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Philippine Center for Postharvest Development and Mechanization

The Filipino Farmers
and the Agricultural Tramline
System

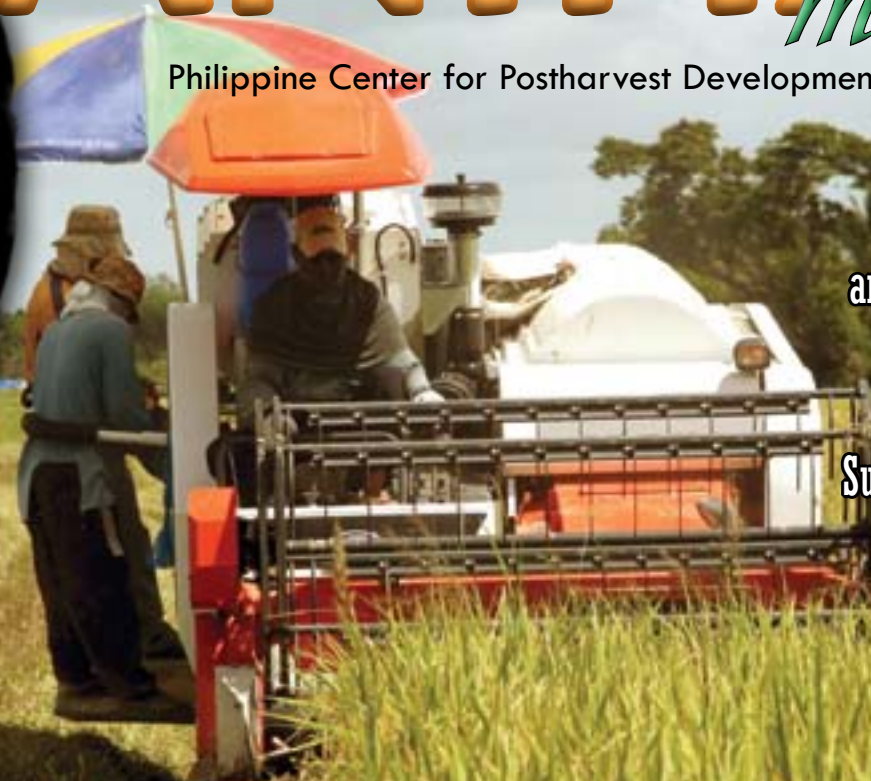
Technology Adopters
Succeed in their Agri-Ventures

Larawan ng Matagumpay
na Magsasaka

Hi-Tech na si Mang Juan

Si Mang Lao
at Iba Pang Nagsipagtapos
sa Radyo Eskwela

Engr. Rex L. Bingabing:
Up-Close and Personal





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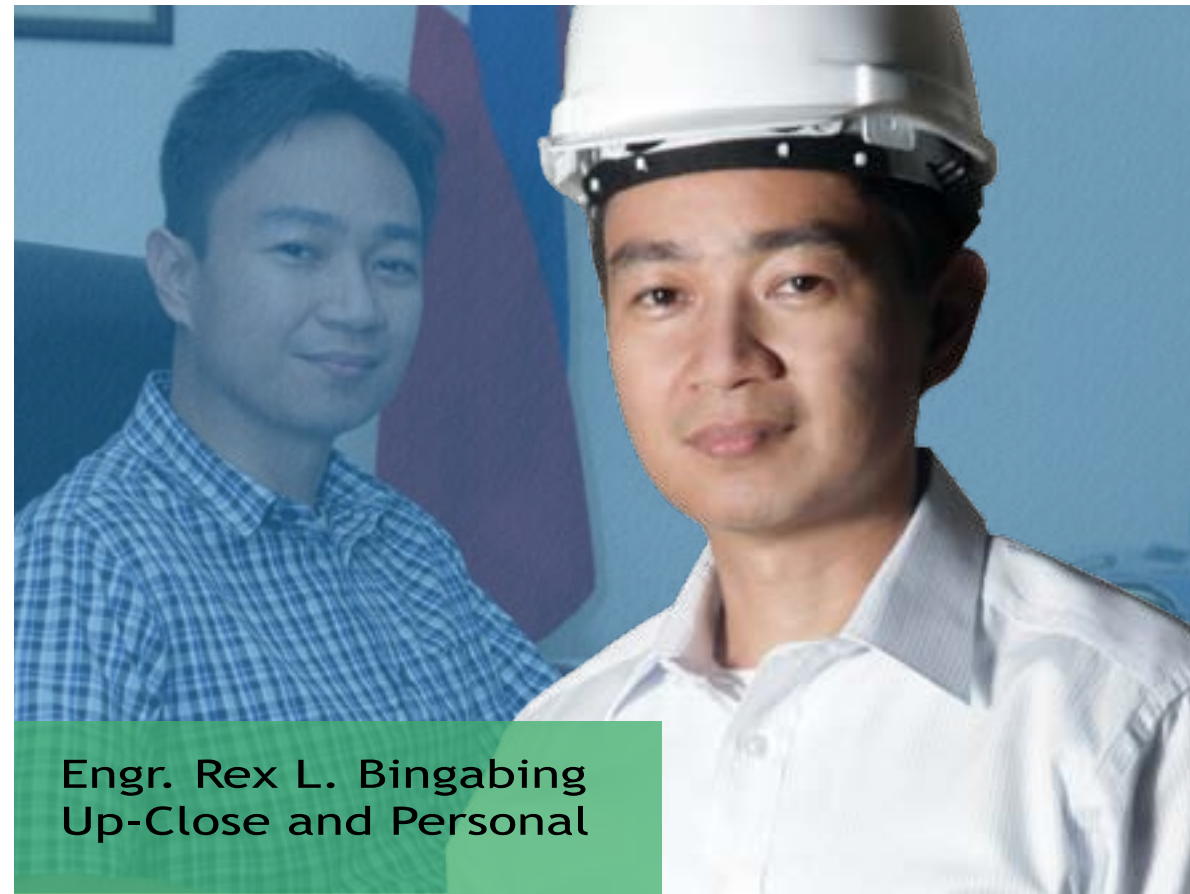
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Hi-Tech na si Mang Juan



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Matagumpay na
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Up-Close and Personal



PHilMech Gem:
Rising from the Ranks



Dangal ng PHilMech

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Inside a Researcher's Soul



Editorial

Reaping the Harvest

Anihan, the Tagalog word for harvest time, is our magazine name. And rightly so because we want to feature the fruits of the toils of people in the postharvest industry. We want to show outstanding contributions of our farmers, our partners, our researchers, our leaders. And pick some lessons from their success.

This publication is the first released magazine of the Philippine Center for Postharvest Development and Mechanization (PHilMech). It will be a yearly publication covering less publicized PHilMech advocacies. So expect themes on gender and development, organic agriculture, climate change and other relevant concerns in the industry in our forthcoming issues. But for this issue of Anihan Magazine, we covered selected success stories of PHilMech both from the field and from the ranks.

A bi-lingual publication, we want to reach out to our readers regardless of status, location and profession. It is our way of recognizing the importance of both Filipino and English languages in disseminating information on postharvest and mechanization.

People-focused, we want this magazine to feature the man behind the technology or the woman behind the idea. We want to give prominence to the most important asset of any organization— its people--the ordinary and the extra-ordinary with a story to tell, to inspire, to move.

Our thanks to all the people who made this magazine a reality. Maraming salamat. Hanggang sa muling Anihan.



“..We want this magazine to feature the man behind the technology or the woman behind the idea. We want to give prominence to the most important asset of any organization— its people—the ordinary and the extra-ordinary with a story to tell, to inspire, to move.”

The Filipino Farmers and the Agricultural Tramline System

by Jett Molech G. Subaba

He passes through deep ravines, crosses rivers, goes up and down the rugged, steep and seemingly unending terrain, while he carries heavy sacks of produce, down to the nearest road accessible by vehicle... Uh-oh! This is not a sacrificial act on a Lenten season, but an ordinary hauling task of an upland farmer in the mountainous region of the country.



goods is scarce, especially during the peak season of harvest and farm operations.

temperate fruits and vegetables. However, this can be spoiled by problems of drudgery in hauling, cost of transport, high postharvest losses and low productivity.

The Agricultural Tramline

The establishment of the Agricultural Tramline System (ATS) is the technology answer by the Philippine Center for Postharvest Development and Mechanization (PHilMech) to the sentiments of the upland farmers in the Philippines.

The agricultural tramline system is an alternative transport system for farmers in areas isolated from road network because of ravines, rivers, and dense vegetation. It is a hauling facility using cables and

land because of risks and costs of upland farming. Some abandon their land, some migrate to lowland areas.

Yes, upland farmers literally carry their own crosses every time they bring their produce to the nearest road market. They risk even their own lives just to turn their farm produce into money as they transport these to the nearest market centers.

In worse scenarios, land owners or farmers in the mountainous areas opt not to cultivate their

Given the drudgery of manual hauling, the cost of transporting the farm produce from the production area to the nearest road is quite expensive (Idago, 2009). According to a study of Paz (2003), the transport cost would range from 20 to 30 percent of the value of the produce. At times, the available manpower for transporting the

In the Philippines, more than half of the vast agricultural areas can still be considered as either idle or unproductive. This can be attributed to the country's mountainous topography and the inherent problems associated with it (Idago, 2009). It is reported that 28.7 percent of the country's land area or 8,557,479 hectares are steeply sloping while 6 million hectares have 30 to 50 percent slopes and over 2 million hectares have slopes greater than 50 percent (De Jesus, undated).

The potential of highland farming is vast particularly for

pulleys to transport agricultural products and inputs from isolated farms to the nearest roads. It can carry 150 to 500 kilograms of produce.

The benefits of this system include less drudgery in hauling of agricultural produce and farm inputs, improved product quality and reduced losses, increased yield and income of the farmers and labor opportunities.

In 1996, a pilot mono-cable tramline was established in Atok, Benguet for research purposes. In 2000, bi-cable tramlines were installed in Buguias and

Kabayan, Benguet. In 2009, the Department of Agriculture released funds worth P200M for the nationwide implementation of the tramline program.

Today, there are 126 tramlines built in the most strategic places in the Philippines. Ninety seven are already completed, while the remaining 29 units are still under implementation.

Beneficiaries of the Tramline

The sustainability of any intervention still lies on the people who can work and become productive with it. The

establishment of the agricultural tramline births the different organizations and associations of farmers in the upland areas in Luzon, Visayas and Mindanao. These organizations are tasked to operate, maintain and keep the facility safe.

One of the beneficiaries of the tramline in northern Luzon is the Liang Bunglo Farmers Association in Atok, Benguet, an organization of 35 farmers that produces cabbage, carrots, potatoes, celery, broccoli, flowers and chayote. This 23-year-old organization experienced increase in membership (from 15 members) since they were

granted the tramline in 2011. Today, the organization is planning to extend the reach of the technology so other barangays would also benefit from it.

Another beneficiary is the Taloy Sur Bauek Tramline Farmers' Association, in Tuba, Benguet.

Before, they struggle against the drudgery of hauling especially with their top commodity, chayote, since they have to cross strong current river up to the mountainous areas. They experienced great losses in the cost and quantity of their produce before it reaches their market in Urdaneta, Pangasinan and La Trinidad, Benguet. But not after they received the facility grant in 2010.

One of the first recipients of the newly designed tramline which can accommodate people is the Sampaloc Agricultural Tramline Association, a group of coconut farmers in Sariaya, Quezon. They experienced an express transport of their produce since the tramline was granted to them. Compared to their usual hauling experience of almost two hours using horses or human labor, today in few minutes, their produce reaches the nearest road market.

In the Visayas, farmers of Brgy. Tagukon in Kabankalan City, Negros Occidental also benefit from the tramline.

The problem of farmers from this area is the strong current river that separates their farming areas to the nearest road market. Because of the facility, however, both drudgery and cost of hauling were cut down. Their commodities include sugarcane, corn, mango and sweet potatoes.

In Mindanao, a group of tribal councils in Barangay Sibulan, Davao City greatly benefits from this facility. They are called Sinabaddan Kag Tugallan which means tribal chieftains. The idea of acquiring the facility in their area is a product of their Barangay Development Plan which aims to seek projects that will help improve the livelihood of their community. Tramline is one of their dream facilities since it can reach remote areas in their barangay.

Three sitios are benefitting from this facility: sitio Mitondo, Sinurungan and Catalilan. Their commodities are chayote, string beans, banana and squash. They are also using the tramline for livestock and grocery products.

Benefits of the Tramline

Minimized Drudgery in Hauling

One of the promised benefits of the agricultural tramline is the minimized drudgery in hauling agricultural produce. This was significantly experienced by the different farmers who adopted this technology for years now.

Farmers from Luzon, Visayas and Mindanao who adopted the technology have testimonies on how tramline decreased the laborious process of hauling of their agricultural products and how tramline reduced the risk of accidents among farmers. According to Mr. Anghel Fernando, a councilor in Brgy. Tagukon in Kabankalan City, Negros Occidental, farmers in their barangay, would need to pass through steep terrains and ride boats to cross a river in order to market their farm produce. This would take them two hours or more, depending on their strength and ability to carry loads of produce all throughout their journey. But with the tramline, life becomes easier for the farmers.

“Dati mahirap ang pagdadala ng produkto kasi buhat buhat ang mga ani pababa sa ilog. Tapos, malalim pa yung ilog kaya sasakay pa ng bangka para makatawid. Kapag rainy season, ‘yan ang mas mahirap dito kasi ang current ng tubig sa ilog ay malakas,” said Mr. Fernando.

“Ngayon sa tramline, hindi na mahihirapan ang mga tao sa pagtransport ng mga producto nila galing sa kabilang bundok dahil madali nang makatawid. Imaginin mo dati more or less 2 hours, ngayon, 3 to 5 minutes na lang,” said the 61 year-old tribal chieftain.

The same is the story of a group of farmers in Barangay Sibulan, Davao City. Mr. Hernan Ambe, president of the Sinabaddan Kag Tugallan, shared how tough and risky it was for farmers to haul their produce. Horses are available for hauling in the area but tramline is significantly faster and safer.

“Dati, kapag naabutan ka ng ulan sa gitna ng daan at kapag tumaas ang creek, maiiwan na sa biyahe yung mga produkto.”

Pati mga baboy kapag dadalhin sa taas, mamamatay pa ito. Ngayon, kahit umuulan mas mabilis na ang paghaul. Yung paglabas ng karga mas madali, kasi kung sa kabayo almost 45 minutes eh, kung sa tramline 4 to 5 minutes lang,” said Mr. Ambe.

In minimizing drudgery, nothing beats the experience of the coconut farmers in Sariaya, Quezon. Prior to the introduction of the agricultural tramline, they would need to walk through seven kilometers of steep and rough roads down to a river and ravine before they get into the nearest road market. With the agricultural tramline, they now experience speedy transport of their produce.

“Dati, malayo nilalakad namin, iikot pa kami at bababa sa may ilaya papunta sa mga lupang sinasaka namin. Siguro mga pitong kilometrong lakaran ‘yun hindi gaya sa tramline, ilang minutes lang,” said Allan Villelas, operator of Brgy. Sampaloc Agricultural Tramline in Sariaya, Quezon.

Time wise, the Liang Bunglo Farmers Association in Atok, Benguet also experienced how they saved time in hauling through the use of the said technology.



“Malaki pagbabago sa pagbubuhay ng mga gulay namin e, madaling iakyat yung produkto namin. Maraming masasave na time. Noon, umaabot kami ng isang araw, ngayon oras lang. Ngayon pwedeng isang araw lang nandun na sa trading post—Harvest ka ng umaga, afternoon nasa trading post. Noon, harvest mo isang araw, kinabukasan mo ipupunta sa palengke,” shared Mr. Zaldy Lepago, chairman of the association.

With the agricultural tramline, farmers from all over the country save up to 95 percent of their usual time spent in manual hauling. This faster hauling experience also implies better quality of produce (especially vegetables) when it arrives at the market and new opportunities to improve their farm inputs like the farmers of Tuba, Benguet.

“Dati, gumagamit kami ng synthetic fertilizer dahil kahit ilang sako lang marami na ang malalagyan mo. Pero ngayong may tramline na at madali na ang mga-transport, pwede na kaming gumamit ng chicken dung at iba pa,” said Ignacio Kalinggan, president of Taloy Sur-Bawek Farmers’ Association.

Less cost, more savings

Aside from the express hauling process, tramline has indirectly

increased farmer’s income and yield by the reduced hauling cost and losses on farm produce. One significant story of how tramline reduced the cost of hauling is the story of the farmers of Brgy. Sampaloc in Sariaya, Quezon.

“Malaking bagay ang meron nito, gawa ng dati dinadaan pa sa ilaya. Ang gastos nila ay aabutin ng Php150, eh ‘pag dito bale gagastos lang sila ng Php40,” Vilella shared. Compared to the original cost of hauling, famers on this area experienced an almost 72 percent drop in hauling cost with the use of the tramline system.

Taloy Sur-Bawek Farmers Association which grows chayote, beans, sweet peas, Chinese pechay, green pepper and sweet potato in Tuba, Benguet, also enjoyed a significant 83 percent drop of their hauling cost of commodities. From P3 per kilo via convoys, now they only have to pay 50 centavos for every kilo of their vegetables in hauling through the tramline system.

One of the problems with manual hauling through convoys or horses is the losses incurred

on the produce especially vegetables and bananas. This was the problem of Benguet and Davao farmers which was met by the tramline system.

“Sa manual hauling nasisira yung gulay. Nagagagasgas yung skin ng bagong harvest na patatas.

“Ngayon sa tramline, hindi na mahihirapan ang mga tao sa pagtransport ng mga produkto nila galing sa kabilang bundok dahil madali nang makatawid.”

Sa market mas mababa na ang value, iitim kasi (yung patatas). Sa tramline, maiiwasan yung mga pagkasira.” said Cristina Backian, member of the Liang Bunglo Farmers Association in Atok, Benguet.

The farmers of Sinabaddan Kag Tugallan and Barangay Sibulan, Davao City testify how the tramline preserved the quality as well as reduce the losses among their quality export bananas.

“Kapag magtanim ka ng malaki dun (sa kabilang area), mag-aalanganin ka. For example sa saging, saan mo ilalagay ang ganun karami, sinong mag-tatransport kundi ang kabayo.

Doon pa lang sa daan marami na ang bruising (Staining or damages), hindi mo na ito maibebenta sa tamang presyo. Ang naitulong ng tramline sa amin, kapag nilagay mo na sa tramline ang iyong mga produkto wala na ang bruising,” said Mr. Ambe, a tribal chieftain of Bagobo sub-tribe Tagabawa.

Reduced losses and lower costs mark significant effect on the income and yield of farmers who adopt this technology. Why would you spend more on manual hauling and take the risk of losses on your produce, if tramline is available? With this system, you have less

cost and less losses, thus more savings.

Social implications

The agricultural tramline system is gradually changing the face of upland farming in the Philippines. Now it is easier, cheaper and faster to haul agricultural produce and inputs.

Farmers who are engaged in upland farming are increasing because of the promising advantages of tramline. Landowners who abandoned their land in the mountainous areas see better opportunities again on the highlands, thus untilled lands started to become

productive once again and more livelihood potentials are opened. Farmers in Tuba, Benguet began to till the lands they own in remote areas because of the agricultural tramline. Some expanded their land because of the easier hauling of produce. Some also returned to the area because they saw potentials for livelihood at the highlands.

He said, “Malayo kasi (yung mga lupa) kaya hindi namin sinasaka ang mga lupa namin. Ngayong may tramline na, nakikita nila na mas madali na ang pagsasaka namin. Magaan na ang pagtrabaho namin. Malaki ang naitulong ng tramline sa pag-transport ng karga, kasi malayo ang nilalakad namin noong wala pa ito. Minsan nga, kapag mababa ang presyo ng sayote, hindi na nila hina-harvest kasi malulugi lang sila. May kasamahan pa nga kaming lumipat d’yan sa part ng La Union bumalik na ulit dito, nagtanim na ng sayote d’yan kasi meron nang tramline.”

Sariaya Farmers, on the other hand have experienced increased in the number of members. Farmers also became interested again in coconut farming because of the benefits of the Agricultural Tramline.

Allan Vilella, tramline operator, said, “Ang epekto ng tramline sa amin ay dumami yung mga nagsasaka, halos doble ang naidagdag na nagsasaka dahil ang tuwa nila nung nakita nila ang pakinabang ng tramline na ito.”

Meanwhile, in a survey conducted by the officials of Barangay Sibulan in Davao City, more than 18 households have returned to the different sitio’s of the barangay—Mitondo, Sinurungan and Catalilan, because of the impact of tramline in their society.

Roseta Abalayan, the barangay chairwoman, said, “Sa ngayon marami nang bumalik sa area kasi alam na nila yung sa tramline. Sa survey natin, 18 households na ang bumalik na sa area. Ngayon nakita na nila na instead na magbabayad

sila ng P2 gamit ang kabayo dati, ngayon nandyan na yung tramline. May advantage sa kanila kasi piso per kilo na nalang.”

Aside from these social effects, this intervention in upland farming has also empowered the people. They learned to be more productive with the available resources they have. Farmers organized themselves in small groups where the values of cooperation, leadership and self-reliance are being developed. They are able to manage and maintain the tramline and create new income opportunities.

Today, an upland farmer refuses to even imagine farming without the agricultural tramline system. Tramline has not only boosted

the upland farming in the Philippines, it has significantly improved the lives of every ordinary Filipino farmer in the uplands.

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Technology Adopters Succeed in their Agri-ventures

by Modesto L. Jose



Peter Drucker, an Austrian-born American management consultant, educator, and author on modern business corporation once said, “The entrepreneur always searches for change, responds to it, and exploits it as an opportunity”.

This saying perfectly describes Dr. Romulo H. Malvar, president of Marinduque State College (MSC) and Mr. Vic Mendoza of Keño Foods Inc. as they searched, adopted and utilized technologies for the jumpstart of their business ventures.

Dr. Malvar and Mr. Mendoza were on search for changes. Dr. Malvar searching for product development of rimas in the province while Mr. Mendoza searching for something new with his tilapia growing business.

It was only their encounter with the Multi-Commodity Solar-Tunnel Dryer (MCSTD) that their long search has come to an end.

Giving Value

In Marinduque, rimas also known as breadfruit (*Artocarpus communis*) grows abundantly in the province. Although rich in starch, vitamin C and minerals, Marinduqueños have not noticed the importance of rimas. This was something that triggered Dr. Malvar to search for other uses of the said fruit.

The MSC’s tour to Nueva Ecija was a blessing in disguise. They visited the site of Kababaihang Masigla ng Nueva Ecija (KMNE) for a study tour. KMNE is an association of rural women in Ilog Baliuag, Quezon, Nueva Ecija which is also an adopter of Multi-Commodity Solar-Tunnel Dryer (MCSTD). Mrs. Vilma B. Joson, President of KMNE inspired Dr. Malvar to adopt MCSTD for rimas product development.

“Mrs. Joson is using the technology to dry a wide gamut of food products. Then we got an idea of using the MCSTD in drying the breadfruit for flour”, Dr. Malvar recalled.

Through the request of MSC, PHilMech provided them with a unit of MCSTD. “Out of this dryer, we were able to produce flour. Our Research and Development team formulated a process of breadfruit flour production. The chips

are dried through the MCSTD for 7.5 hours or until it gets crispy and brittle.

When it reaches the 14 percent moisture content, it will be pulverized and packaged”, he revealed.

“It is only through the MCSTD that we were able to produce flour out of breadfruit successfully.”

He believes that because of the dryer, the neglected rimas in the province found its value. Marinduqueños are now aware of the benefits of the local fruit. Before, rimas has no value, it is free. But today, because of the innovation, rimas can be bought at P3 to P5 per piece. Consumers are now motivated to take care of their own rimas trees in their backyards.

Adding Value

Mr. Vic Mendoza, a Bulakenyo businessman was thinking of something that might improve his tilapia growing business. It was his first encounter with the MCSTD that brought him to a new

idea that processing tilapia is a good business. "I was into tilapia growing business before entering the tilapia processing industry. It started when I read the story of KMNE as one of early adopters of MCSTD in a PHilMech newsletter. I found out that tilapia can be processed dried through the technology", Mendoza declared.

In 2006, he visited PHilMech and inquired about the availability of the technology. With the center's assistance, a non-functioning MCSTD in Damortis, La Union was repaired and established on his site. Then Mr. Mendoza with his wife Susie asked for technical assistance in dried tilapia processing. PHilMech introduced Mr. and Mrs. Mendoza to Mrs. Vilma Joson, who's into processing dried tilapia known as "tilanggit" (tilapiang danggit).

"Si Mrs. Joson ang nagturo sa amin ng pagpo-proseso ng tilanggit. Tinanggap

kami ni Ma'am Vilma para i-share niya yung expertise niya sa paggawa ng tilanggit. Isinama ko noon 'yung asawa ko, dahil siya 'yung maalam sa pagluluto", Mendoza recalled.

Mastering the tilapia processing, Mr. and Mrs. Mendoza established Keño

Foods, Inc. producing tilapia crunch as the prime product. Demand in the market easily grew and

it became a hit to the taste of the consumers.

"Nakakapag-process kami (Keño Foods Inc.) ng 150 to 200 kilos ng tilapia crunch every operation. Usually nag-ooperate kami three times a week. (We can process 150 to 200 kilos of tilapia crunch every operation. We usually operate three times a week)", said Mendoza.

Seeing the continued growth of the industry, Mendoza added another two

units of MCSTD in his processing business and is planning to add seven more units once he enters the export market.

Grateful Adopters

Technologies provided by the government are indeed blessings to its beneficiaries. These paved the way for a sustainable and tremendous growth in business. Thus, they are thankful for these technologies.

Without the MCSTD, a local fruit rimas will remain unnoticed. Thus, MSC appreciates the effort of PHilMech in technology promotion. "It is only through the MCSTD that we were able to produce flour out of breadfruit successfully. In behalf of MSC, I am very thankful to PHilMech for entrusting us this kind of project. I guarantee that we will take good care of the technology", shared Dr. Malvar.

"Malaki ang tulong ng MCSTD dahil ito ang main drying unit ko. Hindi magiging posible ang malinis na pagda-dry ng tilapia kung wala ang MCSTD. Nagsimula ako sa business na MCSTD na ang

gamit ko at nag-fit talaga sa negosyo. Functional ito at practical... functional kasi nagagamit talaga 'to at practical kasi hindi naman ito mahal", Mendoza shared.

Not Just the Technology

Technology investment is not the sole determinant of success. A myriad of factors come into play. One of these is the leadership of the head of the organization. This is very important in attaining the goals of the team.

Strong determination is one of the best tools a person must-have to succeed. And Dr. Romulo H. Malvar of MSC has it. He is undeniably a man who walks his thoughts and works his plan to achieve what he envisions. Thus, reaping the triumph of their flour production at MSC is not far beyond reach.

Moreover, courage is what Mr. Vic Mendoza of Keño Foods Inc. has to achieve success. As he continues to take risks, strives harder, his business is sure to make a name in the local and international dried fish processing industry.

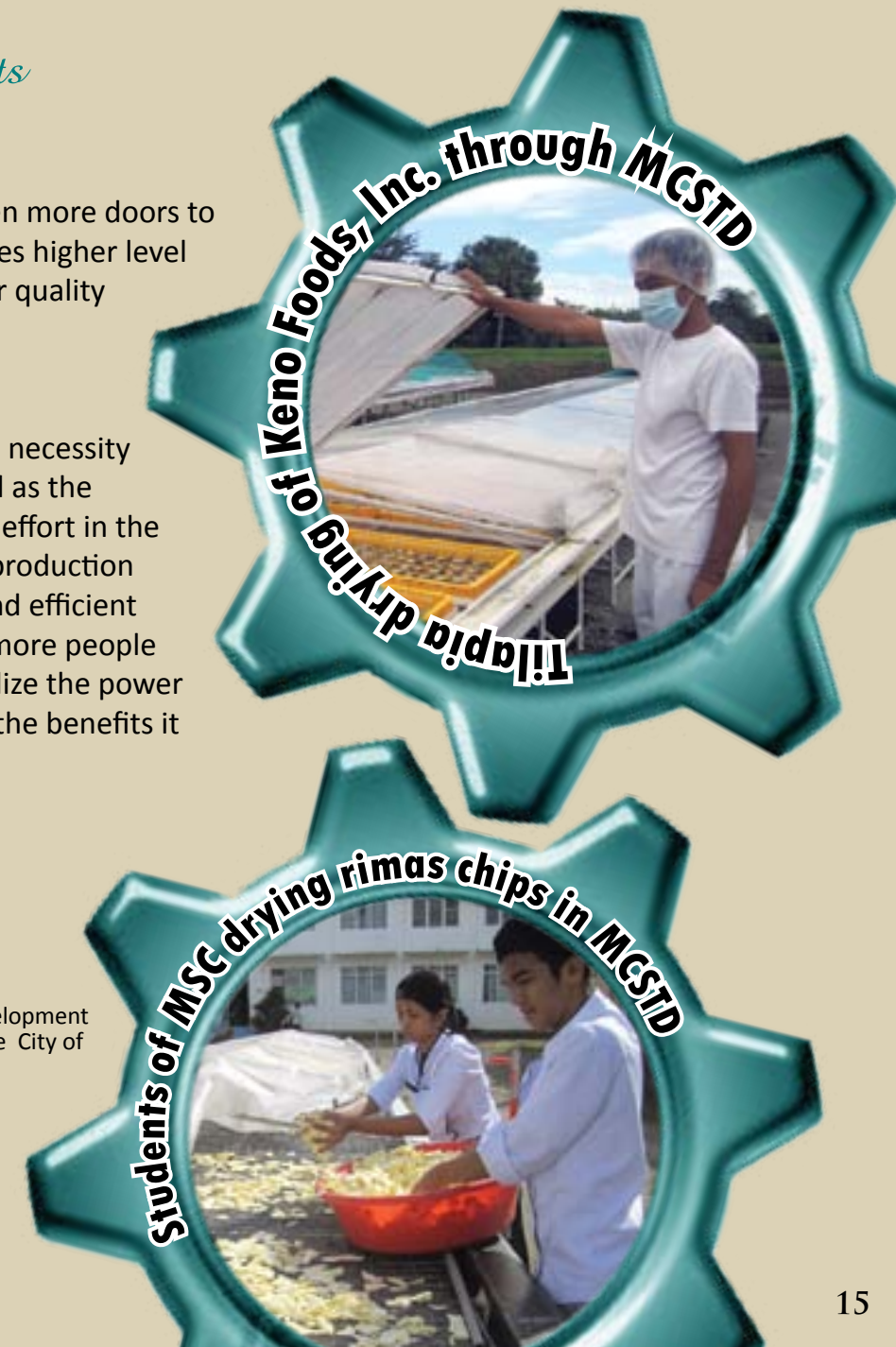
Reaping the Fruits of Innovations

Indeed, technologies open more doors to positive people. It provides higher level of productivity and better quality products.

It cannot be denied that technology is an ultimate necessity in business ventures. And as the government exerts more effort in the research, development, production and promotion of new and efficient technologies, more and more people will be encouraged to utilize the power of technology and enjoy the benefits it brings.

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Partner in

R D & E



Pioneering spirit in agricultural machinery manufacturing finally soars high

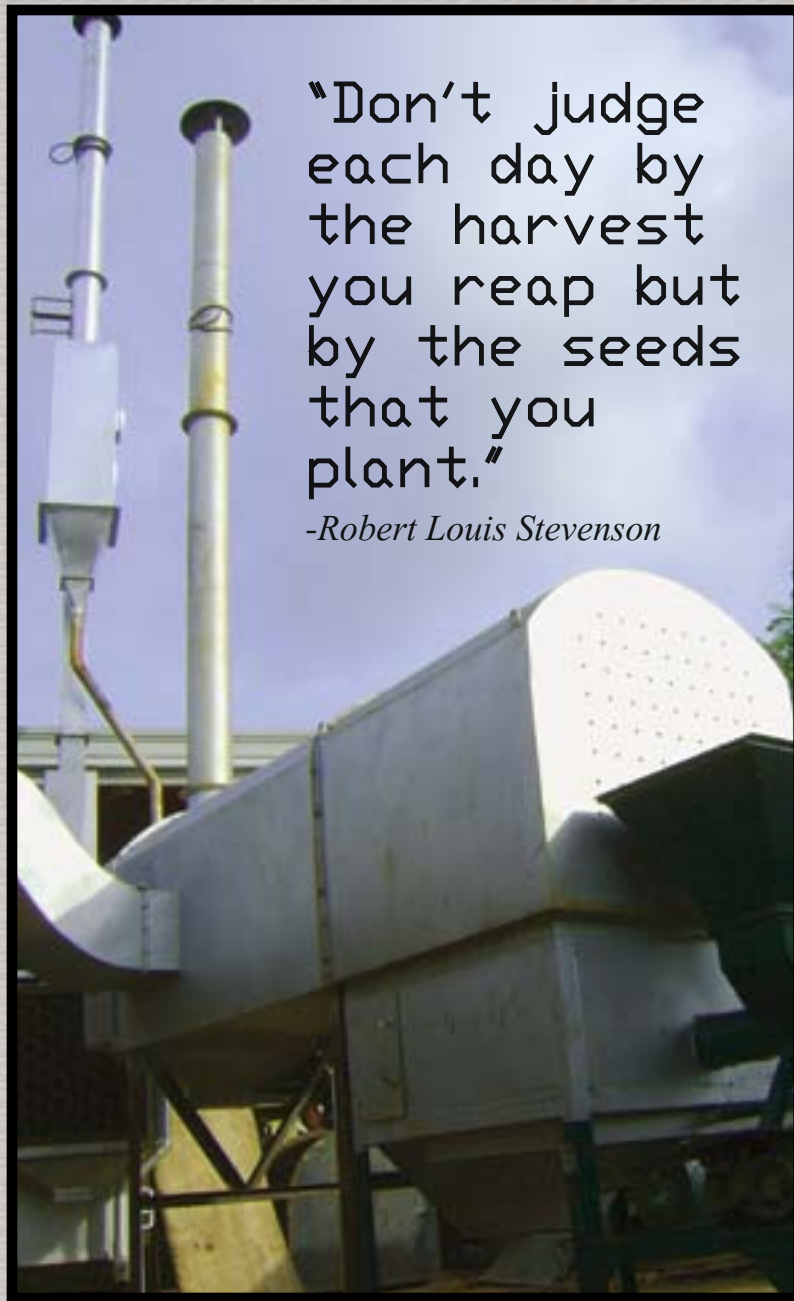
by Rodolfo P. Estigoy, Ph.D.

He can make a casual talk turns into a spirited and sparkling conversation by his special antics peppered with jokes and jesting. His passion and raw spirit to discover and pioneer made this young entrepreneur to venture on his own in the agricultural machinery manufacturing sector. And success he reaped in due time!

Investing his small fortune that he earned after early retirement from his marketing stint in agricultural machinery, Engr. Vic Ocon, an agricultural engineering graduate in 1991 from the University of Southeastern Philippines, in Tagum, Davao del Norte, took high risks after struggling at a crossroad of his career for three years. He considered however that this step was his baptism of fire in search for a new adventure and a turning point of his chosen career. He now owns his own company, the SUKI Trading Corporation strategically based in Mactan, Cebu, the hub of the Visayas cluster of islands.

From his small beginning of a fledgling company, he now leads and manages a multi-million agricultural machinery manufacturing plant with multi line products and services. He attributes his success to his pioneering





“Don’t judge each day by the harvest you reap but by the seeds that you plant.”

-Robert Louis Stevenson

spirit to venture and tread on unfamiliar territories and untested grounds.

Let us closely get to know how this young agricultural engineer and entrepreneur surpassed his expectations when he ventured into manufacturing farm equipment and machinery notably PHilMech designs.

RPE: When and how did SUKI Trading Corporation start?

VTO: I started the corporation in 2001 after my early retirement from agricultural machinery sales. With the small separation pay I got, I invested it in agricultural machinery manufacturing in Mactan Island, Cebu through the Suki Trading Corporation.

RPE: When did you get involve with PHilMech?

VTO: I was invited by the then BPRE, now PHilMech, to a seminar that oriented the participants on the latest designs the agency has produced. I got interested to join

and I applied for accreditation in 2005 for the fabrication of flat bed dryers to be supplied in the Visayas Region. That started my strong link with a research and development (R&D) agency which I can bank on for sourcing out innovations particularly new designs of postharvest technologies and machinery.

RPE: What benefits did you get as PHilMech accredited manufacturer?

VTO: I can access from PHilMech new designs for mass manufacturing because I am an accredited manufacturer. This saves me in doing my own research and development work. The new designs from PHilMech eventually become my new product lines.

RPE: How did your being an accredited manufacturer expand your business opportunities?

VTO: I initially started as supplier of flat bed dryers in all Visayas regions in 2009. Since then, I have already sold about 400 units of the FBD under a government program. But on top of this, private groups also purchased the FBD to be used in their palay trading and processing business. This gave me expanded market through the good feedbacks from the previous users of the FBD. Similarly, I was invited by PHilMech to collaborate in the conduct of new research and development projects notably among them was the design of a coco-peat dryer in Quezon Province. The other R&D results I learned from technical seminars of PHilMech give me fresh

ideas on what products would command a high demand in the market. All these, contribute to the expansion of my business opportunities.

RPE: How do these opportunities affected your business operations?

VTO: I started my corporation renting a small 50 sq meter space with only five employees. After all these opportunities that came along, my capitalization increased dramatically and I was able to acquire a 2,000 sq meter plant with 45 people employed to do various jobs in agricultural machinery manufacturing.

His penchant and advocacy for the environment is also paying off well for Engr. Ocon. His product lines to save mother earth portable non-biodegradable shredder machine, heavy duty biodegradable shredder, and noble inventions to convert plastic to fuel and wastes to energy are best selling not only here in the Philippines but as far as the Asia Pacific region.

His biggest challenge in the agricultural machinery manufacturing sector is how to get a bigger market share from larger companies who dominate the market. As such, he is aspiring that his manufacturing plant in Cebu will be a one stop shop for stakeholders in agriculture from land preparation to harvesting to processing technologies of various agricultural commodities.

For PHilMech technologies, he has so far mass produced the multi-commodity solar tunnel dryer (MCSTD), cocopeat dryers for DAR Projects and the flat bed dryer. His other postharvest technologies include cassava grater, hammer mill, fish dryer, decorticating machines, corn mill, single-pass rice mill, root crops granulator, coffee huller, peanut roaster, double pass rice mill and many farm implements.

Banking on his street smart business acumen and his raw spirit to venture on new grounds, this pioneering young manufacturer considers his association with PHilMech as big advantage. This gives him a leverage specially in access to new designs and developed machines. He has also collaborated in joint ventures in the conduct of R&D because he believes that this is more efficient and cheaper than doing it on his own.



Interview



*Engr. Rex L. Bingabing:
Up-Close
and
Personal*
by Ana Marin A. Cajucom

A man of few words, you rarely hear his voice. But when you do, either he makes you think or makes you laugh. At times, he sits with his staff, shares his ideas and stories, then he cracks jokes. He is intelligent, gentle and generous.

PHilMech Director Rex L. Bingabing is a hardworking person who leads by example. You will hesitate to be late or be absent because he comes to office early and works overtime even on weekends and holidays.

The interview that follows reveals more of this cool guy and good boss.



Q: What was your reaction when you learned that you will be the next PHilMech director?

A: I was surprised. I was first offered with the position as early as January of 2012. But I was apprehensive at first since I have no experience working in a government institution, much more being the head of one. I accepted the position around April, but I asked the Secretary to delay my appointment sometime June or July so I can finish my other commitments. But the appointment came out early May so I was really surprised.

Q: What is your impression of PHilMech then? What is your impression of PHilMech now?

A: Honestly, I have no idea of PHilMech before. I only heard about the agency when I was offered the position. So at first, I really don't know what to expect. I was impressed though with their projects.

I find most people here very professional and dedicated to their work which was different from my previous notion of people working in government agencies.

Q: Was working with PHilMech a culture shock to you considering that you worked in the private sector for a long time? Why? How would you differentiate working in the government and private sector?

A: It was a culture shock. First, I hardly knew anyone from the agency or the DA. And I have to

interact with other agencies.

I had to be familiar with the system, the bureaucracy. It was very different working in the private sector where you have more flexibility. I have to be familiar with the past and existing programs of the department, and these are implemented on a national scale. The magnitude of responsibilities is much more in heading a government agency as compared with heading a private company.

Q: What accomplishments would you like PHilMech do while under your administration?

A: I would like PHilMech to really have a great impact in the agricultural sector. This means that we should be able to generate and commercialize

more technologies. Technologies that are appropriate and really be useful and will benefit the farmers.

Q: What is your vision for PHilMech for the next five years? 10 years?

A: In 5 years, I would like PHilMech to establish close ties with the private sector in conducting R&D. I think this would allow us to accelerate R&D works. In 10 years, hopefully, all priority commodities of DA would have incorporated PHilMech technologies.

Q: What legacy do you want to leave as PHilMech director?

A: Hopefully, I can impart new ideas in the way PHilMech does its R&D. Make development

and adaption of technologies faster. I would like to establish a system where PHilMech can establish closer ties with the private sector in our R&D. This would make commercialization of our technologies faster and more timely. The usual phase from R&D to commercialization of even our simple technologies takes 3 to 4 years. This is too long especially nowadays that we see a lot of technological breakthroughs happening. Our technology might already be outdated by the time we have finished the process of R&D. Partnering with the private sector, even during the early stage of the development accelerates the process.

Q: Do you believe the Philippines will be fully mechanized in rice production

and postproduction? At what year do you think this will happen?

A: Yes, I think we're getting there. We are already seeing the influx of different farm machinery like the rice transplanter and the combine harvester. Two years ago, these machines were alien in the country. But now, a lot have already adopted them. I think with will be forced to go mechanized in agriculture. Other countries started way ahead of us. And with the challenge to be globally competitive to survive, we are forced to improve our productivity. This can only be done through mechanization and modern postharvest facilities.

Q: What about the social costs of mechanization? How should

the government deal with it?

A: They always say that mechanization would lead to labor displacement. But if we look at the current scenario, many areas are already experiencing shortage in labor in agriculture. By going mechanized, we would actually help our farm laborers to be more productive.

Also, the government should encourage the use of locally manufactured machines. If we can promote that, then we can create job opportunities for the agricultural machinery manufacturers. We will not only help the agricultural sector but the manufacturing sector as well.

Q: As an engineer, what do you consider your greatest

invention? What do you dream of inventing?

A: I don't know if any of my previous works can really be considered as inventions, probably innovations. In my previous company, I was able to design a 45-ton capacity Steel re-heating furnace. It was the second biggest re-heating furnace in the Philippines during that time. All the components of the furnace were locally designed and fabricated. I was also able to design and build the first direct fired galvanizing bath in the country. This is more efficient compared to the indirect fired galvanizing baths.

Before I became director, we were working on the design of an electric vehicle. After PHilMech maybe I can continue working on it.



Q: Who is Rex Bingabing when he is not the director of PHilMech? How would you describe yourself?

A: I'm just any normal guy outside PHilMech. People say I'm quiet, soft-spoken. But I joke a lot when I'm with my close friends. And even with my staff.

Q: What is your day like during regular weekend or during holidays?

A: During weekends, in the morning, I either run a couple of kilometers or hit the gym for an hour. After that, I usually just stay home and sleep. Something that I can hardly do during weekdays. Or watch movie with my wife.

Q: What are your hobbies? What do you love doing?

A: I used to play basketball or badminton. But I haven't done these in quite a long while.

Q: Any favorite reading material? TV show? Music?

A: Favorite reading material: magazines about cars and other technology magazines (FHM also, Joke!) Favorite tv shows : When at home, I watch movie channels, sometimes Discovery or National Geo. Favorite Music : slow rock.

Q: Your wife is an architect? Where did you meet? Any children?

A: We met in a project I was doing in Greenhills Shopping Center. That was in 2003. We got married in 2009. We have no children yet though.

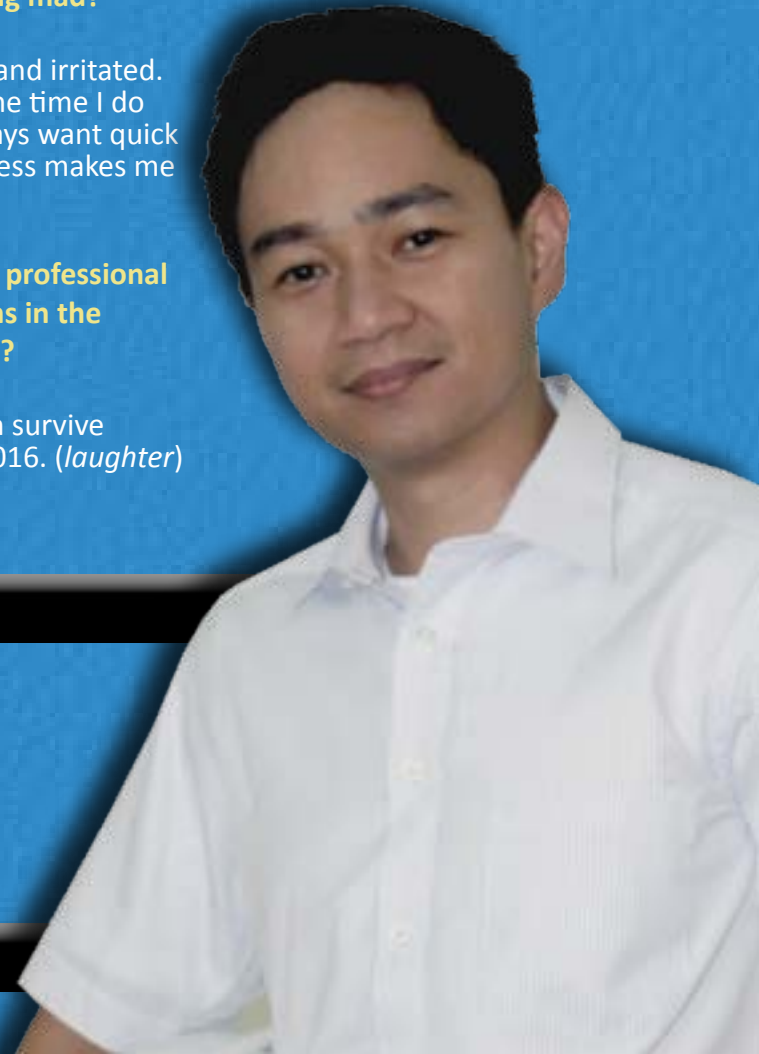
Q: People see you as a silent, soft-spoken director. Do you also get mad? What makes Director Bingabing mad?

A: I also get mad and irritated. Though most of the time I do not show it. I always want quick results. Slow process makes me impatient.

Q: What are your professional and personal plans in the immediate future?

A: Hopefully, I can survive PHilMech up to 2016. *(laughter)*

After that, I plan to go back in the private sector. I used to be part of an engineering company before I joined PHilMech. I would be rejoining that after PHilMech. We do projects in construction and manufacturing. I plan to still continue being involved in agricultural mechanization even after PHilMech.



“I would like PHilMech to really have a great impact in the agricultural sector.”



PHil Mech Gem

Rising from the ranks

by Rodolfo P. Estigoy, Ph.D.

His humble beginnings as a lowly science research aide of the then National Postharvest Institute for Research and Extension (NAPHIRE) is no mean feat. In 1985, after graduating from the Central Luzon State University with a degree in Bachelor of Science in Agriculture major in microbiology, he was immediately hired by NAPHIRE. His first year of employment as science research aide with a meager daily rate did not discourage this fledgling neophyte with the makings of a scientist. He arduously decided in his heart that his initial assignment would eventually be a stepping stone towards success. And with fervor and ardor, success he reached in due time.

As a beginner in research work he was first involved in the design and development of storage using plastic membranes together with senior researchers of the then BPRE like Mrs. Filipina Caliboso and Dr. Gloria C. Sabio. This led to the modification of hermetic storage system applicable to the humid countries like the Philippines. The closed plastic enclosure storage technology has been eventually commercialized and adopted by the National Food Authority as one of their alternative storage system especially for long storage of grains in warehouses. His exposure in this field gave him a wide latitude of experience in seeking for solutions to postharvest of grains particularly rice and corn.





His field later on expanded in scope when he specialized in postharvest pathology for his graduate, post-graduate and post-doctoral studies in Japan as a scholar under Monbusho grants. He took his master of science in International Agricultural Development and Doctor of Philosophy in Agricultural Sciences at the Tokyo University of Agriculture where he graduated in 2000 and 2003 respectively. Three years after his post-graduate studies, he was granted a post-doctoral assignment at the same University.

His field of specialization in postharvest pathology has made a name for himself in the scientific community where he already contributed a sizeable amount of knowledge in this field. Notable among these was his discovery of a method for inhibiting crown rot-causing pathogenic fungi and crown rot disease in banana using a bacteria and fungi which have patent pending applications at the Intellectual Property Office. Dr. Alvindia is the principal researcher on a program to discover bio-control methods against postharvest diseases of tropical fruits like pineapple, mangoes and papaya. He has also written a dozen technical papers in his field of specialization published in international refereed scientific journals and another ten papers in international non-refereed journals.

Philippines: A Handbook for Taxonomists and Para-Taxonomists” which came out of the press in 2011. Two books authored by him entitled “Postharvest Disease of Non-chemical Banana: Issues and Concerns-Small-Scale Banana Production and Postharvest Problems” and Non-chemical Approaches of Managing Crown-rot Disease of Banana-Sustainable Alternatives to Chemical Fungicides” were published abroad in 2012 and 2013.

His current research work is a program of developing non-chemical strategies for postharvest disease management of tropical fruits with initial studies on banana and mango. His novel approach to research and development work includes integration of native bio-control agents with generally regarded as safe (GRAS) compounds, food additives, hot water treatment and improvement of cultural practices.

He also advocates the participatory research approach where he involves the end-users in identification of gaps and problems and employs their cooperation in the research process. His

He has also published his first book entitled “Fungal Diversity of Non-Chemical Banana and its Environs in the



pioneering work in biological control has been applied in the export of non-chemical bananas to Japan.

As part of his vast exposure, he also rendered consultancy work to Japan Fresh Fruits in 2008 in the management and control of postharvest diseases of banana imported from the Philippines, Taiwan, Ecuador and Dominican Republic.

He also served as reviewer or referee to scientific publications and books published by Elsevier, Springer, Taylor and Francis, Wiley and Sons, etc. He has also extended his expertise in the community by serving as affiliate professor at the Institute of Graduate Studies at the Central Luzon State University where he also advises graduate and postgraduate students.

Dr. Alvindia was conferred a Scientist I position by the Department of Science and Technology (DOST) in 2011 because of his wide array of experience and wealth of knowledge churned out from his R&D endeavors in the field of postharvest pathology.

His accomplishments in R&D work will be more felt when his discoveries will be formulated for commercial use in the agriculture sector. He is currently working in the wide scale commercialization of his biological control protocol to arrest diseases of fruits particularly crown rot which is considered a serious problem for tropical fruits.

As a budding scientist, Dr. Alvindia continues his quest for

knowledge and does not stop enhancing his expertise. Last year, he was granted a Fulbright post-doctoral stint in the United States to further hone his involvement in biological control. He is resolute in his stance to develop his full potential and he is now on the way to raise his rank as a scientist in the next level.

Dr. Alvindia’s journey from a lowly research aide to where he is now, is a classical epitome of climbing the ladder with sure steady steps coupled with careful career planning, industry and diligence.



“Try not to become a man of success, but rather try to become a man of value.”
-Albert Einstein

Essay

Inside a Researcher's Soul

by *Elijah Davalos*

Chesterton will never miss the paradox. Farming is unpopular in this agricultural land. This is no surprise where results of bar and medical licensure exams and military graduations merit front page news but not those whose work provide the most basic needs of all.

I remember in 1992, Dr. Gloria P. Jimenez, former Planning and Evaluation Department director of the National Postharvest Institute for Research and Extension (now PHilMech), urging us new entrants, to be proud with our work even though *"nagbibilang lang ng insekto"*. The snobbery slightly hidden, she used the story about the blind men describing an elephant each holding a different part of the pachyderm. You know the story, the gist of which is that, the thing described is greater than the sum of its parts. Meaning, as a member of an organization, no matter how lowly, contributes to the existence



of the same. She said that everybody within an organization, no matter how humble their function is, contributes to the realization of the corporate goals. And this should be enough to take pride in one's work.

In the undergrad days, the academe peppered us with too much concern on production. Never was a unit or topic taken to recognize the fundamental importance of the events that happen to the grains, fruits and vegetables after harvest. And I cannot exactly recall how our professors in economics considered after-harvest quality and price relations anymore.

Postharvest is full of challenges and potentials that demand serious attention. The unmitigated destruction of the natural environment, climate change, and the runaway population are tipping the balance of the earth's carrying capacity threatening man with hunger, malnutrition and famine. Technology and improved practices are considered as part of the solution. Thus, we do research to come up with efficient hardware and ways of doing things to generate food and preserve it. But technology is not the all-cure answer to all. Collective effort by the people and the political will are most essential.

Thoughts on Research

Many assume that when one does scientific research, one is seeking answers to practical problems especially those posed by policy makers, technocrats, politicians and wishful thinkers. Research is more of understanding the question, of developing an idea, or why an answer is possible at all and why it took that form. Answers might appear absolute but actually these breed more questions. The answers become just another addition to the original query like a growing barnacle. But that's how you enjoy now your cellular phone with the magic --- now called convenience of instantaneous communication.

Apart from the rigorous demands of science, there is art in experiment, starting from its conceptualization. It doesn't necessarily follow that it be complicated to be impressive. Most of the ground-breaking discoveries were done simply but with elegance. Calvin already predicted the first product of the photosynthetic reaction in the C3 pathway. He just needed photographic evidence. They made their own instruments

during those days. The stick and glue era of scientific discovery might have been gone now but it established the foundations from which we do our work at present.

While scientific pursuits continue the need to specialize, it is in integration that technology is of benefit to man. So while we are separated by the definition of our functions into divisions and sections, I believe in a strong team with different expertise. But this does not mean anyone has the right to meddle with the functions, specialization and expertise of others in the organizational unit or in a team. Respect to me is still the highest virtue.

That the same world out there should be explored first hand by researchers gives a better grasp as to the interventions still needed to fill in the gaps that still makes life miserable to a lot of Filipinos. Immersion as the first principle of extension also works best to people like us. Nothing is worse than a couch potato researcher.

Serendipity happens too in life. So was the discovery of the principle of buoyancy. So was Descartes splitting mind and soul while staring at a stove one winter night. Open your ears. Watson heard from his adviser Wilkins that another advisee, Rosalind Franklin, something about the hydrogen bond in the DNA structure. He immediately biked from the pub where they were drinking into the lab and confidently built the model of the DNA molecule. He received the Nobel Prize but not Franklin who died of anger to Wilkins and to Watson and Crick (or Crick and Watson, if you are British). Worse, they don't give the Nobel Prize posthumously. It pays to drink beer and gossip even if you are a man.

Learnings and Advices

I was lucky to work directly under two persons who have good work ethics. Boyet Alwindia works like Grumpy, hacking at the rocks to mine the gem. Now, he is the first career scientist of PHilMech, bestowed with accolades - except Natatanging Kawani Award. His salary is now significantly higher than the rest. Joel Dator has initiative and a practical problem solver. Now, he heads the training section of a foreign company.

Team effort is important. The moon race was won by a team of dedicated men- Glenn, Cooper, Armstrong, Aldrin and the rest. The astronauts aren't simply drivers that sit down and wait for the rockets to be built but they designed their vehicles, space suits, computed escape velocity, re-entry angles, rendezvous flight path and made flight directors.

Stick to the rule on how to prepare a project proposal. Rationalize well. Follow the guide questions and you can't go wrong. Be careful of your grammar. Nothing offends perfectly like a bad English. Then package the paper carefully and neatly. What I admire most from Engr. James dela Torre is not his rigorous thinking, that is a given, but on how neat his paper works are.

As to presentation, having funny feelings in your stomach is normal. There is nothing wrong with you even if you suffer ulcer and insomnia. But like hangover, nervousness and tension can only be cured by time. The best presenter so far to me is Dr. Ed Cayabyab, chief of the Technology Management and Training Division. He has coolness and confidence of a good diplomat. As you grow older, you'll get used to the battering from reviewers. You have to understand them because they are paid to do that.

Never cease to study and learn. Don't let your ego be offended when somebody you respect points out your errors. Former Director Rocky Bermundo of the Food Protection Department reminded me not to place any column in a tabular presentation if I don't know its relationship with the other columns. Our Food Protection Division chief, Mir Acda advised me not to start a sentence in technical writing with "This". This is a lesson I will never forget.

Don't involve yourself in controversies and intrigues. They'll just zap your inspiration and energy. You are hired to be a researcher and not a meddler in office politics. Aspire for ideals and strive for distinction instead. But if can't be helped and a hero is needed, then put all your passion to it. Rizal could have been a good ophthalmologist were it not for his extracurricular activities. Leave that to those who are under-loaded.

Don't over-reach beyond your designated responsibilities. Otherwise, you will always carry the burden of guilt. If you're lagging behind because your supplies have not arrived yet, that is no longer your fault. You've done your job.

Respect your supervisors. If you think you are better than them, you are dead wrong. They got education and experience on their side, especially age. They have heavier responsibilities than you and they are answerable to tougher masters. Today, the young are too engrossed in themselves. This is the fault of the educational system when it spares the rod. Remember, what goes around comes around. The toes you are now stepping on might be the ass you will be kissing later.

Similarly, respect those lower than you. They are also trying to earn a decent living. Recognizing their efforts will make them pray for your well-being and not to spit in your coffee.

Clean up your mess. At the end of the day, before you retouch, be sure that you washed all the glass wares you used. Reacalc is better than detergents in removing tough stains. Return everything you borrowed. Taking care and returning them clean is a sign of gratitude and good upbringing. Take care of the

equipment. Every broken glass represents the number of months you wait for replacements and the delays and stress it will cause.

The job does not define the man. We retain our individuality once we get out of our lab gowns. We have a life to live apart from the office. Pursue your interests and hobbies. Do not wait until retirement. It might never come. It would be sad to realize that after retiring, you wonder where all those years have gone. You can't do much in a rocking chair when you have the gout, or when you are going blind and deaf. Doner attends to his church. Munchie plays the guitar. I play gulp.

And if after 50 years and you retire at grade level 4, don't take it too personal. We can't all be stars. There is nothing worse than growing old and bitter. Only true friends sustain us and sometimes they are the reason for being and coming to work every day. Of course, its better when you still have your parents and siblings.

Paraphrasing the poem of Margaret Sangster, The Sin of Omission, puts into a nut shell a researcher's soul: It isn't the thing you do, dear / it's the thing you leave undone / that gives you a bit of heartache / at the setting of the sun / the PEF forgotten / the Terminal Report you did not write / the DTR that you never send, dear / are your haunting ghosts tonight. . .

. . . but tomorrow is another working day. Try to get some rest.

"Pursue your interests and hobbies."



ABOUT THE AUTHOR

Elijah Zabala Davalos is a PHilMech researcher at the Food Protection Division. Among his major works were on chemical insecticides and grain protectants in storage. He doesn't count insects anymore, instead he works on water quality for postharvest uses.

"Jong", as he is fondly called, holds a master's degree in Agriculture from the CenYtral Luzon State University, Science City of Munoz, Nueva Ecija. He is married to a PHilMech extensionist, Isis Davalos, with whom he has two children--Lennon Blaise and Liafail.

A middle-aged Pangasinense and a Beatle fan, Jong reads and sometimes write because according to him, he does not have any other talents like fixing a fuse.



BULB *Exposure*

Text and photos
by Engr. Jerry James M. de la Torre

When I was studying abroad, a friend e-mailed me about a recent engagement in our office in Nueva Ecija, Philippines. In parting, I was told “*Makakarating sa’yo kapag nag-amoy sibuyas.*” (We’ll inform you if the onion aroma floats around here.)

I turned to my foreigner seatmate, sniffed and nearly choked.

Of course, “*amoy sibuyas*” (smells like onion) is a metaphor in the Philippine culture, particularly in Nueva Ecija. It is a local expression which is indicative of an impending wedding or any other festive occasion. In this part of the country, onion, apart from its agricultural and economic value, has a deeply rooted cultural significance.

It has been noted that during harvesting, weddings rise in number. Onion is abundantly grown in Nueva Ecija, hence the association. Generally, farmers are in better financial shape during harvest season and so, they could afford to spend for a grand wedding.

Although I am not a native Novo Ecijano, I have been working in Muñoz Science City for 12 years now for a government agricultural research agency. Historically, Nueva Ecija is a well known rice granary and biggest producer of onions (*Allium cepa*) [1]. Being an agricultural engineer and a photography enthusiast, I felt all the more compelled to see what is going on in the neighboring farms.

This year, I had to shoot onion harvesting when the price was exponentially favorable. I knew the farmers wouldn’t mind my presence in the field while they go about their normal harvesting routine in this festive season.

My accommodating host was Juanito Bautista who has a farm in Caridad Norte, Llanera, Nueva Ecija. He commissioned around 10 farmers to harvest red onions (Batanes variant) in his 80 sq. m. patch of land.

A few years back, I was surprised when tulips sprang into their colorful blooms in certain spots of the Ohio State University. That was my first serious look into the bulbs family. We may not have tulips in the Philippines but we have the edible onions, which are bulbs themselves, in different varieties.

In photography, bulb exposure refers to the technique of exposing the camera sensor (or film) for a long period, usually greater than 30 seconds, using a dedicated shutter release. On a sunny day of March 7, 2011, my own personal exposure to the onion bulb harvesting lasted for four hours.

I arrived 6 am at the Bautista farm as a distant observer with my 70-300 mm IS USM glass. I tried to be as less intrusive as possible in the area because I don’t want farmers posing for the camera. I want them to proceed with their harvesting routine as normal as possible. Likewise, I don’t want to cause any delay to their harvesting target for the day.

The onions were like fallen strands of hair that were combed uniformly towards the western side. The bulbs were exposed already on the soil. Only the few fragile roots keep them in place. By phototropism, the florets struggle to separate themselves from the fallen stalks to face the sun vertically.

As usual, the farmers were facing the west when working in an open field to avoid the heat and glare of the morning sun. All of them

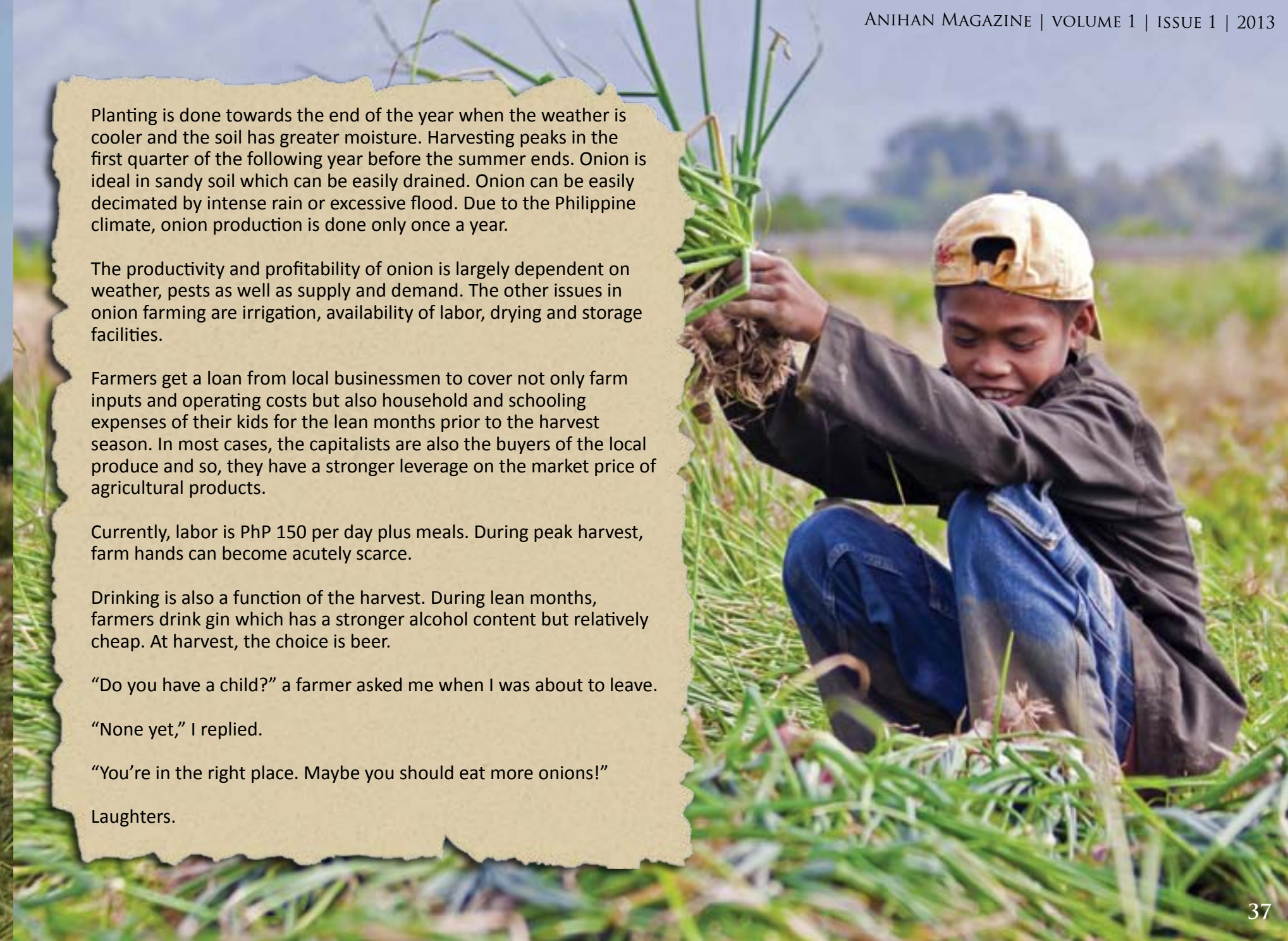




were fully wrapped in hats, long sleeves and pants. The outfits were generally dark which tend to blend with the soil and foliage in the environment. These are fundamental obstacles for the photographer. You have an exposure hurdle because of the backlighting subject. The other challenge is isolation because of similar subject-background color and crowding. My solution for the first problem was patience. I cannot use reflectors and artificial light without unduly disturbing them so I just had to wait for the right movement and moment when the light falls rightly on the subject. For the second problem, the basic solution was control of depth of field in conjunction with compositional technique. Likewise, I had to devote more attention to those with bright colored accents in their outfit for stronger contrast against the background.

The laborers pick their own rows. Harvesting is done by a two-handed uprooting of a bunch of bulbs at a time. Then, the uprooted bulbs are linearly piled to one side. One or two farmers then gather the uprooted bulbs for monolayer spreading on the bare patch of soil. This is the next step: sundrying for about two weeks. After field drying, the bulbs are tied in bunches and placed in a net sack for further storage, transport or marketing. One sack of onions, locally known as buriki, is around 25 kg.

In the locality, the common varieties are yellow granex, red creole and red shallot. Yellow granex is well, yellow or lighter in color. This is usually used in burgers and salads. Yellow granex is a single bulb which has a shorter shelf life. Red creole is another monobulb in a dark shade of red. One variant of red creole is the red pinoy. The other group of dark red onions is the red shallot which is distinguishable by splitting bulbs. The red onion group is usually utilized as a spice for various home dishes. The price swings wildly for each variety depending on market forces. Sometimes, the price can dip to as low as PhP7/kg but it can also spike to PhP 80/kg or even higher.



Planting is done towards the end of the year when the weather is cooler and the soil has greater moisture. Harvesting peaks in the first quarter of the following year before the summer ends. Onion is ideal in sandy soil which can be easily drained. Onion can be easily decimated by intense rain or excessive flood. Due to the Philippine climate, onion production is done only once a year.

The productivity and profitability of onion is largely dependent on weather, pests as well as supply and demand. The other issues in onion farming are irrigation, availability of labor, drying and storage facilities.

Farmers get a loan from local businessmen to cover not only farm inputs and operating costs but also household and schooling expenses of their kids for the lean months prior to the harvest season. In most cases, the capitalists are also the buyers of the local produce and so, they have a stronger leverage on the market price of agricultural products.

Currently, labor is PhP 150 per day plus meals. During peak harvest, farm hands can become acutely scarce.

Drinking is also a function of the harvest. During lean months, farmers drink gin which has a stronger alcohol content but relatively cheap. At harvest, the choice is beer.

“Do you have a child?” a farmer asked me when I was about to leave.

“None yet,” I replied.

“You’re in the right place. Maybe you should eat more onions!”

Laughters.

When I told Jong, a good friend, about my onion harvesting coverage, he was quick with a slogan derivative.

“In onion there is strength! Sa sibuyas, may tigas!” he said. He was, of course, referring to the claims that onion is an aphrodisiac.

I browsed mentally through a list of friends who have planted yellow granex, batanes or tanduyong. Edz, Andy, Itong and so on. They do have kids.

When our janitor passed by, I pulled him aside. “Mang Sonny, where can I buy an onion farm?”

Reference(s):

[1] DA BAR. 2011. Onion production. Philippine Department of Agriculture, Bureau of Agricultural Research (DA BAR). http://www.bar.gov.ph/Agritech/Crops/onion/onion_production.htm. Last accessed: 11July2011.



ABOUT THE AUTHOR

Engr. Jerry James M. De La Torre is a Science Research Specialist II at the Bio-Process Engineering Division of PHilMech. A Full-bright scholar, he holds a master’s degree in Food Engineering from the Ohio State University.

James, 38 years old, is a photography enthusiast. He shares this hobby with his fellow Bicolano wife, Pin De La Torre. James’ Istoriami blog showcases his talents in writing and photography. His other passions are running and videography. But first and foremost, this engineer is a writer.

Editor’s Note:

Personal essays are welcome every issue of the magazine. Share your thoughts and feelings and let others learn from your ideas and experiences. Essays maybe written in English or Filipino.



Iwasan ang nasasayang na palay!
GUMAMIT NG MAKABAGONG MAKINARYA!

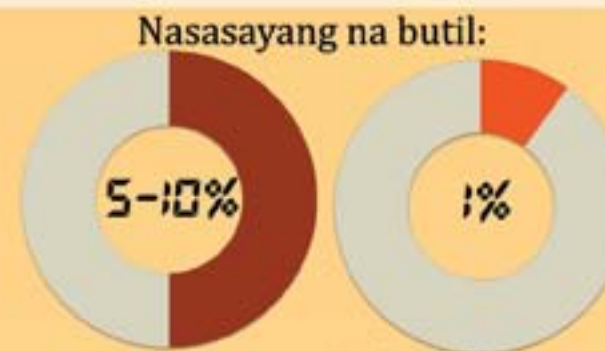


TRADISYONAL NA PAMAMARAAN



Source: Postharvest Loss Assessment Project (PHilTech and PhilRice, 2002). Brochure on Rice Mechanization Dry-Farm Mechanization Technologies (PHilTech)

MAKABAGONG PAMAMARAAN



Source: Survey on Postharvest Facilities (PHilTech, 2007)



Husay ng Gilingan

| | Milling Recovery% | Head Rice Recovery% |
|--|-------------------|---------------------|
| Mababang Klase ng Rice Mill | | |
| Single stage village mill (Engleberg steel mill) | 50-55 | 15-30 |
| Compact rice mill (two stage single pass village mill) | >60 | 40-50 |
| Modernong Gilingan | | |
| (Multi stage, modern rice mill) | 65-70 | 45-55 |

Source: Rice Knowledge Bank - International Rice Research Institute. Rice Milling. Revised November 13, 2003 on <http://www.knowledgebank.irri.org/Ab/rice-milling/milling-and-quality/milling-yield.html>



Traktora'y gamitin trabaho'y **BIBILIS** at **GAGAAN** din



Sa paggamit ng medium sized four-wheel tractor, mas mabilis ang paghahanda ng lupang tatamnan. Kaya nitong makapag-araro o rotavate ng humigit kumulang 3 ektarya, kada araw.

Para sa karagdagang impormasyon, makipag-ugnayan lamang sa:

Philippine Center for Postharvest Development and Mechanization (PHIMech)
 CLSU Compound, Science City of Muñoz, Nueva Ecija
 Tel. No. : (044) 4560-213/290/292
 Fax No. (044) 4560-110
 Website: www.phimech.gov.ph

o kaya sa DA-Regional Field Unit sa inyong lugar



IWASAN!

ang **PAGKASAYANG** ng **BUTIL** ng **MAIS**

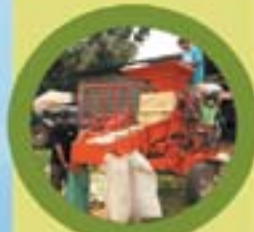
Umaabot sa 7.8 porsiyento ng inaning mais ang nawawala dahil sa maling gawaing makatapos-ani.

*Sa **PAGPAPATUYO** naitala ang pinakamalaking bahagdan ng nasasayang na **BUTIL NG MAIS** na umaabot sa 4.54%. Kaya naman inirekomenda ang paggamit ng mga angkop na teknolohiyang pang-makatapos-ani.*



PAG-AANI

- ✓ Anihin ang mais kapag ang mga butil nito ay magulang na. Masasabing magulang na ang mga ito kapag nagkaroon na ng kulay sa ilalim na bahagi ng butil nito.
- ✓ Maaring anihin na ang mga mais kung may 7-8 linggo na matapos mamulaklak at may 35%-40% na ang lulang tubig (moisture content) nito.



PAGHIHIMAY

- ✓ Himayin kaagad ang mais pagkatapos anihin upang maiwasan ang pag-init ng basang butil at pag-atake ng mga daga at iba pang mga peste.
- ✓ Mas mainam na gumamit ng de-makinang panghimay (sheller) nang maiwasan ang pagkabasag ng butil.
- ✓ Gumamit ng lona (underlay) upang masagip ang mga butil na tumatapon.



PAGPAPATUYO

- ✓ Patuyuin agad ang mais upang maiwasan ang pagkabulok, pagkakaroon ng amag na nagiging sanhi ng apilatoksin at pag-atake ng insekto.
- ✓ Kung magpapatuyo sa sikat ng araw, ilatag nang maayos ang mais at haluin nang madalas upang masiguro na pantay ang pagkatuyo nito. **HUWAG** magbibilad sa highway upang hindi ito madurog.
- ✓ Nakagaganda ang two-stage drying. Nakatutulong ito sa pagpapataas ng kalidad ng butil.



PAG-IIMBAK

- ✓ Siguraduhing malinis ang imbakan.
- ✓ Tuyo at malinis na butil lamang ang imbak.
- ✓ Ipatong sa paleta ang kamada upang maiwasan ang pagkabasag.
- ✓ Regular na siyasatin ang mga inimbak na butil.

Lathalain



Si Mang Lao at Iba Pang Nagsipagtapos sa Radyo Eskwela

ni Vladimir B. Caliguiran

Bago pa man pumutok ang araw sa silangan ay gising na ang mga magsasaka at humihigop na ng mainit na kape habang nakikinig sa kanilang transistor radio. Pagkatapos ay lalarga na sila papunta sa kanilang bukid, kakamustahin ang kanilang pananim, tatabasin ang mga tumubong damo sa mga pilapil, makikipagkwentuhan sa mga kasamahang magsasaka at saka uuwi bago ang tanghalian. Ang kasunod nito ay ang pagsi-siesta sa papag ng kubo o kaya ay sa lilim ng mga puno habang umi-ere ang kanilang paboritong programa sa radyo.

Madaling araw ng Biyernes, Mayo 8, 2009, dumungaw sa bintana si Mang Lauriano Aglibot at nakitang malakas na ang hangin at ang ulan na dala ng bagyong Emong. Ayon sa PAG-ASA, signal number one sa buong lalawigan ng Pangasinan.

Buti na lamang at tapos na ang anihan noon sa Alaminos City. Ang inaalala na lamang ni Mang Lauriano ay ang kanyang pakikinig sa School-on-the-Air (SOA) o Paaralan sa Himpapawid dahil wala na ring kuryente ng mga panahong iyon. Nanghihinayang ang 54 taong gulang na magsasaka sa mga bagong kaalaman na sana'y kanyang mapag-aaralan sa susunod na Lunes hanggang Miyerkules.

Sa mga pinsalang dala ng bagyo, mukhang magtatagal bago pa maibalik ang daloy ng kuryente sa bahaging iyon ng lalawigan. Si Mang Lauriano ay kasalukuyan noong naka-enrol sa SOA on Postharvest Technologies na sumasahimpapawid sa DZWM 891 kHz tuwing 5:00 hanggang 5:30 ng umaga.

“Inaasahan ko ng magtatagal ang brownout noon kaya naman inihanda ko na ang de-baterya kong radyo,”

ang kwento sa iloko ni Mang Lao. Ilang linggo na lamang ay matatapos na ang SOA.

Inilunsad ang school-on-the-air na may titulong Sagip Ani Radyo Eskwela ng PhilMech kasama ang mga Regional Field Units ng Kagawaran ng Pagsasaka upang paigtingin ang kaalaman ng mga magsasaka sa mga gawaing makatapos-ani. Naglalayon din itong maipakalat ang mga bagong teknolohiya na makatutulong sa pagbawas ng mga nasasayang na butil sa mga gawaing makatapos-ani ng palay. Pangunahing kalahok sa programang ito ay ang mga miyembro ng iba't-ibang samahan ng mga



magsasaka gaya ng irrigators' association at kooperatiba. Bukod kasi sa kanilang maluluwang na sakahin, ang mga samahang ito rin ay nagsisimula nang gumamit ng mga mekanikal na patuyuan. Sa loob ng dalawang buwan, makikinig sila sa radyo at pag-aaralan nila ang mga makabagong pamamaraan at teknolohiya sa paggapas hanggang sa paggiling ng palay. May mga pagsusulit na ibinibigay sa umpisa at pagkatapos ng programa at sa bawat pagtatapos ng aralin. Ang programa ay unang isinagawa sa Pangasinan na isa sa mga pangunahing nagsusuplay ng bigas sa bansa.

Bukod kay Mang Lauriano, mayroong pito pang miyembro ng Alos Paed Irrigators' Association ang naka-enrol sa SOA. Mayroong 276 na miyembro ang kanilang organisasyon at sila ay isa

sa mga unang nabigyan ng mekanikal na patuyuan o flatbed dryer noong Abril 2008.

“Malaking tulong ang SOA dahil nade-disseminate sa amin yung mga hindi pa naming alam tungkol sa postharvest facilities. At sa tuwing may meeting kami sa IA isini-share rin namin ang aming mga natututunan sa aming mga kasamahan,”dagdag ni Aglibot. Kasalukuyang auditor ng samahan noon si Mang Lao.

Ayon pa sa kanya, isa sa mga mahahalaga niyang natutunan ay ‘importanteng matuyo ang butil ng palay ng 14 porsiyento upang hindi ito masira’. Dagdag pa niya, “noon akala namin ay walang losses sa aming mga gawain sa bukid, pero dahil sa SOA nalaman namin na marami palang losses at ito ay naiwasan na namin hangga’t maari.”

Kahit pa halos dalawang linggo na walang kuryente sa kanilang bayan ay matiyaga pa rin si Mang Lao sa pakikinig ng SOA hanggang sa matapos ito.

At noong May 25, 2009, nagtipon-tipon ang mag-aaral ng SOA sa Sta. Barbara, Pangasinan para sa kanilang pagsusulit at para tanggapin ang kanilang mga certificates o katibayan ng kanilang pagtatapos sa Sagip Ani Radyo Eskwela. May 150 magsasaka ang nag-enrol sa paaralan sa himpapawid.

Sa pagkakataong iyon, nagbunga ang pagti-tiyaga ni Mang Lao dahil base sa resulta ng kanilang pagsusulit siya ang may pinakamataas na bahagdan ng natutunan sa antas na 48 porsiyento. Nakatanggap noon siya ng isang bagong transistor radio bilang gantimpala. Ang iba namang mga nagawaran ay nakatanggap rin ng samu’t saring premyo gaya ng mga gamit pambukid at mga libro bukod pa sa medalya at sertipiko.

Sa ngayon, nakatago sa kanyang portpolyo ang kanyang sertipiko ng pagtatapos sa Sagip Ani Radyo Eskwela kasama pa ang iba pang mga katulad na sertipiko mula sa iba’t ibang SOA at seminar na kanyang nilahukan. “Agtul-tuloy ti panagadal...Nagdakkel ti naadal mi. Nagadu ti naamwan mi...Para iti nasayaat nga kalidad ken napintas nga presyo... Datayo ti agpakpakan kadagiti nababaknang,” paglalahad ni Mang Lao noong araw ng kanilang pagtatapos. (Tuloy-tuloy ang pag-aaral... Marami kaming natutunan..Para sa magandang kalidad at presyo ng aming ani... Tayo ang nagpapakain sa mayayaman.)

Gaya ni Mang Lao malaki rin ang pasasalamat ng mga lumahok sa SOA sa iba’t-ibang rehiyon sa bansa. Hindi rin naging hadlang ang isa pang bagyo para makadalo sa pagtatapos ang mga mga-aaral ng SOA sa lalawigan ng Kalinga. Sinuong ng 170 magsasaka ang malaks na ulan at hangin upang makapunta sa kabisera ng lalawigan kung saan gaganapin ang pagtatapos noong Hunyo 16, 2009.

“Naganas iti maki-participate iti SOA. Adu ti maadal uray nu add aka laeng iti balay mo. Mabalín mo pay nga i-take note, mabalín mo pay isuro kadagiti kakadwam,”

masayang paglalahad ni Misis Rosalina Anung na isa sa mga nangunang estudyante sa lalawigan. (Magandang makilahok sa SOA. Marami kang matutunan kahit na nasa bahay ka lang. Pwede ka pang mag-take note at ituro ito sa mga kasamahan mo.) Ini-ere ang programa sa DZRK 837 kHz Radyo ng Bayan mula Abril 27 hanggang Hunyo 10.

Sa Davao, naman matiyaga ring gumising ng maaga ang higit sa 300 magsasaka na ang ilan ay kasama pa ang buong pamilya upang tanggapin ang kanilang sertipiko ng pagtatapos. Madaling araw pa lang ng Disyembre 15, 2009 ay maririnig na sa Felis Resort Complex ang kamustahan, kwentuhan

at tawanan ng mga magtatapos sa araw na iyon. Sumahimpapawid ang Sagip Ani Radyo Eskwela sa pamamagitan ng DXRD Davao City.

Samantala ang RMN-DYRI Iloilo naman ang naging tulay upang makapag-aral sa radyo eskwela ang mga magsasaka sa lalawigan ng Iloilo.

“Malaking tulong ang SOA dahil nade-disseminate sa amin yung mga hindi pa namin alam tungkol sa postharvest facilities.”

“Malaki ang tulong ng SOA sa amin. Palagi ko ngang inaalok ang aming samahan na ugaliing makinig sa school-on-the-air,” pahayag ni Luis Baniyas ng Aglosong Siemprebiba Irrigators' Association ng

Concepcion, Iloilo noong araw ng kaniyang pagtatapos. Kaya naman bilang pasasalamat ng mga kalahok, noong araw ng kanilang pagtatapos, Disyembre 21, 2009, ay may dala-dala silang pasalubong. Mayroong nagbitbit ng upo, sitaw, saging, native na manok at iba pang mga uri ng prutas at gulay. Humigit kumulang 200 magsasaka ang naitalang nagtapos sa SOA sa naturang lalawigan.

Kabilang rin ang mga magsasakang Kapampangan, Waray at Bicolano na bumangon ng maaga para sa Sagip Ani Radyo Eskwela na ginanap noong 2010.

Para sa mga magsasakang ito, patuloy ang kanilang pagsisikap na matutunan ang mga makabagong kaalaman sa pagsasaka para mapalago at mapangalagaan ang kanilang mga ani.

Mula nang sumahimpapawid ang unang Sagip Ani Radyo Eskwela sa bayan ni Mang Lao, apat na taon na ang nakararaan, marami ng mga magsasaka ang nagtapos. Hangga’t marami pang magsasaka ang gaya nila Mang Lao na bumabangon ng maaga para mapakain ang bayan ay magpapatuloy ang PHilMech sa paghahatid ng mga makabagong teknolohiya at kaalaman.



Larawan ng Matagumpay na Magsasaka ni Mila B. Gonzalez



Ang bawat tao ay may kanya-kanyang kahulugan ng tagumpay. Para sa ilan, ang tagumpay ay kahalintulad sa pagkakamal ng maraming pera. Para sa iba, ito ay nangangahulugan ng pagiging makapangyarihan o sikat. Anuman ang kahulugan, ang tagumpay ay nakasandig

sa layunin ng tao. Kapag nakamit ang mga inaasam-asam, ang tao ay masasabing tagumpay na sa buhay.

Sa larangan ng agrikultura, maraming magsasaka ang matatawag nating matagumpay. Sila ang modelo ng kanilang hanay na maaaring tularan. Ang iba ay kinikilala, binibigyang parangal. Ang iba

naman ay hindi napapansin. Ganun pa man, patuloy ang kanilang pagsisikap at pagpupunyagi. Tahimik at mapagkumbaba nilang binibigay ang kanilang ambag sa sangkatauhan—pagkain.

Sino ang matagumpay na magsasakang Pilipino? Paano niya nakamit ang tagumpay sa buhay?

Ilang matatagumpay na magsasaka

Matatagpuan ang maraming matagumpay na magsasaka sa industriyang makatapos-ani sa butil. Si Ginoong Ricardo Buenaventura ng Tabacao, Talavera, Nueva Ecija ay isa sa mga ito. Pangulo siya ng Nagkakaisang Magsasaka Agricultural Primary Multi-Purpose Cooperative. Siya at ang kanyang grupo ay matagumpay na nalagpasan ang mga pagsubok sa pagsasaka at hamon sa pagtatayo ng kooperatiba. Isang lider-magsasaka, nasa puso niya ang interes ng kanyang kooperatiba. Hindi nakapagtata kang ang kanilang organisasyon na noong 1992 ay binubuo lamang ng 16 na miyembro, ngayon ay umaabot na ng 1,164 na miyembro. Ayon kay Manager Teresita Serrano, ang pag-aari ng kooperatiba ay umaabot na rin ng P173 milyon hanggang Agosto 2013.

Ang maganda pa nito, ang bayanihan ay buhay na buhay sa kooperatiba. Ayon sa mga miyembro, ang pagiging tapat ng mga lider at pagkakaroon ng disiplina ng mga miyembro ang pangunahing dahilan ng kanilang pag-unlad. Dahil ang mga miyembro ay nagtitiwala sa kanilang lider, ibinibigay nila nang lubos ang kanilang kakayahan para sa kabutihan ng kooperatiba.

Ang kwento ni G. Buenaventura at ang kanyang kooperatiba ay madalas nang naikukwento kung saan-saan. At patuloy itong pinananabikan ng madla dahil ito ay kwento ng mga taong patuloy na lumalaban sa mga pagsubok at kahinaan. At sila ay patuloy ding nagwawagi.

Sa industriyang makatapos-ani sa high value crops, isang magsasaka ang angat sa iba dahil sa kanyang sipag at tiyaga. Siya ay si Ginoong Francisco Ching ng Mankayan, Benguet. Si G. Ching ang 2011 Gawad Saka Awardee ng Kagawaran ng Pagsasaka para sa high value crops category. Siya ang may-ari ng John Kenny Farms sa Benguet. Dahil sa mataas na kalidad ng kanyang litsugas, nabibili ang mga ito sa pamilihan ng Manila tulad sa Dole-Asia at Kentucky Fried Chicken.

Ayon kay G. Ching, sipag at tiyaga ang sikreto niya sa tagumpay bilang isang magsasaka at mamimili ng gulay. Ayon pa sa kanya, “madali ang kumita sa agrikultura kung may sipag at tiyaga”.

Sina G. Buenaventura at G. Ching ay ilan lamang sa mga matatagumpay na magsasaka sa kani-kanilang larangan. Sila ay may mabuting asal, angking talino, matatag na paniniwala at pananampalataya.

Higit sa lahat gumagawa sila ng paraan upang maabot ang kanilang mga pangarap.

Mga Sangkap ng Tagumpay

Ang kabutihang asal ay bukas na sikreto

Karamihan ng mga matagumpay na magsasaka ay tinuturo ang sipag, tiyaga, determinasyon at disiplina bilang sikreto ng kanilang tagumpay. Sa madaling salita, kabutihang asal ang kanilang bukas na sikreto. Dahil ang mga magsasaka ay determinado, pilit nilang inaabot ang kanilang mga pangarap sa buhay. Nagtitiyaga sila kahit anong mangyari. Ang kanilang kabiguan ay hindi sagabal sa pag-abot ng kanilang pangarap sa buhay. Sila ay nagtrabaho nang mabuti hanggang ang kanilang paghihirap ay magbunga. Dahil sila ang mga taong may integridad, nakukuha nila ang tiwala ng kanilang kapwa magsasaka at maging ng mga institusyon ng pangutangan at pamahalaan.

Kaalaman ang susi sa mga oportunidad

Ang kaalaman ay maaaring sariling kaalaman o nakuhang kaalaman. Ang kaalaman sa sarili ay kaalaman sa sariling layunin at kung paano ito makakamit.



niya ang mga serbisyong maaari nyang pakinabangan at ang mga oportunidad na ito ay kanyang sinusunggaban. Ito ay dahil na rin sa kanyang patuloy na paghahanap ng kaalaman at pagtatasa sa sarili.



Hindi nasusukat sa dami ng diploma ang tagumpay ng isang magsasaka. Mayroong matatagumpay na magsasaka na hindi nakapagtapos ng kolehiyo. Kapag ang magsasaka ay naghahanap ng kailangang

kaalaman at teknolohiya sa pagsasaka ay saka nabubuksan ang pintuan ng oportunidad.

Si G. Buenaventura ay bukas sa mga bagong kaalaman. Hindi siya takot sa pagbabago. Ito ang dahilan kung bakit ang kanilang kooperatiba ay tanghalan ng mga bagong teknolohiya tulad ng hybrid rice na pinapalaganap ng Philippine Rice Research Institute o PHilRice at ang demakinang patuyuan na may pugong biomass na pinapalaganap ng Philippine Center for Postharvest Development and Mechanization o PHilMech. Dahil sa hybrid rice, ang mga magsasakang miyembro ng kooperatiba ay umaani ng mula 150 hanggang 250 kaban bawat ektarya. Dahil naman sa pugong biomass na ginagamit sa demakinang patuyuan, bumababa ang gastusin ng kooperatiba sa pagpapatuyo ng palay.

Sa tamang aksyon, maganda ang resulta

Ang isang matagumpay na magsasaka ay naghahanap ng kaalaman at ginagamit niya ito. Napagtanto ni G. Ching na ang pagdadala ng mga gulay tulad ng litsugas sa ordinaryong trak ay nagdudulot ng kawalan sa ani at di-kagandahang kalidad ng produkto. Nalaman niya na ang teknolohiyang “cold chain”

ay pinapalaganap ng PHilMech at ang probinsya ng Benguet. Sinunggaban agad niya ang oportunidad para sa kanyang aning litsugas. Nakiusap siya para gamitin ang refrigerated trak at mga pasilidad na cold storage sa Wangal, La Trinidad, Benguet.

“Ako ang unang nag-adopt ng cold chain technology ng probinsya ng Benguet,” pagmamalaki ni G. Ching. “Kapag sobrang dami ng produksyon, pinapasok namin sa cold chain facilities...Kapag walang market, meron kaming pinag-iiwanan.. Ang mga high value crops, kailangang nakapasok sa cold storage. Hindi pwede ilabas dahil masisira talaga,” dagdag pa ni G. Ching.

Ito ang dahilan kung bakit mataas ang kalidad ng litsugas na dinadala ni G. Ching sa Manila. Sa tamang aksyon, maganda ang resulta.

Maniwala, manampalataya

Maniwala sa pangarap. Ang pagtitiwalang ito ang magtutulak kaninuman upang makamit ang tagumpay sa kabila ng maraming balakid.

Si G. Buenaventura ay naniwala na kayang magtatag ng kooperatiba para sa serbisyo. Naniwala siya sa abilidad ng

mga miyembrong magsasaka na lagpasan ang mga problema. Hindi siya nagkamali. Ngayon, ang Nagkakaisang Magsasaka Agricultural Primary Multi-Purpose Cooperative ay buong loob na nagseserbisyo hindi lamang sa mga magsasaka kundi sa komunidad na kinabibilangan nito.

Ano ang mga kailangan upang maging matagumpay na magsasaka? Para kina G. Buenaventura at G. Ching ang kaalaman, paggawa, kabutihang asal tulad ng sipag at tiyaga at pagtitiwala ay ilan lamang sa mga dahilan kung bakit sila matagumpay.

Ang kaalaman ay kailangan upang ito ang maglatag ng malinaw na daan na tatahakin. Ang paggawa ay kailangan upang ang landas na ito ay kayang tahakin. Ang kabutihang asal ay kailangan upang magsilbi itong gabay tungo sa tuwid na landas. At ang pagtitiwala ay kailangan upang manatiling buhay ang loob sa pagtahak sa landas tungo sa inaasam-asam na tagumpay kahit sa harap ng mga maraming balakid.

Ang mukha ng tagumpay sa sektor ng pagsasaka ay naiguhit na. Ang larawan ay nakasabit na

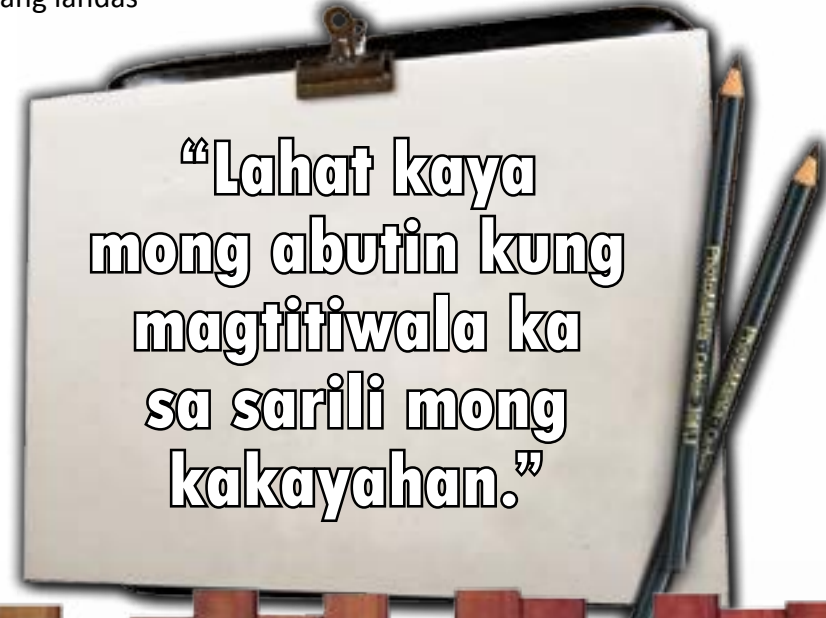
rin sa dingding ng tagumpay. Ito ngayon ang nagsisilbing inspirasyon sa ibang magsasaka dahil patunay ito na ang tagumpay ay kaya ring abutin kahit sa sektor ng agrikultura.

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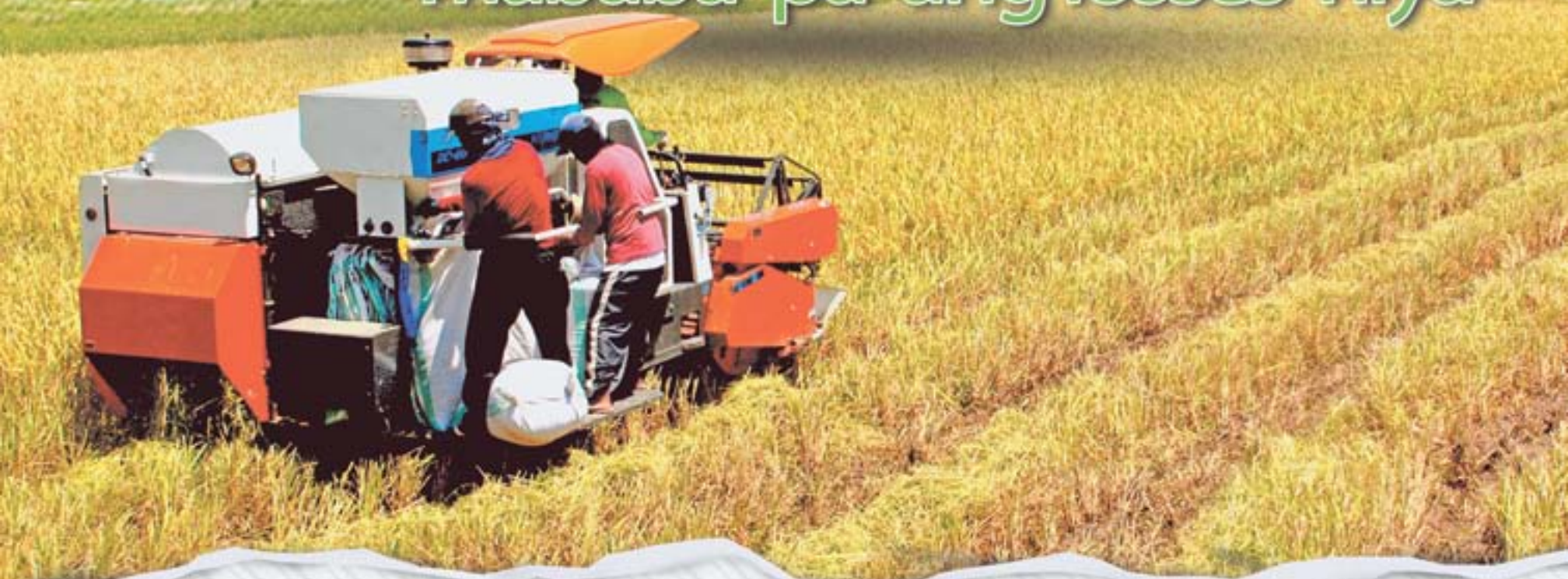
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“Lahat kaya mong abutin kung magtitiwala ka sa sarili mong kakayahan.”

Two-in-one plus one GAGAPASIN na GIGIIKIN pa mababa pa ang losses niya



Ang combine harvester ay isa sa mga makabagong makinaryang pambukid na kayang gumapas, gumiiik at maglinis ng hanggang 3 ektaryang palay kada araw sa loob lamang ng 8 oras.

Para sa karagdagang impormasyon, makipag-ugnayan lamang sa:

Philippine Center for Postharvest Development and Mechanization (PHILMech)

CLSU Compound, Science City of Muñoz, Nueva Ecija

Tel. No.: (044) 4960-213/290/282

Fax No.: (044) 4960-110

Website: www.philmec.gov.ph

o kaya sa DA-Regional Field Unit sa inyong lugar.



Hi-Tech na si Mang Juan

ni Modesto L. Jose

Niwasan ni Mang Juan na masilaw sa sinag ng araw habang nakatayo siya sa pinto at nilalanghap ang simoy ng sariwang hangin. Pinalambot na ng ulan ang tigang at matigas na lupa. Hudyat ito na maaari nang ihanda ang lupa para sa pagtatanim.

Ipinasan niya ang ararong gawa sa kahoy at saka pumunta sa bukid. Ipinosisyon niya ito sa hulihan ng barakong baka. Kinabitan niya ito ng pamatok at saka ginamitan ng tungkod na pantaboy para magtrabaho. Kinakayod ng bakal na dulo ng araro ang lupa upang makahukay ng mabababaw na kanal at tuwid na tudling.

Ngayon, puwede nang maghasik ng punla si Mang Juan. Habang hawak ng



isa niyang kamay ang supot ng binhi, isinasaboy naman ng isa niyang kamay ang mga buto.

Pagkatapos, susuyurin naman niya ang lupa. Gumagamit siya ng asada para buhaghagin ang lupa at alisin ang mga panirang-damo na maaaring sumakal sa tumutubong binhi. Pagkatapos nito, nagdarasal siya para sa masaganang ulan at matiyagang maghihintay ng

ilang buwan bago niya maani ang kanyang pananim.

Ito ang kuwento ng mga magsasaka sa sinaunang panahon. Nakaugat sa matrabaho, makaubos-oras at nakakapagod na pamamaraan ng pagsasaka. Malayo na ito sa mga magsasakang bukas ang isip sa pagtanggap ng mga produkto ng makabagong panahon.

Sa modernong panahon ng teknolohiya, nagsipagsulputan na nga ang mga makabagong makina, kasangkapan, kagamitan, pamamaraan at mga proseso. Mula sa primitibong kagamitang bato noong sinaunang panahon ay napalitan na ito ng mga de-makinang kagamitan na malaki ang naiambag sa pagpapagaan ng buhay ng tao lalo na ng mga magsasaka.

Kakaiba na ang pamamaraan ngayon ni Mang Juan. Makabago na. High-tech, ang wika nga ng iba. Tinalikuran na nya ang mga manu-manong

paraan. Ang mga kagamitan na niya ngayon ay mga de-makina na. Sa paghahanda ng bukid sa pagtatanim, traktora na ang

minamaneho niya. Higit na maginhawang gamitin at mas epektibo. Drum seeder na rin ang gamit ni Mang Juan sa pagtatanim ng butil at hindi na manwal na pagsasabog o di kaya naman ay mechanical rice transplanter at hindi manu-manong paglilipat-tanim.

Ibang-iba na nga si Mang Juan. Naging bukas kasi siya sa pagtanggap ng modernisasyon sa pagsasaka.

Nakisabay siya sa mekanisadong panahon. Madali na tuloy ang mga gawain niya sa produksyon at sa makatapos-ani at napataas rin at napaganda ang kalidad ng mga ani niya.

Gumagamit na rin si Mang Juan ng mga makatapos-aning makinarya tulad ng mga modernong pang-ani, patuyuan at panggiling. Dulot nito ay ang pagbaba ng mga nasasayang na butil.

Tinatayang nasa 3 porsyento lamang ang nasasayang na butil gamit ang mga makabagong pang-ani tulad ng combine harvester kumpara sa kabuuang 4.29 na porsyento kung manu-mano ang proseso ng pag-aani, pagsasalansan at paggiik ng palay.

Sa pagtutuyo naman, higit na mababa ang nasasayang na butil sa mga mekanikal na patuyuan na nagtala lamang ng isang porsyento kumpara sa 5 hanggang 10 na porsyento sa tradisyunal na paraan tulad ng highway drying. Mas marami rin ang natutuyo sa mekanikal na patuyuan at higit na mas maganda ang kalidad kaysa sa tradisyunal na paraan.

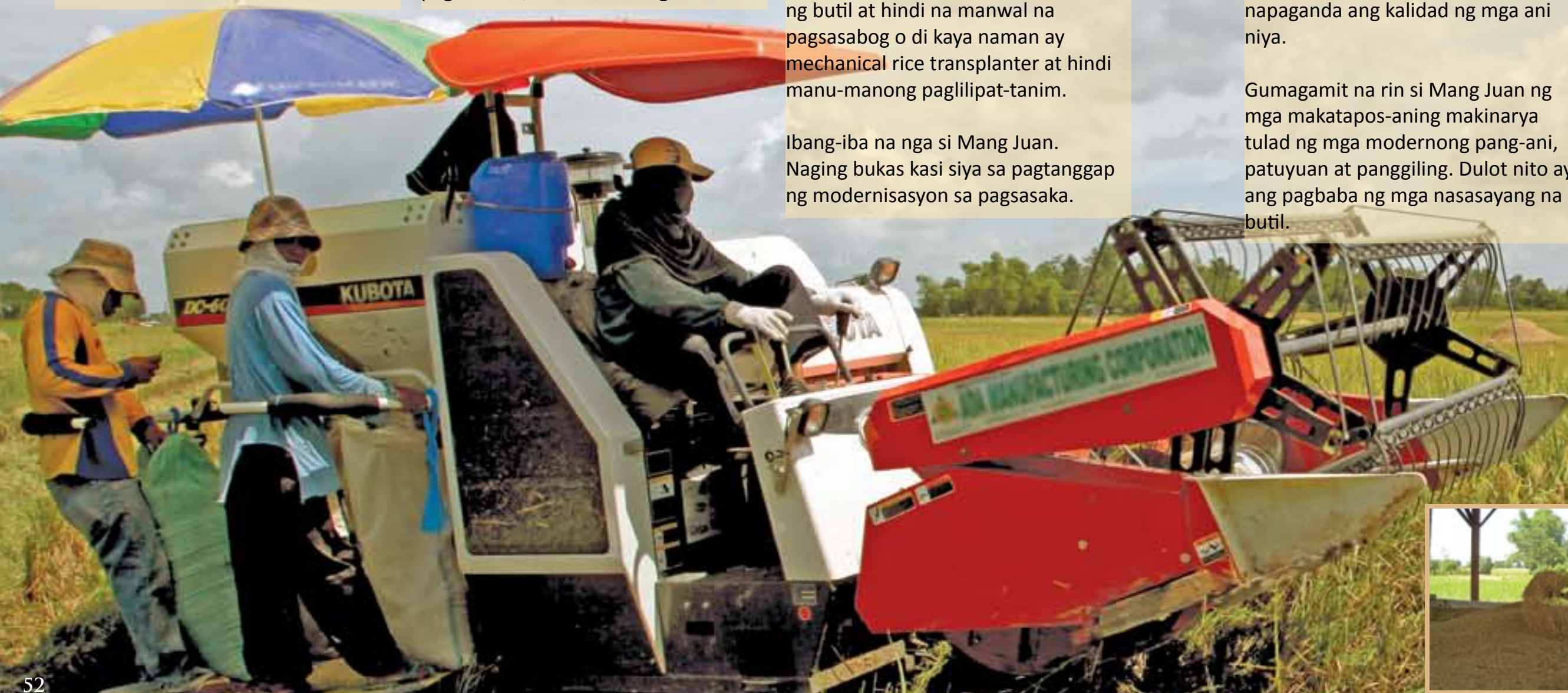
Sa panggiling naman ng palay ay mas mataas ang antas ng milling recovery at rice recovery ng mga modernong

panggiling kaysa sa tradisyunal na paraan. Nasa 65 hanggang 70 na porsyento ang milling recovery at rice recovery sa modernong panggiling gamit ang multi-pass rice mill kumpara sa 55 hanggang 60 na porsyento lamang sa mga single-pass na rice mill.

Sa patuloy na pagiging bukas ni Mang Juan sa pagtanggap ng mga makabagong teknolohiya at proseso, walang duda at pag-aalinlangan na makakamit ni Mang Juan ang kasapatan ng bigas na kanyang inaasam.

Sanggunian:

Philippine Center for Postharvest Development and Mechanization, 2011. Mga Gabay sa mga Gawaing Makatapos-ani, CLSU, Science City of Muñoz, Nueva Ecija.



Tala-arawan

Sa Makabagong Makinarya, Mas Magaanang Buhay Para Sa Magrarak

Kung dati ay sagwan at lambat ang kanyang hawak at malawak na dagat ang kanyang ginagalugad, ngayon ay mga pansakahang kasangkapan na ang gamit niya at ekta-ektaryang lupain ang kanyang sinasaka.

Siya si Ginoong Ariel J. Tonga, 50 taong gulang at tubong Bicol na ngayon ay ganap ng Tarlakenyo. At ito ang kanyang kwento...

"Iniwanan ko ang simpleng buhay mangingisda sa Ragay, Camarines Sur upang makipagsapalaran sa dayuhang bansa bilang isang aircon technician. Matapos ang apat na taong paninilbihan ko sa lupain ng mga banyaga ay nasumpungan ko ang naging kabiyak ng aking buhay na si Divina, taga barangay Amucao, Tarlac City. At dito kami bumuo ng sarili naming pamilya.

Taong 2004 nang mapabilang ako bilang isa sa 19 na tagapanguna sa pagtatatag ng isang kooperatiba, ang Amucao Seed Growers Agro Industrial Cooperative. Pagsasaka ang pangunahing ikinabubuhay ng mga taga rito kung kayat personal na akong nagdesisyon na magsimula na rin sa pagsasaka upang mabago ang takbo ng aking buhay. Tulong ng aking mga kasamahan ay natuto akong magsaka. Nagsimula ako sa dalawang ektaryang lupang sakahan. Tulad nila ay tinaniman ko ito ng sertipikadong binhing palay. Maganda ang kita na umaabot sa 60 libong piso kada ektarya. Sa kasalukuyan, mula sa naipong pera na kinita mula sa pagsasaka ay nagrerenta ako ng karagdagang 12 ektaryang sakahan. Kapag mas malaki kasi ang lupang sinasaka, mas mataas ang kita. Halos isang dekada na ang aming kooperatiba. Patuloy ito sa paglago. Umabot na kami ngayon sa 72 miyembro at may kabuuang 150 ektaryang lupain na tinataniman ng ASGAIC certified seeds. At mula

sa kabuuang 9, 500 pisong pera na nalikom namin sa bawat miyembro ay napalago na namin ito sa mahigit 200 milyong piso. Bunga ito ng halos isang dekada naming pagsisikap at pagtitiyaga na mapaunlad ang kooperatiba. Kaagapay nito ang masaya at maayos na samahan ng mga miyembro. Isinasantabi namin ang 'self-interest' at mayroon kaming 'transparency'. Dito po sa koop ay isinantabi ng bawat isa ang kaisipan na ang koop ay para lamang makautang. Naniniwala po kami na kapag sarili lamang ang inisip at hindi maging tapat sa samahan ay wala rin ang pag-unlad na inaasam.

Sa kasalukuyan, ako po ang tumatayong Seed Coordinator sa aming kooperatiba. Katungkulan ko po ang pamamahala sa paghahanap ng market ng aming mga ani. At sa pagsusulong po ng inyong lingkod bilang Kagawad ng aming barangay at sa pamamagitan ng pagsisikap ng bawat miyembro, ang aming barangay sa pangunguna ng aming kooperatiba

ay kinilala na bilang Palay Seed Capital of Tarlac. Ang aming produkto na dati ay sa Tarlac lamang tinatangkilik ay umaabot na rin ngayon sa mga lalawigan ng Bataan, Zambales at Quezon.

Kinikilala na rin po ang ASGAIC ngayon bilang isang model coop sa lungsod, lalawigan at rehiyon. At sa pagpapatuloy po ay maaaring sa loob ng bansa.

Sa patuloy na pagsisikap ng bawat isa sa amin, inaasahan namin ang tuluy-tuloy na pag-unlad ng aming kooperatiba. Nakikita namin na sa susunod pang mga taon ay makikilala na rin ang ASGAIC rice na nais naming pasukin sa tulong ng bagong ricemill na itinatayo namin ngayon.

Ang tagumpay ng aming kooperatiba ay bunsod din ng patuloy na suporta ng ibat-ibang ahensya ng pamahalaan. Ang Cooperative Development Authority (CDA) na patuloy na sumusubaybay sa amin sa pamamahala ng samahan, ang

Department of Agriculture mula sa National hanggang City office sa pagbababa sa amin ng kanilang mga programa, ang Philippine Rice Research Institute (PhilRice) sa pagtitiyaga sa

bawat miyembro na mapahusay ang produksyon ng certified seeds, at sa Philippine Center for Postharvest Development and Mechanization (PHilMech) sa paggabay nila sa amin sa mga operasyon ng aming pananim.

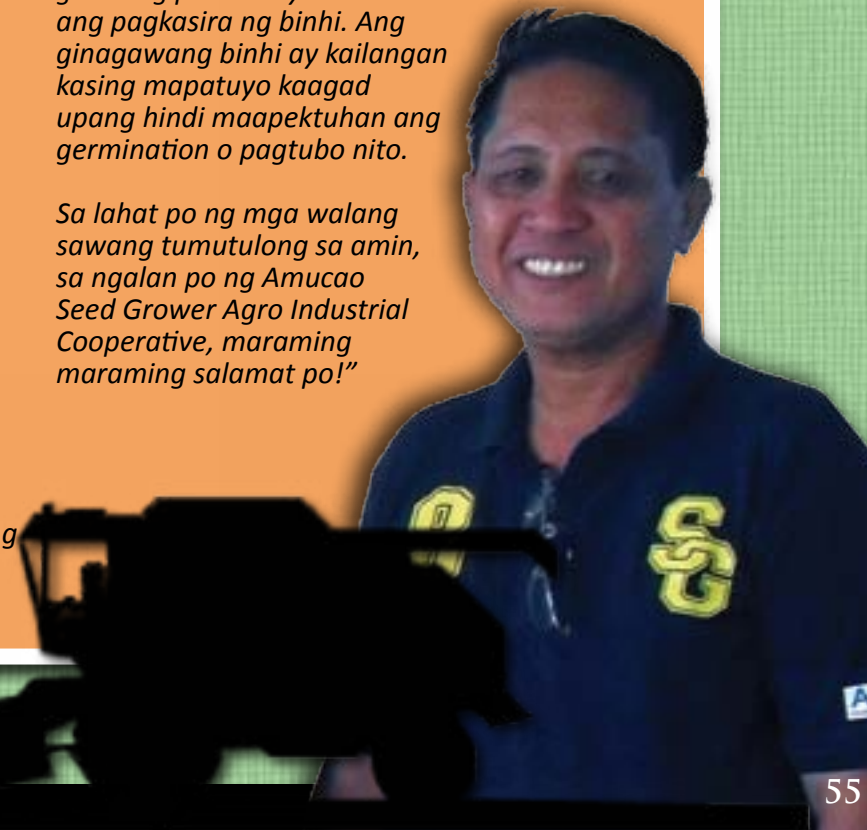
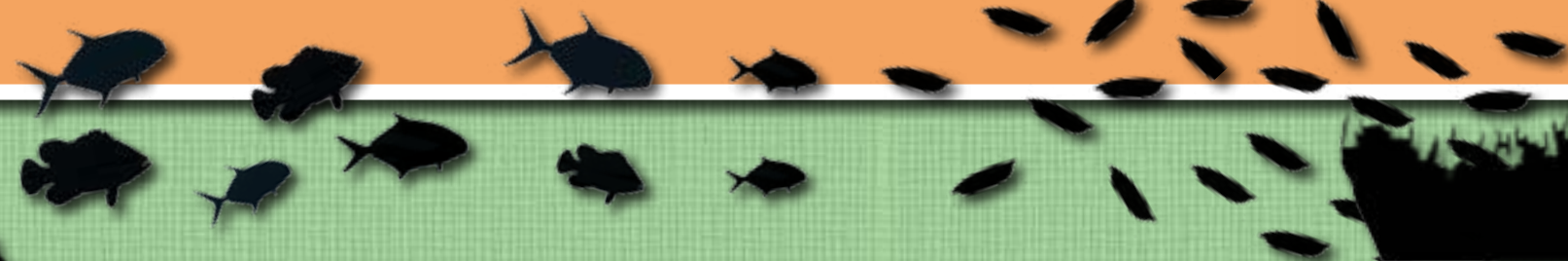
Malaking tulong po ang mga makabagong makinarya na iniaantabay ng PHilMech sa amin. Sa pagtatanim, kung dati ay 3 libong piso ang bayad sa pagtatanim ng isang ektarya ngayon ay 1, 300 piso na lamang ang binabayad ng mga miyembro ng koop gamit ang mechanical transplanter. Napapaaga pa nito ang pagtatanim na umaabot lamang ng 12 araw mula pagkapunla ng binhi kumpara sa 25-30 araw sa ordinaryong pagtatanim. Gamit ang mekanikal na transplanter ay natatapos taniman ang isa't kalahating

ektarya hanggang dalawang ektarya kada araw. Dulot nito ay hindi stress ang punla kung kayat mabilis ang recovery nito at maraming magsuhi.

Malaki rin ang tulong ng mga drying facility mula sa PHilMech. Dati-rati'y problema namin ang pagtutuyo ng palay lalo na sa panahon ng tag-ulan. Sa tulong ng flatbed dryers ay hindi na namin problema ito. Nakapagpapatuyo na kami kaagad kahit umuulan. Sa ganitong paraan ay naiwasan ang pagkasira ng binhi. Ang ginagawang binhi ay kailangan kasing mapatuyo kaagad upang hindi maapektuhan ang germination o pagtubo nito.

Sa lahat po ng mga walang sawang tumutulong sa amin, sa ngalan po ng Amucao Seed Grower Agro Industrial Cooperative, maraming maraming salamat po!"

"Sa patuloy na pagsisikap ng bawat isa sa amin, inaasahan namin ang tuluy-tuloy na pag-unlad ng aming kooperatiba."



Dangal ng PHilMech

TIPID sa punla tama ang distansya ani'y MASIGLA



Ang mechanical rice transplanter ay isang makabagong makinarya sa pagtanim ng kasisibol na palay. Kaya nitong taniman ang 1 hanggang 2 hektaryang bukid kada araw.

Para sa karagdagang impormasyon, makipag-ugnayan lamang sa:
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CISU Compound, Science City of Muñoz, Nueva Ecija
Tel. No.: (044) 4560-213/290/282
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Website: www.phimech.gov.ph



Engr. Rodel G. Idago

Isinulat ni Vladimir B. Caliguiran



da•ngál png [Bik Kap Tag] 1: katangian o kalagayan ng pagiging mahusay, mahalaga, karapat-dapat, o kagalang-galang: DIGNIDAD, DUNGOG, PURI 2: mabuting pangalan o reputasyon – pnr ma•ra•ngál. –UP Diksiyonaryong Filipino

Da•ngál,

katangiang inaasam ng lahat; mahusay, mabuting pangalan, karapat-dapat at ipinagmamalaki. Katangiang hindi mo makukuha sa isang gabi at hindi natutumbasan ng anumang ginto at salapi.

Isa si Engr. Rodelio G. Idago sa mga may katangiang ito. Nito lamang taon, iginawad sa kanya ang pinakamataas na



pagkilala sa mga empleyado ng PHilMech—ang Dangal ng PHilMech. Ito na ang pangalawang pagkakataon sa magkasunod na taon na igawad kay Engr. Idago ang naturang parangal.

Umpisa pa lamang ng kanyang karera bilang isang mananaliksik ay unti-unti nang binuo ni Rodel ang kanyang pangalan sa naturang larangan. Katatapos niya pa lamang noon ng kursong Bachelor of Science in Agricultural Engineering sa Central Luzon State University agad siyang kumuha ng board exam para sa kanyang propesyon noong 1996. Tinanghal siyang pang-siyam na may pinakamataas na marka sa lahat ng kumuha ng pagsusulit sa buong bansa.

Pumasok si Engr. Idago bilang isang Science Research Analyst ng Postharvest Systems

Department sa PHilMech na noo’y BPRE pa lamang sa parehong taon. “Bago akong researcher noon, napaka-abstract para sa akin ang research,” pagkukwento niya. Ngunit unti-unti rin naliwanagan ang daan patungo sa kanyang tagumpay bilang isang Agricultural Engineer sa tulong ng kaniyang superbisor na si Dr. Renita SM. Dela Cruz.

“He was hired for the project funded by NAFC, working on the white potato commodity with Ms Ma. Cecilia Antolin. He was chosen from among the many ag. eng. applicants because of his high academic performance and his bubbly attitude - always with wide smile from his face. After the white potato project, he assisted in the tramline project. This is where he was exposed to the rigors of actual field research,” pagkukwento ni Dr. Dela Cruz.

“Si Ate Babes (Dr. Dela Cruz) kasi ay magaling na magtrain. From time to time, binibigyan ka niya ng mabigat na responsibility. Binibigyan ka niya ng break na ikaw ang nagpapalano (sa project). Dahil dun, na-e-enhance ang iyong skills,” saad nito. Nilinang pa lalo ni Engr. Idago ang kanyang kahusayan sa pamamagitan ng paglahok sa mga scientific fora at regular na pagbabasa ng mga scientific journal.

Hanggang ngayon, sariwa pa rin sa alaala ni Engr. Idago noong atasan siyang itanghal ang kanilang research project kasama si Dr. Dela Cruz sa taunang In-house Research and Development Review sa PHilMech at makuha nila ang unang gantimpala. Nagsilbing inspirasyon at nagpalakas ng loob ni Rodel ang pagkakataong iyon upang lalo pang paghusayan ang kaniyang mga ginagawa.

“His development in the field of research is spontaneous. He loves what he does ... kaya para siyang hindi natatrabaho. He is not afraid to make mistakes... he can readily bounce back. He’s persistent and ask questions from people whom he knows can guide him,” dagdag pa ni Dr. Dela Cruz. “Bilang researcher kapag ibinigay sa iyo ang trabaho mo, gagawin mo talaga ‘yung pinakamagandang magagawa mo, you have to do your best. Hindi ka makagagawa ng maganda kung hindi mo gusto yung ginagawa mo,” paglalahad niya.

Magmula noon, naging suki na ng in-house review si Engr. Idago at laging isa ang kanyang mga gawa sa mga proyektong nagkakamit ng gantimpala. Ngunit para sa kanya, ito’y maliit lamang na batayan ng tagumpay sa kanyang mga gawa.

“Ang gauge kung talagang magaling kang researcher ay kung ginagamit ang output mo, ang discovery mo. For example ‘yung tramline, yun kasi ang isa sa mga unang involvement ko sa mga project, wala namang monetary incentives pero kung makikita mo na maraming interested, maraming gumagamit at maraming nag-a-adopt ay yun na lang ang reward. Another is yung sa coffee, marami na kasing nag-adopt rin, bilang isa sa mga major contributor ng research na ‘yun, ay ‘yun na lang ang pinaka non-monetary gain na nakukuha namin,” natutuwing pag-aamin nito.

Ang kanyang sikreto para mataas ang porsiyento na magagamit ang kanyang mga ginagawang tecknolohiya

ay, “dapat talaga wag ka mawala sa stakeholders ng tinutulungan mo, kahit konti pa lang ang nagagawa mo i-validate mo sa kanila, ganito ang size, capacity, cost, sa tingin mo ba magiging praktikal na gamitin ito at i-adopt...seriously tine-take namin ang mga comments nila...involve mo dapat ang technology-users”.

Higit pang kinilala ang kanyang kakayahan sa pananaliksik nang igawad sa kanya ang PHilMech Natatanging Kawani- Research Category noong 2004. Sa parehong taon, nagsimula siyang mag-aral ng Master of Science in Agricultural Economics sa Unibersidad ng Pilipinas sa Los Baños. Natapos niya ito noong 2009. At noong 2010, ginawaran siyang muli ng Natatanging Kawani-Research Category na muli rin niyang natanggap sa dalawang sumunod na taon kasabay ng Dangal ng PHilMech. Sa kasalukuyan, si Engr. Idago ay isa ng Science Research Specialist II ng Socio-economic and Policy Research Division sa PHilMech.

Sa pagdaan ng panahon lalo

pang nahasa ang kakayahan ni Engr. Idago. Para sa kanya, ang pagiging inhinyero at ekonomista sa larangan ng agrikultura ay magandang tambalan sa pananaliksik. Natutugunan ng kanyang pagiging ekonomista ang mga bagay kaugnay sa social samantalang sa teknikal na aspeto naman niya nagagamit ang pagiging inhinyero.

Ayon pa sa kanya ang ‘pag-aaral sa kabuuan ng industriya gaya ng paghahanap sa gap, sa

kung sino ang may problema, sino ang mga gagamit ng teknolohiya, papaano sila makikinabang dito, ano ang meron siya para gamitin ang nagawang teknolohiya’ ay ilan lamang sa mga mahahalaga at pangunahing impormasyon na kinakailangan upang maging matagumpay ang isang proyekto.

Unti-unti rin nakilala ang kanyang mga gawa sa iba’t-ibang scientific conferences at R&D reviews gaya na lamang ng Agriculture and Fisheries Modernization Act (AFMA) R&D Awards. Sa ngayon, kinikilala na rin ng ibang mga ahensya ang kakayahan ni Engr. Idago. Sa katunayan, iniimbitahan siyang magsalita at ibahagi ang mga resulta ng pag-aaral ng kaniyang grupo lalong-lalo na sa kape. Kinuha siya ng Agricultural Training Institute upang

“Ang magandang kinabukasan ay para sa mga taong nagtitiwala sa kanilang kakayahan.”



maging pangunahing tagapagsalita sa pagsasanay ng mga provincial at regional planners tungkol sa makatapos-ani ng kape na ginanap sa iba't-ibang bahagi ng bansa noong 2012.

Itinuturing niyang isa ang pag-aaral niya sa pagpapaunlad sa value chain ng kapeng arabica, robusta at liberica ang isa sa mga malaking kontribusyon niya sa industriya. Sa proyektong ito, inalam ng kanyang grupo ang mga suliranin sa sistema ng pagkakape at mga paraan para mapabuti pa ang mga gawaing makatapos-ani sa kape. Sa kanilang nabuong bagong postharvest system, maaaring mabawasan ang pagkasira ng kalidad ng kape ng siyam na porsyento at makatutulong ito na madagdagan ng P2,400 hanggang P5,500 ang kita kada anihan ng mga magsasaka ng kape sa bansa.

Ayon pa kay Dr. Dela Cruz, buong-pusong ibinuhos ni Rodel ang kanyang oras sa proyekto sa kape sa kagustuhang matulungan ang mga magsasaka nito. "The project on coffee is a project of love and concern to help the small-scale farmer-growers to continue and improve what they are producing by giving them appropriate technologies. Coffee farmers (specially Arabica growers) are marginalized... with little profit from what they produce yet they take pride in preserving their culture of growing and sipping the aromatic arabica coffee (Arabica can successfully

be grown in the highlands). Many have become interested because the project has identified the appropriate technologies for coffee."

Sa kabila ng mga tagumpay na nakamit ni Rodel sa lumipas na 16 taon, nanatili pa rin na nakasayad ang kanyang mga paa sa lupa. Sa tuwing siya'y iyong makasasalamuha hindi mo maiwasang ngumiti at tumawa dahil sa magaling niyang sense of humor. Ayon sa kanya, ang magandang pakikisama sa lahat ng taong makakasama mo ay isa sa mga dahilan para sa ikatatagumpay ng proyekto.

"Dapat maganda ang relationship mo sa lahat sa field, sa office, sa mga kasama mo sa division, mga kasama mo sa support gaya ng mga drivers, sa mga taga-ibang division... 'Yung pagiging outstanding employee, hindi ko tinitingnan na output ko 'yun, contributory lahat, ang boss mo, mga kasama mo sa division, ang mga ibang engineers na hiningan mo ng komento sa design na ginagawa mo at nagpahiram ng shop, at iba pa," pagbabahagi ni Rodel. Kapansin-pansin nga ang 'barkadahan' na turing ni Rodel sa kanyang mga kasamahan sa trabaho. Simple nga lamang ang kanyang payo

para sa kanyang mga nakababatang kasamahan. "I-enjoy mo lang mga ginagawa mo, kapag pillit kasi parang nagcocomply ka lang...dapat dedicated ka. Dapat pro-active ka...strongly involve ka dapat sa project, mag-

inject ka ng idea at kapag tinanggap ito ng supervisor mo eh nagmamature ka na... At yung research mo ay kaya mong

ikwento sa ilang pangungusap lang at naiintindihan ng hindi researcher," natutuwang paglalahad pa ni Engr. Idago.

Higit sa lahat, ang pagsasabuhay niya sa PHilMech Core Values na may akronim na CITES. C-creativity na sumasalamin sa kanyang pagkamalikhain at mapamaraan sa pag-aaral ng mga problema at solusyon; I-integrity o may integridad at tapat sa kanyang mga tungkulin at gawain; T- team work o ang mahusay na pakikisama niya sa loob at labas ng opisina, E- excellence o kagalingan sa lahat ng kanyang mga ginagawa; at S- spirituality o ang pagka-maka-Diyos na sumasalamin sa kanyang pakikipagkapwa at sa kanyang pamilya.

Pag-aamin pa niya ang paggawad sa kanya bilang Dangal ng PHilMech ay may kaakibat na mabigat na responsibilidad, "Dapat ikaw ang maging example. Eto yung liability sa

side mo, iba na kasi expectation nila. Dapat i-prove or disprove mo yung tingin nila sa'yo. Pero inspiration din 'yun, kapag narerecognize ka nakaka-boost din ng ego, naiinspire ka na i-push pa lalo".

Sa edad na 39, sa dami ng mga dumarating na inspirasyon, naniniwala si Engr. Rodelio Idago na marami pa siyang magagawa at maitutulong sa pagpapaunlad ng agrikultura sa bansa.



Tanong at Sagot

Tanong: Anu-ano ang magagawa ng mekanisasyon sa pagsasaka? Sagot:

*Mas maraming ani

Ayon sa mga pag-aaral, ang mas magandang pagbungkal, pag-aayos sa lupang pagtatamnan, ang napapanahong pagtatanim at paglalagay ng pataba ay nakapgpapataas ng ani

*Mas madalas ang pagsasaka

Sa paggamit ng makinarya sa bukid, mas mapapadali ang gawain sa pagsasaka. Nanaisin tuloy ng mga magsasaka na dalasan pa ang pagtatanim

*Mas mababa ang nasasayang na mga butil

Ang paggamit ng makinarya ay makatutulong para bumaba ang 16.47 porsyentong nasasayang na butil tuwing makatapos ani.

Modernong paggiling. Ang mga ito ay may mataas na antas ng milling recovery at rice recovery kaysa sa tradisyunal na paraan.

Mekanikal na patuyuan. Ang mga ito ay mas maraming natutuyo at ang mga butil na natutuyo rito ay higit na mas maganda ang kalidad kaysa sa tinutuyo sa tradisyunal na paraan.

*Mas maraming magagawa

Napapadali at napapabuti ng mekanisasyon ang proseso ng pagsasaka. sa tulong ng mga makabagong makinarya, nababawasan ang trabaho ng magsasaka at ng kanyang pamilya. Dahil dito,, nagkakaroon ng oras ang pamilya ng magsasaka na makahanap ng iba pang pagkakakitaan.

*Mas mataas na antas ng paggamit ng mga ani at mga karagdagang produkto

Magagamit ng mga magsasaka ang mekanisasyon sa paglikha ng iba pang produkto. Halimbawa ay ang paggamit ng ricehull-furnace. Dahil ito ay carbonizer na rin, makagagawa ito ng carbonized rice hull na mainam na pataba.

Sangggunian:

Philippine Center for Postharvest Development and Mechanization, 2012. Mga Tanong at Kasagutan: Programa sa Mekanisasyon ng Pagsasaka ng Kagawaran ng Pagsasaka, CLSU, Science City of Muñoz, Nueva Ecija.



Ang PHilMech

Sa maraming taon, ang Philippine Center for Postharvest Development and Mechanization (PHilMech) ay nagsasagawa ng mga pananaliksik, pagpapaunlad at pagpapalaganap ng mga gawaing makatapos-ani.

Sa ngayon, ito ay nagpapalaganap na ng mga teknolohiyang makatapos-ani sa merkado.

Sa pagpasa ng Batas Republika bilang 8435 o Agriculture and Fishery Modernization Act (AFMA) noong 1997, pinapangunahan ng PHilMech ang pagbibigay ng mga pamamaraang makatapos-ani upang palakas ang mga sektor ng agrikultura, pangisdaan at paghahayupan.


Para sa karagdagang kaalaman, makipag-ugnayan sa:

The Director IV

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