

PHilMech

Official Newsletter of the Philippine Center for Postharvest Development and Mechanization
January-March 2015

Vol. 22 No. 1 | ISSN 0119-891

Cover Story

The Amazing Journey of the Soya Milk Maker

A man with short dark hair, wearing a red polo shirt, is sitting on a black leather couch. He is smiling and looking towards the right. He is holding a white plastic bottle of So!K soy milk with a red cap. The background is a white brick wall.

GOO FIRST ALWAYS
KYLEVIN'S
DELICIOUS
SO!K



CONTENTS

NEWS

- 3** Sec. Alcala graces nat'l conference on agri mech, postharvest
- 4** Cocowater to boost income of copra farmers
- 5** PHilMech trains farm service providers
- 6** SCS confers PHilMech researcher a Scientist III rank
- 7** Dr. Dela Cruz receives achievement award
- 21** Paz is now Director III of PHilMech
- 22** Forum urges women in government to be good leaders

FEATURES

- 12** The Amazing Journey of the Soya Milk Maker
 - 14** The Promise of the Mighty Bean
 - 16** Improved System to Boost the Soybean Industry
- ## REGULARS
- 8** TREATS: All About Soybeans
 - 10** Development Plan: Surigao del Sur
 - 11** Research: Pilot Testing of Postharvest and Processing Systems for Soybeans

EDITORIAL BOARD

Editorial Consultant
Rodolfo P. Estigoy, PhD

Editor-in-Chief
Mila B. Gonzalez, PhD

Associate Editor
Vladimir B. Caliguiran

Graphics/Layout Artist
Jett Molech G. Subaba

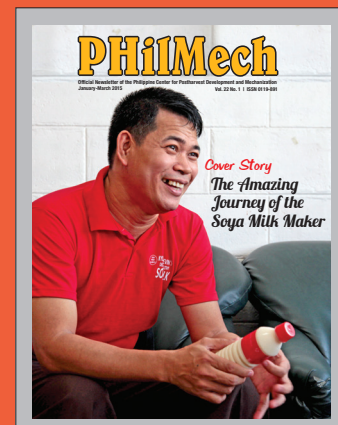
Circulation
Jemmalyne R. Aguilar

Photographers
Danilo T. Esteves
Cesar Jay Neric Jr.

Contributors to this issue:

Sherielyn B. Banglig, Aeron P. Bermudez, Vladimir B. Caliguiran, Christopher M. David, Mila B. Gonzalez, Jett Molech G. Subaba

COVER



Mr. Mer Layson, the soya milk maker and PHilMech partner on soybean processing.



Sec. Alcala graces nat'l conference on agri mech, postharvest

'Share the knowledge,' this was the challenge of Agriculture Secretary Proceso Alcala to the 68 participants of the National Technical Conference on Agricultural Mechanization and Postharvest Technologies, on March 20, 2015.

The DA Chief was the guest speaker during the closing ceremony of the conference which was held from March 17-20 at PHiMech, Science City of Muñoz, Nueva Ecija. Technical staff from 16 DA Regional Field Offices, and staff from the Department of Agrarian Reform attended the conference.

Updates and trends on farm mechanization and postharvest technologies and systems on rice, corn, and high value crops such as fruits and vegetables were presented in the four-day

event. The state of agricultural mechanization and postharvest in the Philippines was also discussed to the participants.

PHiMech experts and technology generators presented the industry situationer, and commercialized and emerging technologies for coffee, cacao, cashew, coconut, soybean, and other fruits and vegetables.

According to PHiMech Director Rex L. Bingabing, the conference has two objectives. First is to disseminate the new and emerging technologies developed and designed by PHiMech, and second is to gather information from the participants on their technology needs and situationer in their respective regions.

New technologies were also demonstrated to the participants.

This included the actual operation of the mini rice combine harvester, fluidized bed dryer, brown rice huller, pneumatic corn planter, corn compact corn mill, cassava harvester, and others.

Director Bingabing also showed to Secretary Alcala the said technologies during his ocular inspection.

Together with the DA Chief were Undersecretary Emerson Palad, Assistant Secretary Edilberto de Luna, Assistant Secretary Leandro Gazmin and DA-RFO 3 Director Andrew Villacorta. *VBCaliguiran*

Cocowater to boost income of copra farmers

The Department of Agriculture is giving additional source of income to copra farmers through the processing of mature coconut water.

A Coco Water Processing Technology Pilot Testing and Business Incubation Facility was recently inaugurated in Camarines Sur to further test and support the commercial viability of mature coconut water, improve the profitability of coconut by-products and provide additional income and livelihood to coconut farmers in the Bicol region and eventually the whole country.

“Coconut farmers are the poorest in the agriculture sector. But this time, we will use coconut to change

the lives of coconut farmers in the country through the non-traditional coco water,” Agriculture Secretary Proceso Alcala said.

The prototypes will be set-up as village-level facilities near farming communities to be operated by farmer cooperatives. Thus, farmers will directly benefit and jobs will be created for the communities.

The facility houses the Cocowater Pasteurizer and Chiller developed by the Philippine Center for Postharvest Development and Mechanization (PHiMech).

The machine can extend the shelf-life of mature coconut water up to one month by inactivation of spoilage microorganisms. It has an

output capacity of 500 liters per day or approximately 1,600 bottles at 300ml per bottle.

The facility was constructed through the concerted efforts of the Philippine Rural Development Project (PRDP), PHiMech, DA-RFO5, Camarines Sur Provincial Local Government Unit and Central Bicol University of Agriculture (CBSUA). *VBCaliguiran*

In photo:
Workers at the Coco Water Processing Technology Pilot Testing and Incubation Facility in Camarines Sur are preparing the mature coconuts for the water extraction





PHilMech trains farm service providers

Farming nowadays is no longer illustrated by a farmer with his carabao tilling the soil under the scorching heat of the sun. With the growing demands for agricultural products, people learned to invent and adopt technologies for the various activities and processes in the food production system.

The Department of Agriculture through its farm mechanization program provided agricultural machinery and equipment to legitimate organizations whose members are adversely affected by the growing use of agricultural machines and equipment. The displaced farm labors organized themselves to form as Farm Service Providers (FSPs) to provide for the needs of farmers in food production.

To strengthen the managerial and technical capabilities of the FSPs the Philippine Center for Postharvest Development and Mechanization (PHilMech)

through the Training Section of the Technology Management & Training Division (TMTD) conducted the training course "Operation and Management of Agricultural Machinery for Farm Service Providers" on March 23-27, 2015 at the PHilMech, Science City of Munoz, Nueva Ecija. Thirty-one participants from various FSPs in Luzon and technical staff from DA-Regional Field Office attended the training.

PHilMech Rice Program Focal Person Engr. Aldrin Badua gave updates and trends on Department of Agriculture programs on FSP, introduction of the technologies available at PHilMech and its financial analysis were discussed to the participants by the Mr. Roland Domingo, Branch Manager of Postbank-Tarlac Branch and member of the Philippines Institute of Certified Public Accountant (PICPA) discussed bookkeeping to assist the participants on the financial matters of their

In photos:

The participants of the training workshop on the Operation and Management of Agricultural Machinery for Farm Service Providers.

organization. A workshop on sample record keeping was also done to further hone their knowledge on the subject matter.

Similarly, the training aimed to strengthen the capability of the organization and help them identify their strength and weaknesses. Dr. Eduardo Cayabyab, division chief of the Technology Management and Training Division and Miss Helen R. Calica, Training section chief tackled the Organization and Management, and Communication and Leadership, respectively. At the end of the activities, the speakers shared that communication, good

...continued on page 21



SCS confers PHilMech researcher a Scientist III rank

Dr. Dionisio G. Alwindia, PHilMech scientist II was conferred scientist III rank by the Scientific Career System (SCS) effective November 3, 2014.

The scientist rank is given to 'highly qualified scientific personnel with productive R&D outputs and impact to the research community, for the benefit of incentives, rewards and career progression.'

Dr. Alwindia is currently a supervising science research specialist of the Food Protection Division of PHilMech.

He is engaged in conducting innovative research works in the field of postharvest pathology and bio-control. Dr. Alwindia has four on-going research projects on banana, coffee, cacao and cassava.

His discoveries of methods for inhibiting crown rot disease

in banana using *Bacillus amyloliquefaciens* DGA14 and *Trichoderma harzianum* DGA02 are some of his numerous contributions in the field of postharvest pathology in the Philippines.

With his expertise and experience, Dr. Alwindia is an affiliate professor in the College of Arts and Sciences in CLSU, teaching courses in Plant Disease Management, Disease Resistance in Plant and Advance Microbiology.

Dr. Alwindia finished his BS in Agriculture at Central Luzon State University in 1985. He took his graduates studies at Tokyo University of Agriculture in Japan with degrees of MS in International Agricultural Development and Doctor of Philosophy in Agricultural Science in 2000 and 2003, respectively. *APBermudez*



Dr. Dela Cruz receives CLSU alumni achievement award

Dr. Renita SM. Dela Cruz, the chief science research specialist of the Socio-economics and Policy Research Division of PHilMech received an achievement award during the Central Luzon State University (CLSU) Annual Alumni Homecoming and General Assembly at the RET Amphitheater, CLSU compound, Science City of Muñoz last February 7.

The CLSU Alumni Association gave the award as recognition for Dr. Dela Cruz' significant contribution and exemplary work in the generation, advancement, and utilization of scientific researches with significant impact, both locally and internationally.

Dr. Dela Cruz got the award for the following R&D achievements: (1) An integrated village-level

processing of cashew whole kernels and other products such as cashew wine and dried prunes; (2) an integrated village local potato processing system for the production of value added potato chips and fries; (3) adoption of mechanical onion grader for the mechanical sorting of citrus fruits; (4) an integrated community-based drying system for drying paddy and corn to maintain and reduce quantity losses in areas with type II climate; (5) processing system for coffee (Arabica and Robusta) using appropriate technology to reduce quality losses and value; (6) Postharvest and processing system for soybeans for food; and (7) Development of cost-reducing and climate resilient production and postharvest technologies and systems for bulb and multiplier onion.

Dr. Dela Cruz was also a recipient of different R&D awards at the national, regional, and institutional levels. Aside from being an excellent researcher, she is also a technical writer of several scientific research papers in various prestigious journals.

She graduated from CLSU in 1974 and rank top five in the Agricultural engineering Board Exam in 1975. She took her MS in AgEn at the University of the Philippines at Los Baños in 1983 and her PhD in Rural Development at CLSU in 2003. *CMDavid*

TREATS

All about SOYBEAN

TIPS



Harvesting Soybean

Soybean harvesting should be done early in the morning or late in the afternoon to lessen

shattering loss while cutting and piling.

If necessary, sundry newly-cut soybeans to avoid quality deterioration.

EQUIPMENT



Soybean Sorter

The PHiMech engineers have developed a Soybean Sorter for cleaning, sorting and grading soybeans on a single operation. The machine is made of GI sheets, screens and steel frames. It has three different sizes of sieves mounted inside the cleaning, sorting and grading chamber. The machine is easy to operate with only minor adjustments during operation. And Soybean Sorter can also be used to other crops like mungbeans.

RECIPE



Soy Burger

Ingredients: 1 kg soy meal; 3 cups minced vegetables (celery, carrots, and red bell pepper); 3 pcs eggs; 1 cup bread crumbs; 1 cup wheat flour; 2 tbsp finely chopped garlic; 1 cup finely chopped onion; 1 cup soy sauce; 2 tbsp finely ground black pepper; 1 tsp iodized salt; 1 tsp msg; 1 bottle soy mayonnaise; ½ kg cucumber; sandwich bags; burger buns

Procedure: Mix well all ingredients. Equally apportion mixture into desired number and size of patties. Deep fry then cool. Insert sliced cucumber and burger patties in burger bans with mayonnaise. Wrap.

Source: F.T. Rivera. 1995. Soybean As Human Food Philosophy of the Poor as First and Foremost. Central Luzon State University, Nueva Ecija, Philippines

Soybean, commonly known as 'utaw', is a leguminous vegetable of the bean family. It is a good source of protein, essential nutrients and dietary fiber.

Soybean can be cooked as a vegetable. It can be sautéed like mungbean or cowpea or simply boiled and seasoned with salt or cooked with sugar, like peanut.

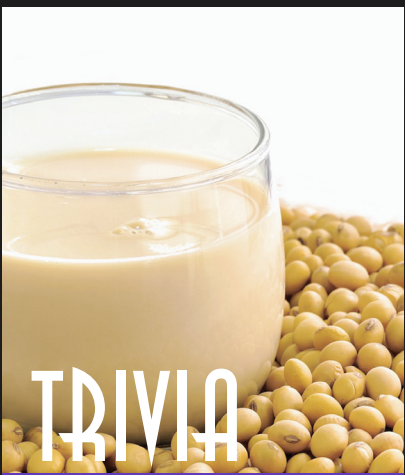
Soybean can also be prepared as soymilk and coffee. Because of its high protein content, it is a good substitute for meat.



Are you on a diet?

Why not include soybean in your daily intakes. Soy can help you lose weight because it increases your fat cell's metabolism rate. Soybean is a very good substitute for meat because of its high protein and low fat attribute. (www.funtrivia.com)

You can prepare soy meat alternatives in a jiffy and without hassle. And it is more affordable than meat products. Everyone can enjoy its meaty taste accompanied by its various vitamins and nutrients.

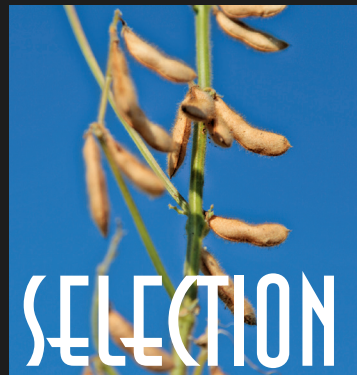


Other Uses of Soybeans

- Soymilk is a good replacement for milk for those who have cow-milk allergy and lactose intolerant.
- In Indiana, 1 acre of soybeans can make about 82,369 crayons.
- Soy ink is used to be made which is used to printing textbooks and newspapers.

Organic vs. Conventionally-grown Soybeans

Interested in producing soybean? Try the organic way for your health and the environment. Organically grown soybeans are better for your health than the conventionally grown ones. Using organic soybeans can reduce your intake of toxic pesticides and synthetic fertilizers which are present on the conventionally grown soybeans.

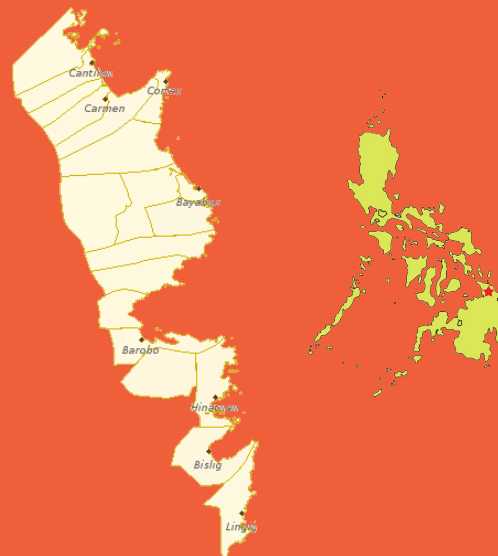


PH DEVELOPMENT PLAN

Surigao del Sur

One of the remaining frontier provinces in the Philippines, Surigao del Sur is located in the Northeastern coast of Mindanao facing the Pacific Ocean in CARAGA Region. It is composed of two cities and 17 municipalities most of which are located in the coastal areas with Tandag City as its capital.

Surigao del Sur is well known for its wonderful islands and beaches like the Cagwait Beach and the Britania Group of Islands.



Agricultural Profile

Surigao del Sur is predominantly an agri-based economy. Major crops produced in the province include rice, banana, corn, abaca, and coffee. Other crops like soybeans and coconut are grown.

Surigao del Sur's geographical location displays a qualified advantage in terms of the hugeness of aquamarine fishery resources gifted to it by nature, making fisheries as one of the primary industry and livelihood in the province.

Soybean production in Surigao del Sur shows potential as Department of Agriculture-Bureau of Agricultural Research trains farmers on the value-adding technologies of soybean including making of soya milk, taho and tokwa.

Postharvest Situationer

Postharvest losses in rice due to the unavailability of facilities during wet season are a problem. In particular, the number of mechanical dryers is not enough to cater the drying requirement especially in the municipalities without dryers. The tedious and laborious processing of abaca was identified as the main problems because of the unavailability of abaca processing facilities. The presence of pest and disease also causes the low production of fibers.

In the banana industry, the lack of technical know-how on production and post-production and the absence of semi-processing plants were the causes why banana growers lose interest and limit their production.

For coffee, lack of appropriate production and post-production technology results to poor quality of coffee produced. High cost of transportation also hinders farmers to risk into coffee farming.

In soybean production, the inconsistency of the market price discourages some farmers to plant soybean. In fisheries, the fisher folk lack knowledge on proper preservation and postharvest handing of fish.

Proposed Postharvest Projects

To improve the postharvest industry of the province, the establishment of the following facilities are suggested by participants of the consultation workshop.

- Farming Service Center for Corn
- Community-Based Drying Center for Rice and Corn
- Abaca Processing Center
- Banana Semi-processing Plants
- Coffee Nursery
- Fish Processing facilities
- Provision of appropriate postharvest facilities

Source: Surigao del Sur Postharvest Development Plan (2007-2017) by the Provincial Government of Surigao del Sur through the Office of the Provincial Agriculturist (Tandag City) and the Department of Agriculture-PHilMech (formerly BPRE)

Support to Surigao del Sur's soybean industry intensified by Anne Camille B. Brion through the Department of Agriculture-BAR

Pilot Testing of Postharvest and Processing Systems for Soybeans

Ma. Cecilia R. Antolin, Renita SM Dela Cruz and Cesar F. Neric, Jr.

In line with the initiatives of the Department of Agriculture to further develop and sustain soybean production and processing industry in the country, PHilMech developed and/or assembled postharvest and processing technologies and came up with systems appropriate to the present level of production in existing soybean communities and soybean-based processing enterprises.

Specifically, PHilMech identified appropriate postproduction systems for the production of good quality raw materials for food processing and the processing systems in producing milk and other soymilk-based products like taho and tokwa.

PHilMech evaluated and recommended threshing technologies, calibrated the Shega moisture meter for potential use in soybeans, and developed a sorter-grader for cleaning and sorting soybeans. The continuous rains in some parts of the country where soybean has been traditionally grown hinder the production of good quality seeds, thus “all-weather dryer” is also recommended to facilitate drying even during wet season harvest as in the case of Agusan del Sur and Surigao del Sur. Postharvest technologies were pilot tested in Tago, Surigao del Sur and Ilagan, Isabela.

The project also identified the appropriate technologies that could be used in processing



soymilk and other soymilk-based products. The hearts of the processing systems are the grinder and presser. Other processing facilities are commercially available in the market. Processing centers that produce soymilk, taho and tokwa were established in CARAGA and Cabanatuan, Nueva Ecija. The Golden Beans and Grains Producers Cooperatives of Nueva Ecija launched its soybeans products (e.g. milk, taho, tokwa, soyburger and langgonisa) on January 28, 2014 in Palayan City, Nueva Ecija. Raw materials for processing soymilk and other products would come from cooperative members who will produce soybeans.

PHilMech will be coming-up with different postharvest and processing modules that will serve as reference guide for those who will venture in producing and processing soybeans.

The Amazing Journey of the Soya Milk Maker

By Mila B. Gonzalez

Life is a journey that takes on different routes. It may be a long, circuitous road, full of hardships. It may also be a short, straight and smooth - sailing journey. Whatever path life offers, it is upon a person to determine the outcome and quality of his or her journey.



For Mer Layson, a soya milk maker, life is the hard way. Because he belonged to a poor and big family in Mexico, Pampanga, he has to work hard, even at an early age of 16 at the farm. In spite of these difficulties, Mer carries a positive outlook. He is never bitter of his condition. Instead, he grabs every opportunity that comes his way, opportunities which Mer considers as blessings.

The first steps

"I was inspired by a neighbor with a disability," Mer narrates. "If he can take photos with his camera even without fingers, what more I who have complete hands?" This spark of inspiration taught Mer never to back out at anything.

He started his career as a commercial photographer. With a camera he bought from his share of his father's palay harvest, he took pictures of every KBL event he could attend to.

"KBL stands for Kasal, Binyag, Libing (wedding, baptism, funeral)," said Mer smiling.

Aside from these events, Mer took pictures in schools, show business and even night clubs. When a reporter from Abante asked him to be his partner-photographer, he agreed. This started his stint as a reporter, too.

The Uphill Climb

Mer took a course in AB Communication at the Far Eastern University. As a working student, Mer tripled his efforts and work



simultaneously as a photographer, reporter and Public Relations man. He needed money to support himself and his two younger brothers in college.

Mer practices regular savings, setting aside without fail, 20 percent of his earned wages and salary. This habit helped him through life's ups and downs, saving enough to shoulder his father's medical expenses for kidney dialysis.

"My father did not want to use my savings for his medication. I insisted. I told him not to worry. I have saved P2.5 million and I will use this money

for him. My father lived another four years," said the loving son.

Through his uphill climb in life, Mer always call on God. And God has always provided for his needs, including his life partner, Mary Ann, a fellow reporter. They are now blessed with three kids, Kyla (14 years old), Kyle (7) and Kevin (2), who served as inspiration in all their undertakings.

The Crossroads

As the kids grew, Mer and Mary Ann thought of the need to put up a small business as an additional source of income. At this crossroads in their

life, Mer heard over the radio, Radyo ng Bayan (DzRB) about a training course on soybean production and processing to be conducted in Nueva Ecija. He got interested. He attended the training.

The Philippine Center for Postharvest Development and Mechanization (PHilMech) in partnership with the Agricultural Training Institute (ATI) of Pampanga, conducted the training course. The Golden Beans Producers Cooperative, wherein Mer is a member, participated in the training.

...continued on page 20

The *Promise* of the *Mighty* *Bean*

By Vladimir Caliguiran

“It puts Surigao del Sur in the map,” said Provincial Agriculturist Marcos Quico. He is not referring to the top tourist attractions Enchanted River and the Tinuy-an Falls. He is referring to the small but precious soybean produced in Surigao del Sur.

“Soybean in Surigao Del Sur is very promising. In fact, kung titignan ninyo sa statistics, kami lang dito ang may soybean na malaki,” PA Quico expounded.

The Soybean industry

The Philippines has a very small production of soybean compared to demand of the processing industry. In 2011, the soybean production in the country is only 810 MT. The country is importing about 95 to 98 percent of the supply from USA, Argentina, Canada, Brazil, and India.

Soybean is a raw material for both the food and feed industry. The bean contains approximately 40 to 45 percent protein, 20 to 25 percent edible oil, and a significant amount of vitamins A and E and other minerals. This is processed into soymilk, tofu, soy sauce, and cooking oils. Soybean, being rich in protein, is a main ingredient of feeds for the livestock industry.

Surigao del Sur remains to be the top producer of soybean in the country. Other local supply comes from the provinces of Southern Mindanao, Central Visayas and Cagayan Valley.

Based on records of the Provincial Agriculture Office of Surigao Del Sur, farmers started growing soybean in 1980. A multi-national company was then the

buyer of the produce of the farmers through contract growing. However, the trading was suspended due to issues on breach of contract and declining production.

Nevertheless, farmers in the towns of San Miguel and Tago still hold the promise of the mighty bean. According to PA Quico, local traders and buyers from Davao are coming to Surigao del Sur to buy soybeans during harvest season.

To date, the farmers are cultivating their traditional variety Manchuria (identified previously as paypay) as a supplemental crop. Some of the farmers alternately plant soybean with rice and/or corn. Studies show that soybean is an excellent rotating crop and/or intercrop because it is a nitrogen fixing-crop.

About 406 hectares are being planted with soybean in the province. And 78 percent of which is in the municipality of Tago. Last cropping season, farmers had an average yield of 1.07 MT per hectare

The group of PA Quico unceasingly encourages the farmers to plant soybean through the conduct of seminars, campaigns and establishment of demo farms. Farmers are also encouraged to practice organic farming. At present, through the integrated pest management of the KASAKALIKASAN Program farmers gradually adopted the concept of biological control since 1997.

The Provincial Agriculturist, however, admitted that the market remains to be a problem of the local soybean industry. "Kapag mag-peak na 'yung harvest, sa umpisa mag-offer 'yan as high as 25 pesos pero kapag peak na, mag-drop 'yan as low as 16 pesos. Delikado ang investments ng farmers," he said.

Prior to marketing

Before farmers handle their marketing dilemma, they are carrying in the burden on postharvest operations on the farms: harvesting, threshing, drying, sorting and storage.

"Soybean cultivation is much expensive compared to rice...saka mas delikado," PA Quico explained. Kailangan kapag harvest period, kailangan hindi ka maabutan ng ulan, dahil kapag naabutan ka ng ulan, tapos na ang buhay mo. Kailangan kapag nagh harvest ka, mataas ang temperature. Kapag nag-drop ang humidity, disgrasya na abot niyan."

The CARAGA Region has a type 2 climate characterized by the absence of a dry season. The continuous rains in the area



PA Marcos Quico

make the situation tougher for the soybean farmers.

"That is why the role of PHilMech is crucial," he further emphasized.

PHilMech response

In 2013, PHilMech developed a postharvest and processing system for the current farmer-level soybean production.

The Socio-economic and Policy Research Division of PHilMech came up with the recommended technologies and practices for on-farm and off-farm handling of the produce. This system was tested in different soybean producing area in the country, and one is in Surigao del Sur.

Farmers' feedback

The Anahao Bag-O Farmers Association of Tago, Surigao del Sur was the chosen partner for the pilot testing of the improved soybean handling

(Read full story on page 16). From manual operations, PHilMech had introduced machines such as the multigrain threshers and the PHilMech Soybean Cleaner/Sorter. Soybean farmer-scientist, Richard Vertudaso, had recognized the benefit of the all-weather dryer (AWD) installed at their farm. Vertudaso said that the AWD allows them to dry their produce easier and faster.

Both farmers and the researchers observed the benefits of the system in producing quality soybeans. Even after the pilot testing, the farmers of Anahao Bag-O are using these technologies. In fact, these technologies and practices are being shared to other farmers in the nearby barangays.

Quality soy

Grown organically and harvested carefully, the soybean of Surigao del Sur is of high quality. And just like the tourist destinations in the province, the small precious soy will enchant a better and bigger market.

Sources:
Soybean in the Philippines by Elmer Enicola. <http://philsoybeans.blogspot.com/>
Handbook on soybean production technology and product utilization. DA-RFO-02
Farmer-level Postharvest Handling of Soybeans (Technology Leaflet). PHilMech



FEATURE

There are things in this world that can never be achieved instantly.

In planting a crop, you cannot produce the fruit on the same day you planted it. Building a house cannot be finished on the same day you laid the foundation. Establishing a business won't bring back your capital the first day you opened it. The first try may not bring immediate success, but the initial step makes a big difference.

Improved **SYSTEM** to boost the **SOYBEAN** *Industry*

By Jett G. Subaba



The same is the story of the Anahao Bag-o Farmers Association (ABFA) in Tago, Surigao del Sur on their venture in the soybean industry. Their initial step to adopt the PHilMech-developed soybean production and postharvest handling system has made a significant difference in making their work easier and faster, at the same time preserving the quality of their soybeans.

Beginning of the venture

The organization started in 2008. The Municipal Agriculturist of the Department of Agriculture assisted the farmers in the area and adjacent barangays on their farming needs including their access to government projects.





Since 2010, the organization has been receiving from the government different farm machinery like floating tillers, threshers, sorter and dryers. These machines assisted them in their production of rice, corn and soybeans. The 56 members of the organization are tilling a total land area of 220 hectares. They practice intercropping, starting with rice from December to March, soybeans from April to August and corn from September to December.

Soybean is not a new crop to the people of Surigao del Sur. In fact, even before the government has seen its potential as part of the high value crops priority projects, farmers of Surigao are already planting soybeans since the 1980's.

During those times, a multi-national company entered into a contract with the soybean farmers. They supplied seeds for planting under the condition that the company will be the sole buyer of their produce. However, invading traders bid a higher price for their soybeans during the harvest season, tempting farmers to break their contract.

This scenario is one of the major

changes that the Anahaw Bag-o Farmers Association (ABFA) wants to change in their time.

“Sa amin kasi. . . kung maari, hindi na maulit yung mga nangyari sa mga naunang panahon ng magsasaka. Gusto nating maiwasan ang ganung klaseng pagkasira. Kung merong mangyayari ngayon, kakaiba na mula sa nakaraan,” said Teodoro G. Montero, Chairman of ABFA.

Moreover, they want to maintain fair competition with other service providers in the area to minimize criticisms in the community. Association members are offered loans with five percent interest to cater to their farming needs. Moreover, members are given cheaper rental fees for technologies available in the organization. These greatly help farmers in their farm operations. The members will only pay P130 per hour, and they can maximize the machine use on their farm operations, with an operator assisting them.

The organization also does not rely on the assistance of DA when their technologies need repair. Since they have funds, they have these technologies fixed so farmers can resume their operations immediately.

“Kung kaya na namin, bubuhayin na



yung nasirang technology. ‘Wag nang iaasa, kasi duon nagkakasira mga gamit ng gobyerno e, may sirang konti iaasa na, eh walang mangyayari d'yan,” said Chairman Montero.

Montero, as the head of the organization, always reminds his team to take care of the technologies as if they are their own because he believed that his team members can make or break the organization and its facilities. Funds are allocated for the maintenance of the technologies so that they can sustain their operations.

Since 2012, Mr. Richard G. Vertodaso, business manager of the organization, has started attending seminars on soybean production particularly on UPLB's Tiwala 8 and Tiwala 10 varieties which the organization has tried in their farms.

In 2013, the organization was introduced to the Philippine Center for Postharvest Development and Mechanization or PHiMech through the efforts of the DA-CARAGA. Back then, PHiMech, was looking for an R&D collaborator for the soybean project.

...continued to next page

Improved System... from previous page

The organization expected PHilMech to assist them in their soybean venture. And they were not disappointed.

“Ganyan ang PHilMech, kapag nangako, natutupad,” said Montero.

“Ang maganda sa PHilMech, kung paano mapadali yung trabaho at maiwasan yung mga sira, ‘yun talaga ang number one na naitulong nila sa amin,” added Vertodaso, a current barangay councilor in Anahaw Bag-o.

Soy Wisdom

The ABFA farmers are not amateur in soybean production. Through the years, the knowledge and wisdom they gained from the training courses they have attended helped them in coming up with effective practices.

According to Mr. Vertodaso, soybean is a sensitive crop especially at its maturity stage. It is very prone to deterioration when moderate to heavy rains hit during the harvest season. “Kapag yung soybean mo nasa harvest maturity na, dun yung mataas yung risk ng pagkasira. Kasi ‘pag nabasa ng kahit hindi malakas ang ulan, pagkatapos ay aabutin pa ng ilang araw, mangingitim na ‘yan at yung iba, tutubo na sa ilalim ng lupa”, says Vertodaso.

The organization is currently planting a paypay soybean variety which for them is the best and most accepted variety in their area since the 1980’s. This variety has an average yield of 2.5 tons per hectare and can be harvested in just 100 days, maturing earlier than other soybean varieties.

Right after harvest, farmers set aside 18 to 20 kilograms of soybeans per hectare for the next cropping season. Because soybeans are highly absorbent of moisture, these are stored with moisture content of 6 to 9 percent in vacuum plastic container to avoid germination and deterioration. The temperature of the storage area should neither be very high nor low to avoid risks. They follow this practice because they believe that with proper storage, the quality of the seeds will not be sacrificed.

Farmers also plant soybean in soils that is neither very wet nor very dry. The planting of the crop is well-planned so that harvest time will coincide on the driest season. Moreover, soybean farmers practice organic farming. In fact, Mr. Vertodaso makes his own organic fertilizer to avoid chemical contamination of his crop.

PHilMech’s improved system for soybean

PHilMech believes that soybean, a protein-rich vegetable of the bean family, could provide considerable returns for the organization with proper production practices and improved postharvest handling system.

The Anahaw Bag-o Farmers’ Association has followed PHilMech’s recommended postharvest handling system for soybeans from harvesting to storage and it gained remarkable results in their postproduction.

One example is on threshing. Before, some of them do manual threshing by beating the soybean straw to get the seeds. This caused significant

losses. Although others are already using mechanical threshers, they still experience postharvest losses because they have to wait for the availability of the thresher. But with the help of PHilMech, they obtained a double-drum multigrain thresher that made their operation easier.

“Dati hindi agad ma-thresh yung ani naming dahil hihintayin pa yung thresher mula sa kabilang barangay, pero ngayon, mas napapabilis na kasi



sa amin na yung thresher,” said the business manager.

Another significant change is on the sorting and cleaning process. “Dati bibilangan mo maraming araw hanggang isang linggo o isang buwan sa paglilinis ng soybean, dahil pinagugulong lang yun sa plywood para masort yung mga buo sa mga broken. Ang isang tao ay makakalinis lang ng dalawang cavan sa isang araw at binabayaran namin ng P60 per cavan,” said Vertodaso. “Pero ngayon sa sorter, napabilis na yung trabaho, bababa pa yung cost,” he

emphasized.

With the PHilMech sorter, the association only need two operators to proceed with the operation which can be done in 24 hours and finishing 80 cleaned and sorted sacks of soybeans per day. The cost was cut down to only P20 per cavan unlike the traditional practice. Cost and time wise, they have saved more than 50 percent from their former practice.



For the drying of soybeans, the ABFA followed PHilMech's recommended postharvest handling system. And this has brought significant changes in the drying as well. The All-Weather Dryer saves on the farmers' effort and time, at the same time ensuring the quality of their produce.

"Dati sa mga kalsada lang kame nagpapatuyo, pagkatapos kung saan may solar dryer, dun kame nagrerenta," said chairman Montero. "Pero ngayon sa all-weather dryer,

'pag umuulan hindi ka na naghahabol na iligpit mo dahil may ulan. Umaraw o bumagyo, ok kaya siguro tinatawag na all-weather. Kahit hindi mataas ang araw, mada-dry talaga. Pati sa alikabok wala kang problema. E kung sa solar dryer kailangang lagi kang nakabantay. Pag sa AWD, imbes na gagawin mo ng buong araw, gawin mo lang isang oras, iwanan mo na, meron ka ng ibang trabahong magagawa. E sa kinabukasan, babalikan mo nalang tas iche-check mo moisture content nya," explained Richard Vertodaso.

The all-weather dryer has a capacity of 400 to 500 kilograms of soybeans. Mr. Vertodaso sometimes maximizes it to 600 kilograms and still have good results. The said dryer works with a moisture meter that tells the percentage of moisture content of the soybeans. The traditional way of knowing moisture content of the beans is by biting the bean. If it breaks, then it is well-dried; if it sticks on the teeth, it needs more drying.

Farmers' sentiments

The lack of market and the fluctuating price of soybeans are among the major problems encountered not only by the ABFA but also by the whole province of Surigao.

"Since 1980's, problema na namin ang market. Dati hindi kinikilala ang soybeans, pero nung naupo si Secretary, kasama na sa HVC priorities, nakilala na. Pero kahit ngayong kinikilala na, wala pa ring market. Mahina talaga ang market. Ang problema dyan, pag nabanggit na ang market, dun na nanlulumo ang mga magsasaka. Walang maisagot eh, hindi alam kung ano isasagot," explained the teary-eyed

chairman.

Currently, the soybean market of ABFA is Davao, which according to the chairman, is not fixed. Market price also fluctuates. Fresh soybeans are sold at P20 to 24 per kilograms, while dried soybeans are sold at P28 per kilograms.

There was a time when soybean farmers also experienced a sudden fall of the market price of soybeans at P5 per kilograms. Chairman Montero narrated what farmers did during those times. They feed their soybean to pigs instead of selling their produce at a low, low price. Fortunately, after 45 days of feeding the pigs with soybeans, they could already sold the pigs to the market. The farmers got their profits from selling their raised pigs instead of soybeans.

The soybean market may not be favorable for farmers in Surigao del Sur, at present, but the initial steps of PHilMech in improving the postharvest handling system of ABFA can boost the soybean industry in the area. Now, more and more soybean farmers in adjacent barangays particularly those from barangays Anahao Daan, Kinabigtasan and Bangsud are also experiencing the perks of the new system introduced by PHilMech.

Like a planted crop, a built house and an opened business that will grow, be fully built and established in time, this organization with its passion and hard work, will surely rise from this eastern part of Mindanao, as a stable and strong soybean producer of the country.



The Amazing Journey... from page 13

"Each training participant received one kilogram of soybeans. I processed mine into several products like siomai, soy milk and pastillas at home. My family loved it!"

"In another occasion, the Department of Agriculture gave 10 kg soybean seeds. I planted the seeds in my farm in Mexico, Pampanga as intercrop to corn."

Mer and his wife started their business on soybean processing in September 2013. They first tried their processed products to their kids and whichever their kids love most, that would be their business products. The children liked soya milk and pastillas. And so these became their products and they called it KKK which stands for Kyla, Kyle and Kevin. But pastillas is too laborious to produce, said Mer. Thus, they focused their energy and resources in producing only one product – the Soya Milk.

A media practitioner, Mer is his own marketing man. It is easy for him to convince customers because he and his family patronize their own product.

"My children drink soya milk. We all drink soya milk. And we seldom get sick. Soya milk is the secret to our health," revealed Mer. "All our earnings in the soya milk business are for our children," he added. Mer's market outlets include schools in the Intramuros area, Philippine Star canteens and private retailers, including his sister.

The straight path to success

Mer is convinced his family's business on soya will continue. This is their straight path to success.

The family business is processing 250 bottles of soya milk a day. These bottles are delivered to customers daily. Daily sales of soya milk reach P2,000 or P60,000 each month.

"PHilMech has been a great help to us. . . They taught me and lent me equipment for processing soybeans. We will have no soya milk business, without PHilMech. I will not also be able to hire workers. . . Through soya milk, I am able to send my children to school," said Mer.

"Before, I delivered soya milk by foot and with my second hand car. Then we were able to buy a brand new tricycle. Now, I am using our new Montero for soya milk

delivery," shared Mer with pride.

Because of the soya processing business, not only have Mer and his family increased their income, they are able to help generate employment. There are four workers hired in processing soya. They stay with the Layson family with free meals and lodging.

Mer is also venturing now into soy coffee with the help of PHilMech.

Mer Layson's journey may be a hard climb, but he believes that God brought him to where he is now.

"I always put God first," said Mer. This he learned from his father, he said. Upon waking up at dawn, he prays first before anything else. God is his source of strength and direction.

Mer's life is an amazing journey of faith, hope and love. He uses his talents to create works of art and food for the body. His pictures capture the beauty and truth of reality. His words wake up many persons in the doldrums. His product, the Soy Milk, brings joy to many people of all ages. What a great feat of this soya milk maker!



Paz is now Director III of PHilMech

Engr. Raul R. Paz got his Malacanang appointment as Director III of PHilMech effective March 5, 2015.

Prior to his appointment, Director Paz was the acting deputy director of PHilMech. He also led the Extension Support Education and Training Services (ESETS) Cluster which is responsible for the research results dissemination and utilization of the agency. Divisions under the cluster are the Applied Communication Division, Technology Management and Training Division and the Enterprise Development Division. Director Paz also headed the

Agro-Infrastructure Coordinating Unit (AICU), one of the units comprising the ESETS Cluster.

Engr. Paz was also the director I of the Postharvest Systems Analysis and Development Department (PHSD) of the then Bureau of Postharvest Research and Extension or BPRE, now PHilMech. Earlier in his career at PHilMech, he is also an award winning researcher.

He started as research assistant in 1986 and rose from the ranks. He graduated from the Gregorio Araneta University Foundation with a degree of BS Agricultural Engineering in 1983.

PHilMech trains... from page 5

leadership and team work are essential for an organization to succeed. All matters could be settled through proper communication among the members.

“Ang pagsasaka ay hindi lamang pagsasaka kundi isang pagnenegosyo,” said Engr. Romeo S. Vasquez, Chairman of the RS Vasquez Service Provider during his sharing about FSP’s successful story.

Culminating activities included demonstration of machinery like transplanter, reaper, and thresher handled by Engr. Dindo Labrador and Engr. Nino Bengosta of the Agri-Infra Coordinating Unit (AICU). Seedlings preparation through the use of trays and dapog system were also taught by Ms. May Ville Castro of TMTD.

According to the participants, the technologies demonstrated are very helpful in their activities of providing services to the farmers. “We are able to gain various insights on this training and we are thankful for considering us to be part of your training program, another participant added.

In response, Dr. Eduardo Cayabyab said, “PHilMech is always willing to extend help to its stakeholders who are willing to help themselves for the better.”
SBBanglig

Forum urges women in government to be good leaders

Women in government participated in a forum on leadership, power and decision-making in the bureaucracy. The event took place at the Pamantasang Lungsod ng Pasig, Pasig City on March 24, 2015.

Representatives from the PHilMech-Gender and Development (GAD), led by its focal person, Miriam A. Acda, also joined the forum.

Women leaders in the likes of former Senator Leticia Ramos Shahani, Mayor Maribel Andaya-Eusebio of Pasig City, former Commissioner of the Civil Service Commission Mary Ann Mendoza, Lieutenant Commander Marineth Domingo of the Philippine Navy, Colonel Sharon Gernale of the Philippine Air Force and Executive Director of the Career Executive Service Board, Atty. Maria Anthonette V. Allones were among those who shared their experiences and advices to the audience.

Pasig City Mayor Maribel Andaya Eusebio who welcomed the women audience said, "Public service is a worthy endeavor, a very fulfilling job."

Dr. Aileen Riego-Javier, first woman executive director of the National Kidney and Transplant Institute, described a woman leader



as "the captain of the ship, in-charge of everything--providing leadership across the organization and creating environment for empowerment, innovation, learning and succession."

Former Senator Shahani also said, "A leader should take risks. She should learn from the battle-scarred; learn to dare."

Chairperson Remedios Rikken of the Philippine Commission on Women advised the participants, "Women must organize themselves and become their own liberators."

Women leaders also coined words to describe their success secrets. A few examples include

4Ds –Discipline, Determination, Dedication and Divine intervention; 4 Ps- Prayer, Patience, Perseverance, and Persistence; and 4 Gs –Growth, Governance, Green Engineering and Gender.

Aside from listening to the inspirational talks of the women leaders, the audience watched inspirational videos and participated in panel discussions, call to action and community singing. The Philippine Commission on Women, Civil Service Commission and the City Government of Pasig organized the women's forum in celebration of the national women's month.

MBGonzalez



Ang *brown rice* o pinawa ay hindi isang **B**arayti. Ito ay ang *whole grain* o *unpolished form* ng bigas, kung saan ipa lamang ang inalis upang ito ay mas maging masustansya.

Kahit anong ba**R**ayti ng palay ay pwedeng maging *brown rice*, subalit inererekomenda ang malalambot na barayti upang mas masarap itong kainin.

Makatutul**O**ng ang pagkain ng *brown rice* sa pagkamit ng sapat na bigas sa Pilipinas dahil mayroon itong mas mataas na milling recovery. Sa isang kilo ng palay, makakakuha lamang ng 650g ng puting bigas, subalit ito ay magiging 750g kung ang palay ay gagawing *brown rice*.

Mas *environment-friendly* ang produksyon ng bro**W**n rice. Mas matipid ito sa enerhiya dahil hindi na kailangan paputiin pa ang bigas.

Mas masarap ang *brown rice* kung ito ay niluto ayon sa iyong pa**N**lasa. Maglagay ng dalawang tasa ng tubig sa bawat tasa ng *brown rice* kung nais mo ng malambot na kanin.

Maging **RICE**ponsible! Kumain ng *brown rice* para sa mas malusog na pangangatawan at nang bansa ay matulungan!



Soybean Threshing

Farmers of Anahao Bag-O Farmers Association in Tago, Surigao Del Sur are now using the PHilMech recommended postharvest technologies for soybeans.

Photo by Cesar Jay Neric



Let's get Social!

[facebook.com/philmech](https://www.facebook.com/philmech)

[@philmech](https://twitter.com/philmech)

<http://www.philmech.gov.ph>

Let's Talk!

CLSU Compound, Science City of Muñoz,
Nueva Ecija, Philippines, 3120

Tel. No.: (044) 456-0282 Fax No.: (044) 456-0110