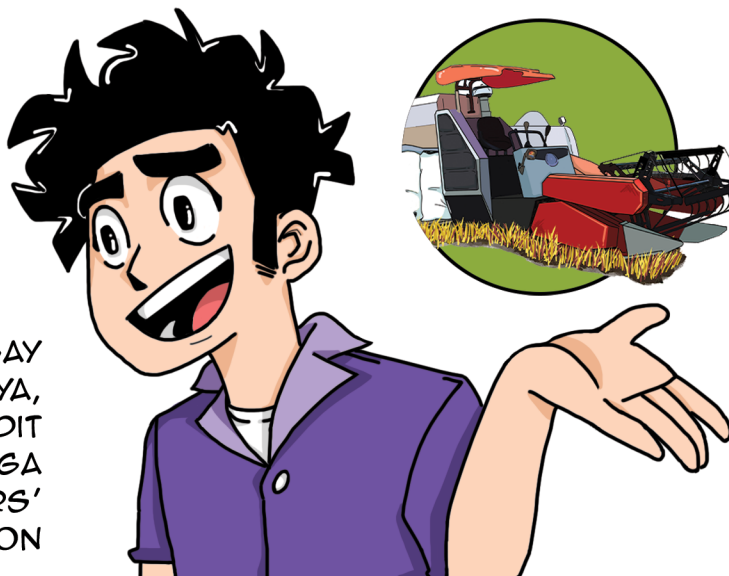
His life philosophy in Luke 6:31 – “Do to others as you would have them do to you” – is a testament to his kind of leadership. With his achievements as cluster head of both Mindanao B and Luzon A, he owes his 2021 *Dangal ng PHilMech* award to his hardworking colleagues who ensure that targets are efficiently and successfully done on time.

THE FAMILY MAN

At home, Engr. Dong transforms into a loving father, spending most of his free time with his two kids. His wife, Ana Marin, who entered the agency a year before him, has been his constant support system. Together, they make sure that they get the best out of each other either at work or at home, raising their family.

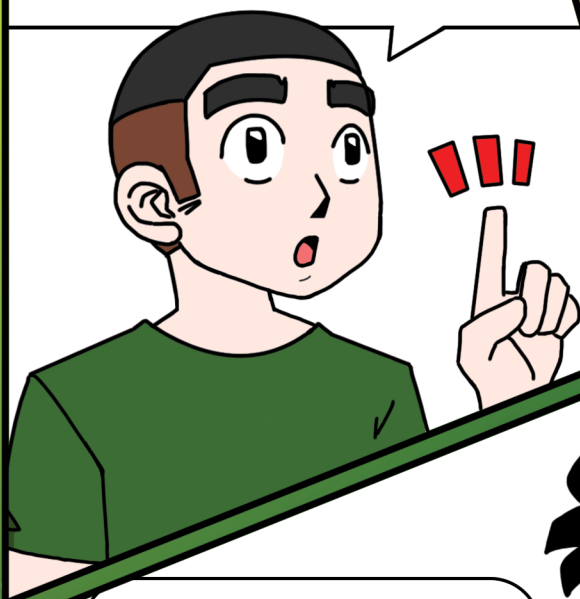
MEKANIKOMIKS: "Patok ang RCEF!"



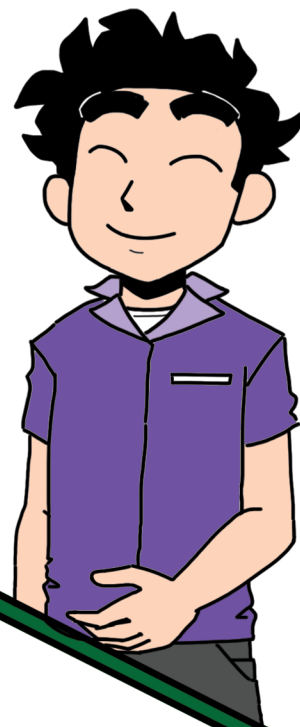


SA ANIM NA TAON, MAGBIBIGAY
NG LIBRENG SEEDS, MAKINARYA,
TRAINING COURSES AT CREDIT
PROGRAMS PARA SA MGA
QUALIFIED FARMERS'
COOPERATIVE AND ASSOCIATION

BIRO MO, NOONG 2021,
FIRST TIME NATING
MAKA-ANI NG 19.96
MILLION METRIC TONS!?!
PINAKAMATAAS NATIN YUN!



ANG RCEF AY BUNGA NG RTL. MAGANDANG
PROGRAMA ITO! HINDI LANG AGARAN ANG
EPEKTO, PERO SIGURADO NA MAGANDA RIN
KALALABASAN NITO!



AT SA SUSUNOD NA
MGA TAON, INAASAHAN
DIN NA TATAAS PA
LALO ANG KITA NG
ATING MAGSASAKA, AT
MATATAPATAN PA NATIN
ANG MGA KARATIG
BANSA.



WOW!!

WAKAS...

HE SAID, SHE SAID...

Interviewed by:
Christine V. Ang
Don Miguel C. Capariño

Bakit mahalaga ang mekanisasyon?



Mahalaga ang mekanisasyon para mag-improve ang agriculture. Lumiliit ang gastos at nababawasan ang ginugugol na oras at efforts ng mga magsasaka ng palay dahil dito.

REYNALDO ANDRES

Manaoag, Pangasinan
Extension Worker, Municipal Agriculturist Office



Mapapadali ng mekanisasyon ang pag proseso ng ating ani. Marami kaming magsasaka na maliit lang ang kita at dagdag gastos pa ang pagdala ng aming produkto sa lungsod para ito'y ipa-mill. Wala naman kaming pera para mag-mill. Pag mag mechanize, mas mapapadali ang trabaho.

JUANALISA JULIETTA GALVEZ

Kalilangan, Bukidnon
Member, Kalilangan Farmers Multipurpose Cooperative



Mataas ang gastusing pambukid sa Calapan kaya itinuon ko ang aking atensyon sa *mechanization*. Natutunan ko na pwedeng pababain ang gastos sa tamang paghahanda ng lupa at paggamit ng mga makinarya (gaya ng mechanical transplanter)

ROBERT GRANTOZA

Farmer, Calapan, Oriental Mindoro
President, Personas Farmers Association
(Sourced from PhilRice)



ITO ANG PHILMECH

Nagsimula ang DA-PHilMech bilang National Postharvest Institute for Research and Extension (NAPHIRE) noong 1978 sa pamamagitan ng Presidential Decree No. 1380. Ang NAPHIRE ay naging attached agency ng Department of Agriculture noong 1986. Naging Bureau of Postharvest Research and Extension (BPRE) ito noong 1992 dahil sa Executive Order 116. Ang BPRE ay naging DA-PHilMech noong 2009 dahil sa EO 366 o ang Rationalization Program ng gobyerno.

Isang malaking tagumpay ang makamit ng bansa ang pinakamataas na ani nito na 19.96 million metric tons. Malaking pasasalamat sa ating mga magsasaka na nagpapakahirap magtrabaho upang may maihain na pagkain sa mga hapag-kainan.

Sa ikatlong taon ng programang RCEF, marami na rin ang naibigay na tulong ng PHilMech sa mga magsasaka tulad ng makinarya at pagsasanay. Darating ang panahon na maaari nang makipagsabayan ang bansa sa mga karatig na bansa sa larangan ng agrikultura.

Nagustuhan mo ba ang aming magasin? Ipa-alam sa amin ang gusto n'yong makita sa susunod na isyu! **I-scan ang QR Code gamit ang inyong smart phone para masagutan ang survey form!**



SCAN ME

Ang BRIMM ay nagbibigay ng oportunidad sa ating mga magsasaka, processors, at small-holder entrepreneurs ng isang murang micro-milling machine para sa brown rice production. Kayangkaya din ito gamitin ng kababaihan!



**DA - PHilMech
BROWN RICE MICRO-MILL**

