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Volume 21 Issue No. 1

January - March 2019

ikm mentorship program

Communicating
agri-fishery R&D
results effectively



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BAR R&D Digest is the official quarterly publication of the Department of Agriculture-Bureau of Agricultural Research (DA-BAR). A staff bureau of DA, it was established to lead and coordinate the agriculture and fisheries research and development (R&D) in the country. Specifically, BAR is tasked to consolidate, strengthen, and develop the R&D system to improve its effectiveness and efficiency by ensuring customer satisfaction and continuous improvement through work excellence, teamwork and networking, accountability and innovation.

This publication contains articles on the latest technologies, research results, updates, and breakthroughs in agriculture and fisheries R&D based from the studies and researches conducted by the member-institutions of National Research & Development System for Agriculture and Fisheries (NaRDSAF).

BAR R&D Digest welcomes comments and suggestions from readers.

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Research is not finished until it is communicated

by Dr. Nicomedes P. Eleazar, *CESO IV*

Research plays a crucial role in the agriculture and fisheries sector. Through research, innovation and technologies are developed thereby improving all aspects of the value chain, from production to marketing. Creating an effective R&D system in agriculture and fisheries is a vital element to ensure food security.

Yearly, resources are being poured into various R&D initiatives with the hope that they will bear fruits leading to the improvement of the sector, particularly the farming and fishing communities.

The Bureau of Agricultural Research (BAR), as the mandated R&D arm of the Department of Agriculture (DA), with its research thrusts and priorities, is supporting various initiatives that are geared towards improving the production of the sector.

However, in order to make use of the products of research, the public must first be aware of the technologies that they can adopt and use to improve their production. They must know that these technologies and innovation are within their reach and that they can adopt them immediately in their fields.

BAR believes that research is not finished until it is effectively communicated to the public. Research findings must reach the intended users to be considered useful.

“ *BAR believes that research is not finished until it is effectively communicated to the public. Research findings must reach the intended users to be considered useful.*

It is in this context that research communication plays an important role in making research results relevant and useful to the sector.”





PHOTO: BAR

It is in this context that research communication plays an important role in making research results relevant and useful to the sector.

Désirée Goubert, in her article “Why is research communication important?” published in *Mind Mint* on 1 November 2017, mentioned how public awareness is key in successful research. Effective research communication, according to her, can help in making ethical decisions about research findings and discoveries. She cited that, “the impact of research communication goes further than just explaining it; it is about building bridges between research and the public. It’s about creating a mutual engagement.”

BAR shares the same sentiment with Goubert. As a funding agency, BAR must also see to it that, all its supported R&D initiatives reach the intended users. Beyond informing them, BAR must also ensure that these technologies are properly introduced and used to improve their production,

ultimately, their way of life.

Specifically addressing this need, BAR collaborated with the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) in 2017 to launch the “Information and Knowledge Management (IKM) Mentorship Program: Communicating Agriculture and Fisheries Research for Inclusive and Sustainable Development (CAFRISD).” It aims to capacitate the information officers of DA on how to effectively and efficiently manage knowledge and information generated from R&D. A first-of-its-kind mentorship program, it uses the blended learning approach, consisting of face-to-face and online sessions during the duration of the course.

After more than a year of implementation, the first batch of learners composing of 16 research and information officers from the DA-Regional Field Offices finished the course and graduated in September 2018.

Part of the module of the program is science communication and writing for dissemination of agriculture technology and research results. The outputs for this module are feature articles on various BAR-supported research initiatives that the regions have implemented.

This issue of the *BAR R&D Digest* features these articles written by the pioneer graduate of the BAR-SEARCA IKM Mentorship Program. The topics of the articles include: *Adlay*, *Unoy* rice, duck, traditional rice, cacao, organic soybean, chicken raising, Rice Crop Manager application, *Next-Gen* rice varieties, and corn production in sloping areas referred to as SCoPSA.

It is hoped that through these feature articles, the public will be informed on the recent technologies from R&D.

Everyone has the right to know the impact of these public-funded researches especially on the improvement of the agriculture and fisheries sector. ###

IKM MENTORSHIP PRO

Communicating agri-fishery R&D results

by Rita T. dela Cruz



PHOTO: SEARCA



PROGRAM

ts effectively

With the increasing number of agricultural research being conducted over the past decades comes the buildup of information and knowledge requiring efficient management.

Knowledge is an organization's most valuable asset. But knowledge becomes ineffective without its source and manager. The heart of every information and knowledge management (IKM) initiative is the people.

IKM is anchored on the premise that an organization's most valuable resource is the knowledge of its people. Therefore, how well an organization performs depends largely on how effectively information and knowledge is being developed, captured, and shared by its people to achieve the organization's objectives.

Research and development (R&D) is a knowledge-intensive field that requires an effective program and strategy to manage generated information and knowledge and turn them into high-value asset that can be used by the intended beneficiaries to improve both production and profitability.

It is on this context that IKM becomes an important pillar of every program that the Bureau of Agricultural Research (BAR) implements. As the R&D arm of the Department of Agriculture (DA), BAR must see to it that information and knowledge generated from its supported research projects are effectively and efficiently managed in such a way that capturing, sharing, and reusing become easy both for the organization and the stakeholders.

Effectively managing IKM from R&D creates value by reducing the time and expense of trial and error or reinventing the wheel.

IKM Mentorship Program

BAR's vision of "a better life for Filipinos through excellence in agriculture and fisheries R&D" is based on the premise that knowledge is power. Achieving "a better life" can be attained if people have the relevant information and technologies on their hands that they can use to improve their lives.

This strategy is not limited to sharing and reusing knowledge and information to benefit the farming and fishing communities, but more importantly, on how knowledge is effectively managed and used for its optimum use.

On 12-15 September 2017, BAR, in collaboration with the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), launched the "Information and Knowledge Management (IKM) Mentorship Program: Communicating Agriculture and Fisheries Research for Inclusive and Sustainable Development (CAFRISD)."

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PHOTOS: SEARCHA



The program aims to enhance the skills of research officers in communicating scientific information using multimedia platforms that engage public understanding, appreciation, and application of various technologies geared towards agriculture and fisheries sustainable development.

A first-of-its-kind mentorship program, it uses the blended learning approach consisting of face-to-face and series of online sessions within the duration of the course. The mentors are composed of professors from the University of the Philippines

Los Baños-College of Development Communication (UPLB-CDC).

The course has four modules covering the foundation of science communication for sustainable development and produce materials for print, audio-visual, and online production. These include: 1) science communication in the context of inclusive growth and sustainable development in agriculture research; 2) writing for dissemination of agriculture technology and research results; 3) photography and videography for dissemination of agriculture

technology; and online writing and production for dissemination of agriculture technology and research results.

Another component of the program is the capstone project which the learners will submit after the end of the training. It will consist of all their learnings as well as their proposed KM project applicable for implementation to all regions.

The program is designed to have two batches of trainees from the DA-Regional Field Offices and DA-Bureau of Fisheries and Aquatic

Resources (BFAR) regional offices for which will run for 18 months.

The first batch was composed of 16 research and information officers from the 16 DA-RFOs, while the second batch has 18 learner-participants from BFAR regional offices, and DA attached agencies and staff bureaus.

Communicating R&D results to the public

Eleven months after the first batch of IKM learner-participants from DA-RFOs attended the first face-to-face session at SEARCA, 16 of them emerged as finishers and graduates of the program. In celebration of the graduation of the pioneer batch, a final assessment and testimonial ceremony was held on 25-26 September 2018.

BAR OIC-Assistant Director Digna Sandoval graced the event to award the certificates of course completion to all 16 finishers. In her message, she re-echoed the sentiments of

BAR Director Nicomedes Eleazar mentioning the role of IKM in R&D, particularly in putting forward timely and relevant information and technologies in bridging the gap between research and technology use.

Special awards were also given to learner-participants who showed excellence in their final outputs using various media platforms. A distinction was given to Kevin Biol of the DA-RFO 8 as the most outstanding learner-participant of this batch. Biol is currently a BAR scholar under the bureau's Human Resource Development Program.

Special recognitions were also given to Rosemarie Joson of DA-RFO 3 (Most Diligent Learner-Participant), and Ma. Imelda Isabel Zabala of DA- RFO CAR (Best News Feature Story).

Part of the learner-participants' outputs were feature articles highlighting technologies and farming interventions generated

from BAR-supported initiatives.

In a message delivered by Julia A. Lapitan, head of the BAR-Applied Communication Division, during the culmination, she mentioned that one of the main reasons why the bureau supported the IKM Mentorship Program was for the findings of R&D to be communicated effectively to the public.

“We are hoping to see your outputs in our publications, the BAR R&D Digest, in particular. We envision devoting a whole issue just for you so that we can showcase these relevant researches from your regions and, likewise, tell the story of what and how you learned about IKM over the duration of the course,” she said.

SEARCA and BAR launched its second batch of course learners on 19-21 November 2018 composing of 18 learner-participants from BFAR regional offices and DA attached agencies and staff bureaus. They are expected to finish the course during the last quarter of 2019. ###



PHOTOS: SEARCA

SCoPSA

Assisting farmers, sustaining environment

by Chonalyn A. Pascua
DA-Regional Field Office 2

For a farmer, soil is the most important resource because a good soil is vital in growing healthy crops. But if the farm is located on a hillside, rainwater might just wash away top soil; hence, may destroy a farmer's livelihood. This phenomenon, called soil erosion, is very common especially in farming communities that are located in sloping areas like in Maddela, Quirino.

Maddela is an agricultural municipality with corn as its primary crop; and palay and banana as secondary crops. It has the largest corn farms in the province of Quirino with a total land area of 5,656 hectares. Half of the total land area of corn farms is in sloping areas while the other half is distributed in communities with river floor and broad plains. Due to frequent soil erosion, farming communities that are in sloping areas usually get the lowest yields including Brgy. Divisoria Norte and Divisoria Sur in Maddela.

Corn farming is one of the major livelihoods among the residents of Brgy. Divisoria Norte and Sur comprising of a total land area of 249.35 hectares of corn farms. The farmers' insufficient knowledge on appropriate farming technologies and practices, such as monocropping, as well as preventive measures and mechanisms on soil erosion, has been preventing them from achieving a productive yield.

Based on field result, farmers' average grain yield only reaches 4.5 mt/ha during the wet season (WS) and 4.8

mt/ha during the dry season (DS), which is far below the optimum yield for corn production at 8-10 mt/ha. This means that the Brgys. Divisoria Norte and Divisoria Sur can only acquire 90 bags/ha and 96 bags/ha at 50 kg/bag every wet and dry season, respectively.

Introducing SCoPSA as farming technology

To help farmers in better managing their corn farms in sloping areas and to acquire higher yields, the Research Division of the Department of Agriculture-Regional Field Office 2 - Research Division (DA-RFO) 2, led by Lovelyn A. Gaspar, implemented a project that would introduce to them an environment-friendly technology. In September 2016, the project, "Community-based Participatory Action Research (CPAR) on Sustainable Corn Production in Sloping Areas (SCoPSA) in Corn-based Hilly Areas in Maddela, Quirino" was implemented with funding support from the Bureau of Agricultural Research.

As defined by Engr. Kirby Joselito Millare of the Bureau of Soils and Water Management, SCoPSA is an agricultural technology used to control soil erosion and increase productivity in sloping farm areas. It involves contour farming and corn production technologies such as double row technology, use of jabber, use of inoculant and application of fertilizer requirement based on soil laboratory analysis,

vermicomposting, and mushroom production.

The first process, contour farming, involves building hedgerows along the contours of the land and growing other annual crops in the alleys between the hedges. Pineapple, banana, citrus, and pigeonpea are some of the common hedgerow crops which also have high demands and value in Maddela.

On the other hand, the double row technology (second process) is a farming practice that follows a planting distance of 80 cm x 30 cm between furrows and 80 cm x 20 cm between hills. This planting area can accommodate three bags or 90,910 seeds/ha of corn seeds. Jabber, locally known "farmalite," is used to attain equal distance and depth of planting, and uniform seed growth. Meanwhile, the application of Bio-N as an inoculant serves as a growth-enhancer. This inoculant is mixed with the corn seeds prior to planting.

For fertilizer application, the soil is first analyzed to better manage its nutrients. Soil samples are collected from farmer fields and analyzed in soil analysis laboratories. Margaret Aguinaldo, chief of DA-RFO 2 Regional Soil Analysis, said that "it is very important to analyze the soil to determine appropriate fertilizer requirement of the farm and to give guidance to farmers on their application."

Other components of the project such as mushroom production, vermicomposting, and legume planting



COMMUNITY-BASED PARTICIPATORY ACTION RESEARCH (CPAR) PROJECT

Title: Community-based Participatory Action Research (CPAR) on Sustainable Corn Production in Sloping Areas (SCoPSA) in Cofu-based Hilly Areas in Maddela, Quirino

Funded by: DA - Bureau of Agricultural Research

Lead Agencies: DA RFO 02 - Research Division and DA - Quirino Experiment Station

Implementing Agencies: PLGU - Quirino and MELGU - Maddela

Duration: May 2017 - April 2019

Name of Cooperator: Rogelio Guillerman

Location: Brgy. Divisoria Sur, Maddela, Quirino

"NEGOSYO SA SAKAHAN AT PANGISDAAN LABAN SA KAHIRAPAN"

are also done after corn harvest during the dry season. According to Ferdinand Cabantac, one of the project implementers, farmers use banana leaves as substrate for mushroom production. Then, the mushroom spent substrate, together with the corn stalks, will be used in vermicomposting. This means that both components make farmers produce their own organic fertilizers; thus, reducing their farm production cost.

The last component, which is legume planting will be introduced to the farmers after this cropping year. Legumes such as cowpea and mungbean are usually planted during dry seasons as they serve as cash crop and help in regaining soil fertility.

Strengthening SCoPSA

Currently, Archival Sabado from Quirino Experiment Station (QES); and Rodolfo Marquez, Jodanise Bicos, Telesfora Tomas, and Nida Juan from the local government units (LGUs), are the ones providing technical

assistance to the CPAR farmer-cooperators. They conduct briefings, trainings, and workshops on SCoPSA, corn production technologies, vermicomposting, and mushroom production. Forming farmers' association is also initiated to mobilize them and strengthen their capabilities, as well as widen their linkages to other institutions.

The first establishment of the eight farmer-cooperators was during the April-September 2017 wet season. A field day was organized in Brgy. Divisoria Sur in October 2017 to showcase the technologies on corn production in sloping areas and to encourage more farmers to adopt SCoPSA as a farming intervention. A total of 157 representatives and researchers from different farming institutions, LGU officials, and farmers from Maddela participated in the activity.

According to Nestor Ruaboro, one of the farmer-cooperators, they harvested 9.1 mt/ha or 182 bags of corns/ha

(50 kg/bag) during the wet season after the SCoPSA was implemented. Their harvests increased in terms of productivity of their corn farms adding 4.65 mt/ha or 93 bags/ha to their previous yields. This gave them an added income of P33,149.36/ha.

"I also observed that when there is a heavy rain after planting, rainwater cannot sweep away our corn seeds after adopting the SCoPSA technology," said Lucita Abugan, a CPAR farmer-cooperator. She added that the project helped them reduce their cost while conserving their corn farms, especially during the rainy season.

According to Archival Sabado of QES, even though the project is still new, more farmers are already adopting to the technology. He added that they have installed an improvised monitoring device to measure volume of eroded soil in corn farms in the two barangays. The result will be compared to non-SCoPSA land farms and will be used as a measure to the project's success. ###

Rice farmers make money from **Next-Gen** varieties

by Jessel F. Cardines
DA-Regional Field Office 11

PHOTO: DA-RFO 11

“**H**igh yielding and milling recovery of newly-released rice varieties is a big help in changing the lives of farmers and in attaining the 100 percent self-sufficiency by 2022,” said Hermenigildo Hormigas, a seed grower in Compostela Valley.

Government and private breeding institutions continue to develop rice varieties that are resilient to multiple biotic and abiotic stresses and have high-yield potential in the intended environment. These varieties are generated for irrigated lowland, rainfed, upland, saline, submergence, and cool-elevated ecosystems.

Next-Gen rice for the next generation

The International Rice Research Institute and the Philippine Rice Research Institute, in partnership with Department of Agriculture-Regional Field Offices (DA-RFOs) in the country, tested the

newly-released rice varieties in various ecosystems through the project titled “Accelerating the Development and Adoption of Next-Generation (Next-Gen) Rice Varieties for the Major Ecosystems in the Philippines”. The project is funded under the DA-Rice Program through the Bureau of Agricultural Research (BAR).

With the continuous increase in population along with increasing rice consumption and food demand, there is a need for rice varieties that can highly adapt to specific growing zones and a changing climate.

Each set of seedkit sent by IRRI and PhilRice for trial requires two cropping periods to generate recommended varieties for the specific location. It uses a unique scientific approach in coming up with the recommended varieties through the Participatory Varietal Selection (PVS) which has three

major activities: preference analysis, crop cut and data collection, and sensory evaluation.

In Region 11, Next-Gen rice varieties were tested in irrigated lowland for inbred, hybrid and special purpose rice like Japonica, aromatic and glutinous, rainfed, submergence, and cool-elevated ecosystems. This is a researchers-managed trial in partnership with the Agricultural Extension Workers in various local government units (LGUs).

Role of stakeholders in varietal selection

PVS starts with the preference analysis when rice is ready for harvest. A group of farmers and seed growers were invited to evaluate the field characteristics of different varieties. They were encouraged to walk around the field, take note of their observations, and vote for two

of the most preferred and two least preferred among the varieties being tested. Votes were casted, tallied, and ranked. The results were discussed with the participants.

“Farmers first look at the pest infestation and disease infections, if there is any in the variety, and also in the grain, length of panicle, tillering ability, position of flagleaf, maturity period, among others” said Jose Villar, project leader of Next-Gen, DA-RFO 11.

Farmers, seed growers, traders, millers, and non-farmer consumers were convened one month after the crop cut for a sensory evaluation of the top preferred and high-yielding varieties. The varieties that were identified for sensory evaluation were subjected to the same drying, milling, washing, and cooking procedures, and served cold to the evaluators at least two hours after cooking to determine the retention of its aroma, softness, and palatability. No food intake was strictly required before and during sensory test but each participant was required to drink water after tasting each variety.

Top-performing rice varieties

Results from preference analysis, crop cut, and sensory evaluation were consolidated to generate the recommended rice varieties. The information gathered was disseminated to the DA-Rice Program and LGUs. Seed growers were encouraged to produce seeds from the best varieties.

NSIC Rc224, Rc308, and Rc400 are among the top performing varieties for irrigated ecosystems. Rainfed farmers were suggested to plant NSIC Rc27, an early-maturing variety. Mostly hybrid varieties performed best in areas with good irrigation ecosystem.

Downstream activities conducted by the LGUs and DA-Rice Program like information dissemination and seed production, among others, have been supported by the Research Division of DA-RFO 11.

Change has come: From coins to bills

Adoption of the technology started in Magsaysay, Davao del Sur when the seed growers in the area produced Next-Gen varieties. It has been accelerated through the seed production of Davao Multi-Purpose Seed Producers Cooperative (DAMSEPCO) in Tagum, Davao del Norte. Farmers are now using Rc300, Rc360, Rc224, Rc400, and Rc27, among other varieties.

“Nakaani ko ug dugang 12 ka sako sa akong usa ka ektaryang humayan sa pag-gamit nako ug Rc400, nindot kayo nga barayti” [I am now harvesting an additional 12 bags from the previous harvest of my one hectare rice farm using certified seeds of NSIC Rc400. This is a very good variety], said Rene Baay, a farmer from Magsaysay, Davao del Sur.

Reports from the LGUs showed that planting Rc400 during dry season is comparable with the wet season. They added that local traders gave premium price to Rc396 the same with the Rc160.

“Maayo jud kaayo ug abot ang NSIC Rc27, niani ko ug 9 tons sa akong usa ka ektarya, ganahan ko motanom ani sa akong seed production area aron daghan pud mga mag-uuma ang molambo” [The performance of NSIC Rc27 for rainfed area is very good. It encouraged me to produce this kind of variety to help more farmers increase their income], said Cherlito dela Cruz, a seed grower.

Varieties are location-specific. This is the reason why Municipal Agriculture Officers have aggressively supported the Next-Gen project. Farmers who were used to plant old varieties have

appreciated this kind of approach. “I am thankful for the opportunity that I was able to personally observe the performance of the new varieties. I am willing to lend my parcel of land for the trial of irrigated inbred and hybrid in next cropping season” said Peter Marfe, a farmer from New Corella, Davao del Norte.

More to come for a rice-secured Philippines

During the dry season of 2018, a set of newly-released varieties, both inbred and hybrid, were tested in 19 sites all over Region 11. Inbred varieties possess the characteristics equivalent to NSIC Rc160, but has higher yield than the latter. For example, the NSIC Rc436 has a milling recovery of 69 percent compared to the 59 percent of the Rc160 while the amylose content of Rc436 is lower than the Rc160 of which the lower the amylose content, the softer.

Next-Gen hybrid trial is important particularly, because Region 11 belongs to the “Top 20 High-Yielding Provinces” in the country. The region is focusing on intensive hybridization programs.

Results of the trial will serve as guide for the DA-FOD Rice Program in the procurement of varieties to be distributed to the farmers and for the farmers to choose the most suitable varieties with high yielding capacity in their location.

Through the use of good quality seeds, best-performing varieties, and proper nutrient management and irrigation, rice productivity will surely soar high and the country is sure to achieve self-sufficiency. ###



PHOTOS: DA-RFO 11



PHOTOS: DA-RFO 3

Tarlac couple promotes healthy rice production

by Rosemarie Q. Joso
 DA-Regional Field Office 3

A farmer-couple from barangay Gossood, Mayantoc in Tarlac is advocating for the production and consumption of “healthy rice” in their family and in the community.

For Tomy and Gina Garma, “healthy rice” refers to the traditional varieties, like red and black rice, that is grown organically or in a natural way.

Tomy was a former barangay captain and a current municipal councilor while Gina is very active in the Rural Improvement Club (RIC). These involvements enabled the couple to promote organic farming to more farmers and other stakeholders.

As a farmer-leader extensionist and *Magsasaka Siyentista* for organic rice production, Garma had showcased the benefits of using vermicompost and 20-kg seeds of palay per hectare. Meanwhile, Gina shares nutritious recipes to other mothers by using their

organic rice and fresh picks from their farm. She is also very hands-on in helping Mang Tomy in managing the farm.

Since 2007, the couple have been advocating for healthy living and practicing Integrated Pest Management (IPM) before they decided to engage in organic farming.

Start of organic rice farming

When the Tarlac Agricultural University provided them with one kilogram of African night crawler (ANC), they became more interested in trying organic rice farming. These worms eat farm wastes and produce vermicompost and vermicast, which serve as main fertilizers for organic crop production. Since then, they reproduced the worms to yield enough volume of organic fertilizer needed for rice production. Moreover, they shared a part of their ANCs to the barangays during the “clean and green” contest and to the barangay nursery vegetable gardens.

In 2007, the couple consistently decreased the amount of chemical fertilizers they used during the cropping season by two bags until they reached 100 percent organic rice production after 10 seasons in 2012. The black and red rice that they produce are usually sold in a milled rice form to walk-in buyers, friends, and organic market at the Department of Agriculture (DA)-Research Station in Paraiso, Tarlac City.

They had a network of regular customers, which enabled them to market their produce in a shorter period of time. Aside from rice, they also produce *ulang*, *tilapia*, mango, native pigs, lowland vegetables, fruit trees, and herbs using organic farming approach.

Health benefits of going organic

The couple is a living testimony of the health benefits of consuming organic rice since it has been their staple food. Even at their age, they can still proudly

share that they do not suffer from any chronic ailments. At most, they only experience minor illnesses like colds, cough, fever, and infections that they immediately address by taking herb extracts from their farm such as *lagundi*, lemongrass, *pandan*, and turmeric. Their six children and a four-year-old granddaughter are also healthier due to the consumption of their farm produce.

According to Mang Tomy, “*itong apo namin, organic baby ang tawag namin kasi hindi siya nabakunahan at puro produce lang sa farm pinapakain namin. Ni minsan hindi nagkasakit,*” [we call our grandchild organic baby because she was not been vaccinated and was purely fed with our farm produce and up to now, she never suffers any ailments]. Their children are also helping in the farm during the weekends and free time. According to the couple, farming activities and preparing healthy meals are their weekend family bonding.

Socio-economic benefits

Their advocacy for healthier rice and way of farming as a family enterprise made them famous in the whole province and other nearby areas which paved the way to more walk-in visitors, farmers, women’s groups, students and senior citizens.

They were invited by DA and the Provincial Government as participants to various organic trainings and market events. Their consultation with various government offices has improved their farming practices giving them more support for inputs.

The Agricultural Training Institute accredited their farm to be a learning site for Organic Agriculture (OA) and became the venue for trainings, seminars, meetings, and related activities. During these activities, they also prepare healthy meals for the guests wherein majority of the

ingredients that they use are harvested from their farm. Among the food that they serve include *pinakbet ala Ilokano*, *sumang malagkit*, and house blend lemongrass juice. The couple is also regularly invited to talk and lecture on organic agriculture and other related events.

Their passion for organic farming business gained them various awards. In 2011, they received a plaque of appreciation and a cash prize as Region 3’s Outstanding Farming Family for Gawad Saka. They were also given the Organic Farming Family for National Organic Agriculture Achievers Award in 2015 and 2017.

The Provincial and Municipal Government also recognized their significant contributions in the agriculture sector. The couple was also featured in “*Kapuso Mo Jessica Soho*” television program during their summer segment “*Buhay sa Bukid*” in 2013. This episode aimed to show the simple way of life encouraging the young people to appreciate and enjoy the beauty of traditional life.

They were also featured in websites, local newspapers, and DA-Regional Field Office 3 television and radio programs.

Moving forward for third party certification

The couple is always doing something new in their farm, improving the filter pond and buffer zones, planning for expansion and on the process of third party organic agriculture certification. The third-party certification will be a big help for the couple and their family to reach the market in Manila that commands higher prices for certified organic rice and other commodities. Their vegetables and fruits will also have competitive prices.

At the moment, the couple continues to attend seminars on food processing, packaging and labelling in preparation for the Class A market. ###

Cacao Lavezares... from page 29

anticipated this reality. Before the business came into fruition, Destura made sure that he and his staff were ready for it.

He emphasized that indeed, workforce or manpower is the most important resource in a business and at the same time, it brings a great challenge. Hence, he invested heavily in human capital development.

“You have to ensure that you have the right mix of people and the right mix of expertise. Finding a well-equipped cacao doctor, chocolatier, and all other members is crucial to form a good team,” he stressed.

Destura knew that in order for their business to work well, specifically on the production aspect, his team studied and visited other chocolate facilities around the country. As of now, they have a newly constructed cacao-processing center located in Lavezares, Northern Samar.

To maintain the cacao beans supply, Destura aims to produce one metric ton of cacao beans every month. They can achieve that by reaching out to other cacao farmers in the neighboring provinces.

“Before, a business like this is dependent on how big your land area is, but now, it is largely dependent on how many partners you have among the farmer’s group. You support the farming industry, they support yours too,” he emphasized.

Bright and chocolate-y future ahead

As a businessman, he understands cacao’s huge potential in the local and global market. According to the website Statista, the retail sales of chocolate worldwide in 2015-2016 is around 98.2 billion USD. In the Philippine setting, the revenue for chocolate confectionery is projected to reach 74 million US dollars at the end of this year and is expected to have a six percent increase by 2020.

As the DA-RFO 8 continues to intensify its assistance to increase the region’s cacao production, the overall contribution of the region still has a long way to go. To date,

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Rice Crop Manager Advisory Service Philippines
Rice Crop Manager V2.21
Check RCM Version

Reference Number: 15200077 Date generated: May 31, 2018
Farm Loc ID: 0028-028-002179 Water regime: irrigated, with no use of pump
Name of Farmer: Conson Alvarado Crop establishment: wet seeding
Farm Loc Name: Conson Farm Variety: NSIC Rc216 (Tubigan 17)
Location: Santa Rosa, San Miguel, Iloilo Sowing date: May 27, 2018
Region VI
Note: Use this recommendation for sowing in May 2018 only.
Manage rice as shown below:

Apply fertilizer as indicated below:
Target yield (fresh weight basis) on 0.143 ha: 20 sacks at 42 kg/sack, 5.9 t/ha, (about 5 t/ha at 14% MC)

Growth Stages	Days After Sowing	Fertilizer amount for 0.143 ha
		14-14-14 with sulfur urea
Early	Basal to 14	27 kg
Active tillering	26-30	10 kg
Panicle initiation	43-47	12 kg

Consult PalayCheck for good management practices during the season.
<http://www.palaycheck.com/>
© International Rice Research Institute 2013

PHOTO: DA-RFO 6

Increasing yield, profit with RCM

by Medifel Junius J. Panerio
DA-Regional Field Office 6

Inside the barangay hall in San Miguel, Iloilo, many farmers are in a queue, eagerly waiting for someone or something to address what they have been promised of— a better and improved farming experience. They are farmers who are year-in and year-out dwell in water soaked paddies enduring the spine-cracking pain during rice planting season but have little or no profit during harvest time.

Rhodora Soldevilla, an extension worker from the Department of Agriculture-Regional Field Office (DA-RFO) 6, armed with a smartphone and a printer, would single-handedly accommodate the long queue of farmers and give them a one-page recommendation that would serve as a guideline in rice farming.

But how can one extension worker cater such number of farmers in a short span of time? And what is this one-page recommendation that she provides to them?

This is made possible through Rice

Crop Manager (RCM), a state-of-the-art software application installed in smartphones and computers that provides farmers with a holistic, custom-made instructions compressed into a one-page recommendation containing the “who”, “what”, “when”, “where”, and “how” of rice farming. The application was developed by the International Rice Research Institute, in partnership with the Philippine Rice Research Institute, Agricultural Training Institute, and DA-RFOs and with funding support from the Bureau of Agricultural Research, through the National Rice Program.

Farmers who have religiously followed the recommendation through RCM have increased their rice production. This in turn helps the achievement of rice self-sufficiency in the country. Moreover, it does not only boost the yield in rice but it also reduces the cost of production thus, giving more earnings to the rice farmers.

Although rice technologies were

already available at the time of development of the application, still the project has been pushed through. Before the implementation of the app, Agriculture Extension Workers (AEWs) advised farmers to submit their farms for soil testing to ensure the correct way of fertilization. Soil analysis is a tedious process as it involves collection of soil samples and bringing them to soil laboratory which is located in the city. Some of them must travel more than 50 kilometers. This is a costly process so some farmers opted to disregard this practice and find other ways.

RCM as tool for extension workers

“RCM is built for the AEWs making their work easier particularly in providing farming advice, prior to every rice cropping season,” explained Luisa Fulgueras, RCM focal person, DA-RFO 6. “They just need to bring with them a smartphone, ask, click and click, then a recommendation is given,” she added.

How can RCM help in rice farming?

After answering a series of questions, RCM provides farmers with a personalized rice crop management. Having a smartphone or computer with an internet connection, RCM can be accessed and downloaded through a web-browser (<http://webapps.irri.org/ph/rcm>). A web page will then be loaded to guide the extension worker in interviewing the farmer. After the answers are inputted, information will be submitted to the RCM on the cloud-based server. RCM automatically generates a personalized nutrient and crop management recommendation in a one-page printed guideline. During the farming season, reminders through text messages are sent to the farmers registered contact number to remind them of the instructions.

What information is needed to ensure proper recommendation?

Information including the variety of rice, farm area, and previous yield are crucial in generating the recommendation. The variety of rice to be used during the cropping season will determine the age of the crop before it matures while the farm area is needed for the calculation of the amount of fertilizer to be applied. Other farming management practices are also solicited to provide a more precise instruction for the farmer. The information is compressed into an easily comprehensible guideline, which is then explained to a farmer including the steps to be taken.

Benefits of using RCM

Among the benefits of using RCM include increase in yield and income, and wider reach of farmers that were provided with extension service. The RCM have achieved its objectives in terms of increased yield and profit to those who have conscientiously followed the instruction.

“Increasing rice yield with lower production costs” – the clamor of generations of farmers have been answered by RCM. According to research, for those who were able to follow every part of the RCM recommendation across municipalities in the Philippines, there is an average increase yield of 370kg of unmilled rice. The use of RCM recommendation increased the average income of farmers to Php 4,337 in one hectare of rice in one season.

“Because we followed every feature of the RCM recommendation, our harvest is higher compared to when RCM have not yet been introduced to us. Also, our expenses were reduced,” said D’sie Rose Superlativo, a former nurse who is now into rice farming.

Despite the advantages experienced by the farmers, not all extension workers are using this app and few farmers are able to reach by this technology. According to the RCM regional data, there are 17,600 field specific recommendations disseminated in 2016.

This number is a small fraction of the total farming community and should be increased to achieve rice self-sufficiency in the region.

This data is a picture of what is happening on the ground. Extension workers in the local government unit do not have access to smartphones and computers. Hence, municipalities were not able to fully optimize this app. Further, the app requires Internet connectivity. Most of the farms are located in remote areas and cannot connect to the Internet to send the information gathered for the generation of the recommendations. This resulted to the delay in processing and printing of results and distribution to farmers.

“Farmers often forget to consult the printed guideline when planting season begins,” revealed Virgie Maciado, RCM monitoring focal person. “There are cases that the one who attended the RCM briefing and interview are representatives and not the actual tillers. Instructions are not strictly followed,” she added.

Each technology has its own downside. But these can be overcome with a little push and proper support. RCM app is an effective tool for extension workers in giving recommendations to a number of farmers in a short span of time. If every step in the instructions is followed, more farmers will benefit both in terms of yield and profit. ###

Cacao Lavezares... from page 15

the region’s contribution to the total production of the country is only one percent.

However, according to the 2017-2022 Philippine Cacao Industry Road Map, Eastern Visayas commits a five percent contribution or 5,000 metric tons volume of production by 2022. The National Cacao Industry targets 100,000 metric tons of cacao production by the said year.

Despite this, Destura has his fingers crossed that the region’s ambitious target of 5,000 metric tons will be achieved, and the cacao industry development in the region will reach greater heights.

He envisioned his business to boom in the years ahead, and foresees Cacao Lavezares to become one of the models for cacao production and social entrepreneurship. Destura is determined

to make Cacao Lavezares the next “big thing” in the chocolate industry.

“Hopefully, years from now, when I travel to Europe with my family, we would be able to see Cacao Lavezares in the global market, and ultimately put the province, the municipality of Lavezares, in particular, in the map of the best chocolate producing provinces in the world,” Destura concluded. ###

Boosting Unoy rice farmers through cooperativism

by Ma. Isabel B. Zabala
DA-Regional Field Office CAR

For a rice variety that grows on top of hills and mountains and not on the usual terraced rice paddies in the Cordillera Administrative Region, the *Unoy* rice has amazingly found its way from far-flung mountains in Kalinga to foreign markets and high-end restaurants carrying its rich aroma, various colors, and nutrient-filled grains.

Unoy rice is a collective name for the traditional or heirloom rice produced in Kalinga Province for home consumption. But with the emerging need brought by modernization, *Unoy* rice farmers started to sell their excess products to the market. But this did not come in a silver spoon as the farmers have gone through various struggles.

Rowena Sawil, *Unoy* rice farmer, narrated how they used to experience hardships selling their extra rice in Tabuk City. Travelling from their far-flung village to the city takes 2-3 hours bumpy ride. “We would carry our sacks of *Irik* (unmilled rice) on our heads from our homes, wait for the only jeepney to arrive to take us to the main market in Tabuk for milling,” Rowena recalled.

Marketing the milled rice is another thing. “We are not even sure if our milled rice will be bought by locals in the market. Tabuk City has many hybrid varieties that the neighboring merchants buy by the tons, but our very own *Unoy* is not given notice,” she said.

Sawil added that she was not the only one bringing sacks of unmilled unoy rice to the market for milling or for sale



PHOTO: BAR

as is. She said she noticed that there were others, too, from her village who do the same.

“Working alone is hard. But if all of us would group together, hire one vehicle, share knowledge and tips to improve our business, then, perhaps, things will improve for us, rice growers,” she wondered.

Years back, the Revitalized Indigenous Cordilleran Entrepreneur, Inc. (RICE, Inc.), a non-profit organization, assisted Sawil and other groups of *Unoy* rice farmers to organize themselves into a group of *Unoy* rice producers and marketers. Much to their delight, the new-formed group was able to join training and seminars conducted by RICE, Inc., at the same time, learning how to consolidate their best *Unoy* rice harvest for raw packing and selling.

This set-up has been going on for quite a few years. Their unique rice may have found a steady market for export, but they claim that the price remained low. “Production cost is rising as the

years go by. We need to increase our prices but we are having a problem in this area,” Sawil narrated.

Competition is also tough as there were other groups from neighboring provinces that produce heirloom rice that can be bought at a lower price, so their *Unoy* rice are either stored in the closets or bought at a low price in bulk.

The group wanted to increase their yield, but there are gaps and challenges that hinder their dreams. For instance, when it comes to marketing the *Unoy*, aside from low buying price, they are faced with various challenges such as limited market outlet, excess heirloom rice or rejected ones that are not sold, and consumers’ unwelcoming behavior regarding the price of *Unoy* rice.

There were also issues on production, environment, postharvest and processing, and organizational concerns.

In 2013, the Department of Agriculture entered the world of heirloom rice production and marketing. A study titled, “Raising Productivity and Enriching the

Legacy of Heirloom/Traditional Rice through Empowering Communities in Unfavorable Rice-based Ecosystems” also known as the “DA-IRRI Heirloom Rice Project (DA-IRRI HRP)” was conducted. This project was implemented in partnership with the International Rice Research Institute (IRRI), in collaboration with the Philippine Rice Research Institute, Bureau of Plant Industry, state universities and colleges, local government units, and farmer-beneficiaries. The project, funded through the Bureau of Agricultural Research, has become instrumental in organizing small farmers’ groups into a provincial cooperative to cater to the heirloom/traditional rice business at the provincial level.

The project is timely for these small groups of farmers who are facing the various challenges in marketing unoy rice. The DA-IRRI Heirloom Rice Project aimed to enhance productivity and livelihoods of heirloom rice farmers specifically, to turn self-help groups into cooperatives. It also sought to enhance the local capacity in organizing and developing entrepreneurial skills of the officers and members of the cooperatives.

The project, which ran for three years (2013-2016), was able to organize provincial cooperatives in the provinces of Kalinga, Benguet, and Mountain Province.

For Sawil and her group, they were able to form the “Kalinga Rice Terraces Farmers’ Agriculture Cooperative” (KRTFAC) making them legit as they are now a registered group under the Cooperative Development Agency.

The KRTFAC is running its business of heirloom rice processing and marketing, prioritizing the three most saleable varieties: *Ulikan* red, *Chong-ak*, and *Jekot*, which the cooperative claims to have proven market desirability in the export and domestic markets. The business also allowed them to increase production of the varieties using improved human and environment-friendly technologies that not only increase production but also reduce production cost and expenses.

The cooperative’s business plan narrates how farmer-members have taken long enough experiences in the production, processing, and marketing of heirloom rice in the export market, primarily through the Eighth Wonder, Inc. in Montana, USA through the RICE, Inc., for almost eight years. Accordingly, they were trained on how to produce quality rice to meet the market standards and fair trade.

Thanks to this experience, the cooperative is ready to take another step towards improving their business through the project that provided them opportunities to improve the business and acquire the machineries for processing and packaging of rice. The cooperative has also expanded its vision of becoming a lead supplier of quality heirloom rice both in the domestic and export markets and access the necessary support services for the production, processing, and marketing of quality heirloom rice while protecting the environment. Their core objective is to increase income and improve quality of life of the members.



PHOTOS: DA-CAR & BAR

The product

The cooperative underscores that their produce is organic. “Heirloom rice has been produced by our forefathers for centuries without the use of synthetic fertilizers and pesticides. We build on this but we will adopt improved technologies and practices to enhance the production and processing, profitability, and efficiency but it is limited to organic agricultural technologies and practices,” Sawil revealed.


The Kalinga’s *Unoy* varieties are sold in brown, undermilled, and regular milled rice. *Chong-ak* and the *Ulikan* are non-glutinous while *Jekot* is glutinous and waxy in texture.

Only the hulls are removed for processed ones that they have been categorized as “brown rice”. Here, only the bran layers are intact. The cooperative is now using dehulling machines that the project has provided.

There are also undermilled rice where only a part of the germ and all or

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Promoting production-to-utilization technologies of *Adlay*

by Mae Odimyrl A. Morales
DA-Regional Field Office 10

Over the past five years, since the Department of Agriculture's (DA) Research and Development (R&D) Program for *Adlay* (*Coix lacryma-jobi*) in Northern Mindanao started, it was able to generate technologies and information that enabled traditional *Adlay* production practices into productivity-oriented and market-driven technologies.

With funding support from the Bureau of Agricultural Research, these technologies that were generated from the initiatives of DA-Regional Field Office (RFO) 10 were able to boost the production of *Adlay* enough to reach the market.

An *Adlay* harvest festival was recently conducted in Bukidnon to promote the production-to-utilization technologies, including the processing technologies for the production of *Adlay*-based value-added products.

Mayor Renante Inocando of the municipality of Cabanglasan, Bukidnon recently expressed his commitment to support the promotion, production, and utilization of *Adlay*, a rice-like indigenous cereal crop that is seen with potentials to actually substitute rice.

In a signed Memorandum of Understanding for the rural development action plan and project titled, "Institutional Mobilization and Industry Cluster Organization of *Adlay* Stakeholders for Food Security and Agri-Enterprise Development," Mayor Inocando looked at further empowering his farming constituents and communities by establishing *Adlay*-based agricultural production areas in the municipality.

Cabanglasan, which is a major corn production municipality in the province of Bukidnon, is seen as a viable area for *Adlay* production.

"We are opening doors for more *Adlay* production endeavors especially for our *lumad* farmers," said Inocando. *Adlay* may not be as popular compared to rice and corn, but it has high potential as an additional Filipino staple food crop. He further cited the health and nutritional benefits of *Adlay* which may be used as substitute of rice in preparing traditional household recipes such as *chamorado*, or *Adlay caldo*, and as snack servings in feeding programs for young schoolers and charity events. Also, the production of *Adlay* wine and breakfast cereal is also being eyed as a potential business endeavor for rural entrepreneurs.

In line with the promotion of *Adlay* as a staple food and commercial crop, Municipal Agriculturist Anita Macabugto is integrating the production and use of *Adlay* at the Municipal Agriculture and

Fisheries Modernization Plan. This includes, among others, advocacy activities at the barangay and household level. Through the support of DA, more adlay technology demonstration areas are expected to soon be established in Cabanglasan to further encourage its use as a food and commercial crop.

The Department of Trade and Industry has also committed to support farmers in linking their *Adlay* and *Adlay*-based products to more markets.

“We are encouraging the serving of *Adlay*, aside from rice, in food service industries like *karendirya*, canteens, and cafeterias. This will promote *Adlay* and further ensure a sustained demand for its consumption as a rice alternative not only in the households, but also in cafeteria businesses,” Macabugto said.

In support to the R&D program on *Adlay*, DA-RFO 10 Research Division Chief and National *Adlay* Technical Working Group Member Juanita Salvani has also committed the conduct of a series of information, education and communication (IEC) activities for the pipelined Region-10 *Adlay* Awareness Month every September which highlights *Adlay*'s importance in attaining food security and in opening *Adlay*-based sustainable livelihood and development of enterprises in the countryside.

A briefing-training on *Adlay* and processing of its products was recently conducted for the Community-based Participatory Action Research farmers and rural women in Cabanglasan. ###

Boosting Unoy rice farmers... from page 19

part of the outer bran layers are being removed and processed in customized rice mill designed to fit grain shapes and sizes.

Regular milled rice, on the other hand, is processed by removing the hull, germ, and outer bran layers where more than 10 but not exceeding 30 percent of the kernels may still be present. The degree of milling is processed in another customized rice micro-mill designed to fit grain shapes and sizes.

Their packaging has improved dramatically from mere plastic bags, they are now able to vacuum sealed packs in 1, 5, 10, and 25-kilo packs for easy distribution to domestic and local markets. Those pledged for export market are packed in white clean sacks.

The market

The cooperative has expressed their desire to keep expanding their market to match with their objective of annually increasing production of organic heirloom rice. They want to sustain and further nourish their partnership with various government and non-government institutions and keep on building new ones. Moreover, they want to continue catering to export markets. They claim to have gained experience in the past selling tons of heirloom rice to the USA. The domestic/local market will also be expanded, as they desire to sell to gourmet restaurants, hotels and other distribution and retailers in urban centers like Metro Manila, Baguio City, and other places where middle and upper income classes frequently go for shopping and dining.

The cooperative also plans to distribute half of the processed products to the export market while the other half to be sold to local distributors, wholesalers, and retailers. The members are even elated to mention the regular market outlets that they supply such as supermarkets in Baguio City and Greater Manila Area

as well as bulk buyers like Eight Wonder, Inc., Kellogs Company, Sunny Wood and Level Ground.

A win-win situation

Sawil, now manager of the KRTFAC, stressed on their win-win strategies. “Our dealings, policies, and strategies with our member-producers, partners, and customers are mutually benefited for a sustained quality production, partnership, and the achievement of our goals and ultimately our vision to sustain our buyers. We sustain our increasing production for more pledges to the cooperative to earn more. We commit our time, knowledge, and skills in performing our duties and responsibilities, and fulfilling our commitment,” she said.

“The cooperativism truly works for us. Since the KRTFAC was organized and legitimized, more farmers became interested in expanding their heirloom rice production. We already have a place to bring our products to be processed,” she added.

From an original 68 members, Sawil reported that the membership almost doubled. “There are more farmers applying for membership in our cooperative having seen the progress of our business.”

“We are truly grateful to the DA-IRRI Heirloom Rice Project for assisting us to expand and become a provincial cooperative. It has helped us in many ways. We already acquired a trademark through the project and we have noted an increase in sales since the trademark came out,” she added.

From individual sellers to cooperative, the heirloom rice farmers have high hopes in facing a bright future. “Since we formed this cooperative, our lives have improved in many ways and we want to sustain our production to face a better tomorrow,” Sawil concluded with a smile. ###



Mangyan Tribe

embraces organic soybean production

by Allan F. Lalap
DA-Regional Field Office 4B

PHOTO: BAR

Filipinos are generally dependent on animal meat, eggs, milk, and fish for their major source of protein and other nutrients. Soybean or “*utaw*” is considered the “wonder crop” of the 20th century being the cheapest source protein, Vitamin E and dietary fiber. Its diversity in uses has made it the most important crop species at present and in the future. Its seeds contain approximately 40-45 percent protein, 20-25 percent edible vegetable oil, and a significant amount of vitamins A and E as well as minerals and micronutrients making its valuable component in many foods items both for human and animals.

As a nitrogen-fixing plant, soybean can serve as complimentary crop not just to increase farm productivity of small resource poor farming communities but also in soil-nutrient rejuvenation and pest management.

With the current challenge of climate change, soybean, being a legume, and

a sun-loving crop, has a great probability to adopt in climate variability and could stand still to provide healthy and nutritious crop in the future.

The Department of Agriculture- Regional Field Office 4B (MIMAROPA) has implemented a project on “Technology Development, Promotion, and Utilization of Organic Soybean for Indigenous People” which aimed to develop organic production of soybeans through technology demonstrations. It also sought to provide technical assistance, trainings, and seminars on processing and utilization of organic soybean. Organic production is seen as suited in the region since it is home to indigenous people whose traditional way of farming is essentially organic in nature.

Original settlers of Mindoro

The indigenous peoples (IPs) of Mindoro Island are believed to first live in the coastal areas. They are called Mangyan and are subdivided into seven tribes.

However, because of the arrival of foreign colonizers, landlords, and pasture ranchers, they were forced to leave their ancestral lands and settle in the upland places and mountains.

Now, they can be found in the far-flung areas and in the mountains of Oriental and Occidental Mindoro. Only a few of them finished their education. They are famous for their bead designs and other indigenous handicrafts such as baskets and mats.

Though the tribes and their houses are located far from each other, they have established a good and peaceful relationship with each other. The resources of their mountains have not caused them conflict because for them the land is their life.

Introducing organic soybean

Although most IPs stick to their roots, there are those who are open to learning new technologies to improve their lives.

One of them is the HAGIBBAT Mangyan Mindoro community. It is a federation of seven Mangyan tribes in Mindoro, namely: *Hanunuo, Alangan, Gubatnon, Iraya, Bangon, Buhid, and Tadyawan*, hence the acronym, HAGIBBAT. It is this particular community that DA has collaborated with to introduce the organic soybean production.

Amit Gabriel, a member of the *Hanunuo* Mangyan tribe from San Mariano Roxas, Oriental Mindoro, and secretary-general of HAGIBBAT, is the first among the IPs that got interested in planting organic soybean.

To equip himself, he attended a training-seminar on soybean production in Bansud, Oriental Mindoro in 2013. *“Natutunan namin ang tungkol sa soybean kay Sir Allan, tinuruan nila kami sa produksyon at sa paggawa ng soymilk”* [We learned about soybean through Sir Allan, he taught us about production and processing it into soymilk], he said. Soon after, they requested seeds and started planting in a techno demo farm at the Mangyan Development Center in San Mariano. They intercropped soybean with other crops such as gabi, cassava, corn, mungbean, and upland rice.

Emilio Agayhay, another member of *Hanunuo* Mangyan tribe from Sitio Bar-aw, San Roque, Bulalacao, Oriental Mindoro got also interested in planting soybean. He adopted intercropping after learning the soybean’s important role in soil-nutrient rejuvenation. His whole family is helping him in planting. *“Unahin muna naming ang pangkain namin, kapag may labis, iyon ang aming ibebenta”* (We prioritize our food needs, and the excess is what we sell), he said.

His family loves eating edamame – boiled green soybean.

Partner-stakeholder in organic soybean

Patak Pinoy Kaunlaran, Inc. located in Sitio Sinagtala, Barahan, Sta. Cruz, Occidental Mindoro is also a partner of DA in the soybean program. It is a cooperative that engages in health care, livelihood, environment, and climate

change mitigation program. Most of its members belong to the Alangan-Mangyan tribe. Their harvests are transported to Malabon City, Metro Manila where they have an office. They processed the soybean into *tokwa* and *taho*.

Immersing into the IPs’ culture and engaging them into organic soybean production was made possible with the collaboration among public and private sectors. One of them was Je Precious Tarog, a social worker and co-founder of Tamaraw Young Professional Reformers (YPR) who reached out to IPs and taught them about organic soybean production. YPR is a group of young professionals in Mindoro that aims to share the latest developments in agriculture, architecture, technology, education, social security, business, ecotourism, and environmental protection.

Tarog is working with DA, and the local government of Roxas, Oriental Mindoro for a project for the IP beneficiaries of Share-an-Opportunity (SAO), Philippines which he is associated with. The project aimed to address malnutrition and to provide sustainable livelihood to the Mangyan. SAO, Philippines is a civic society Christian organization that serves the neediest and vulnerable children in Philippine society.

In a 2014 report of the Department of Social Welfare and Development, there were 74,323 poor families among the IPs in MIMAROPA region. These IPs are identified as the real marginalized sectors who are mostly engaged in basic agriculture. Nomadic by nature, they stay from one place to another due to unavailability of food. They have the lowest income levels (below hand-to-mouth existence); many of them have very limited access to basic education, health care, and other social services. Their incomes are not enough to meet even the most basic need of the family.

Strategies for success

Organically-grown soybean is introduced and promoted not only to boost its production but more importantly, it is a strategy to make sure that the growing population is aware of this crop, its utilization and processing of its many by-products.

Series of trainings on soybean production and cooking demonstration activities are being continuously conducted to test the acceptability of various soybean-based products among the IP communities. Through these developed soybean food products, both food security and nutrition are being addressed. ###



Cooperative prospers with low-cost duck raising technology



by Zara P. Caringal
DA-Regional Field Office 4A

PHOTOS: DA-RFO 4A

Duck production is one of the in-demand industries in the municipality of Candelaria, Quezon. Duck farms vary from backyard to commercial scale. There are big commercial duck farms in Candelaria that are assisting smaller farms in terms of feeds, animal stocks, and marketing. Egg production is the usual purpose for raising duck in the municipality.

In Sta. Catalina Norte, Candelaria, Quezon, a project, “Going through Climate Change: Pond Farming Technology Adoption and Utilization” was funded by the Bureau of Agricultural Research with the aim of developing measures that would alleviate the impact of climate change. One of the measures developed was the use of locally-available materials for animal production that can withstand the changing climate. Materials

from the public market were sourced out and utilized to support feeding and housing needs of the animals.

One cooperative that played a big part in the project was the Magtatagumpay, Aasenso kapag Uunahin Natin Lagi Ang Diyos (MAUNLAD) Multi-Purpose Cooperative which served as one of the project cooperators. Initially, the cooperative used low-cost production scheme for hybrid and native pigs. Aside from commercial feeds, they formulate their own feeds. They cut the requirement of commercial feeds into half by supplementing their formulated feeds.

The cooperative generated income from swine production. However, the return on investment is low because of high production costs and low farm gate price of piglets and pigs from 2014 to 2016. So,

the cooperative shifted to low-cost commercial duck production during the first month of 2017. Unlike swine production, duck raising provided daily income to the cooperative.

According to Ptr. Benjamin Rubico, general manager of MAUNLAD Multi-Purpose Cooperative, a conventional commercial duck farm requires higher investment costs compared to the low-cost production technology for duck raising. Conventional commercial duck farms use around Php 350,000 for establishing permanent duck housing. Usually, a 20 feet x 40 feet duck house is stocked with 1,000 to 2,500 ducks.

The floor is concrete and covered with layers of rice hulls. An exhaust fan is an important part of the duck

house to minimize the foul odor and heat brought by duck wastes. The ducks are also provided with troughs for wallowing to cool their bodies.

Commercially-available feeds are used in conventional duck production that cost from Php2,400 to Php 2,700 per bag of 50 kilograms. Three to four bags are consumed by 1,200 to 1,500 ducks per day. Proper feeding management is important to assure that ducks will lay eggs expected depending on their age of maturity.

Supply of drinking water is also vital for layer ducks. There is elevated and slatted or netted platform going to drinking troughs. Insufficient water supply will lead to the decrease in number of laid eggs. Unlimited drinking water is supplied to ducks to cool them amidst the heat build-up in the housing.

Ptr. Rubico said that low-cost commercial duck production technology required around Php 200,000 to establish a duck farm with a house, water system, and 1,200 to 1,500 six-month old ducks. Upon visit in the duck farm managed by the cooperative, it was observed that the duck houses are made from light materials.

Bamboos, woven coconut fronds, PVC pipes, plywood, steel rods, used tarpaulin, plastic drums, and plastic are used in constructing duck houses, feeders and water troughs. Duck houses did not need exhaust fan to enable air circulation. The floor is not concrete and duck wastes are covered with rice hulls daily.

Aida Rubico, secretary of the cooperative, mentioned that aside from commercial feeds, they also feed their ducks with chopped banana trunk, cassava, copra meal, and formulated feeds from rice bran, corn, *Trichantera*, *rensonii*, azolla, and salt. Following the low-cost feeding scheme, they were able to reduce the cost spent for commercial feeds. Substitute feeds helped them reduce feed costs and supplement other nutrient needs of ducks.

The cooperative recorded that egg production is higher than in the conventional duck farms during summer months. The amount of investment

can be achieved at the fifth month of production with implementation of proper care and feeding management. Compared to conventional duck production, return of investment usually takes a year or more.

Moreover, there is less investment during culling season and less cost for repair in low-cost production scheme. Water used is lesser and foul odor is less observable in the low-cost duck raising. More farm wastes are generated and higher mortality rate is observed in conventional duck farm.

Another reason why the cooperative adopted and used low-cost production scheme is the status of land tenure. A member of cooperative allowed them to utilize the land to generate income for the group. Since they used light materials in building farm structures, these can be removed easily when the owner wants to use it.

The cooperative has a market for the eggs that they produced. They sold eggs at a price range of Php 4 to Php 7.20. The staff in their cooperative store reported that the harvested eggs are being consolidated and are sold to *Itlog ni Kuya* (famous salted egg maker and supplier from Laguna) as well as to *balut* and salted egg makers in nearby community.

However, eggs laid by pullets are not purchased by *Itlog ni Kuya*. It is the household-level salted egg makers who are buying these eggs. Moreover, *leche flan* makers are purchasing the cracked eggs. In addition to that, the cooperative

made salted eggs flavored with turmeric and sell them in their store.

Based on the records of the cooperative, they generated a gross income of Php 264,000 from February 2017 to May 2017, which is more than their initial investment. Income generated from June 2017 to December 2017 went to the cooperative's general funds and dividends and use it for expanding their duck production.

Ptr. Rubico aimed for the cooperative to intensify processing and marketing of salted eggs independently. They also planned to upscale feed formulation and production with the help of the Department of Labor and Employment and the Department of Trade in Industry in Quezon.

The cooperative hoped that more of their members will engage into duck raising to improve their daily income and socio-economic status. They also targeted to engage in integrated vegetable production for optimum utilization of their resources like duck wastes and forages.

The MAUNLAD Multi-Purpose Cooperative's duck egg production is relatively stable and resilient given the country's present duck egg industry. The cooperative's current production capacity of about 56,250 eggs per month is still manageable for them. However, more than this level of production will require additional effort in marketing due to competition imposed by quite a good number of producers of duck eggs in the province. ###



PHOTOS: DA-RFO 8



From unemployed housewives to agripreneurs

by Cathy B. Pastor
DA-Regional Field Office 1

Chickens are raised mainly as source of food, particularly for meat and eggs. In rural areas, nearly every household is raising chickens usually fed with kitchen refuse or leftovers. Native hens lay 30-50 eggs per year while layers of improved breeds can produce up to 286 eggs per year.

In Bauang, La Union, 30 women-cooperators have discovered the profit-earning potentials of raising naturally-grown chicken right in their own backyards. Not only do they need not to leave their children to earn income, they are also able to produce safe and healthy chicken meat and eggs for their families.

Dedicated for women

In an effort to promote the technology on raising healthy and safe chicken meat and egg in Ilocos Region, Dr. Jovita M. Datuin and her team from the Research Division

of the Department of Agriculture-Regional Field Office (DA-RFO) 1 conceptualized a project on “Innovative Family Enterprise Development (IFED) through Improved Chicken Meat and Egg Production.” Identified as one of the agency’s Gender and Development (GAD) component projects, IFED was designed to involve women as beneficiaries.

The project piloted in May 2015 with the goal of providing farm families with viable poultry-based business enterprise opportunities through the adoption of innovative production and feeding management systems for chicken. Establishment of poultry housing, range area, and forage and herbs production area are the basic requirements to become project cooperators.

A total of 30 non-working housewives from three cluster barangays in Bauang, La Union were selected as cooperators

and were provided with start-up stocks of 19 ready-to-lay pullets and one rooster. Staff members from the project management team inspected and validated the requirements before releasing the stocks to selected cooperators.

Social preparation and capacity-building were done through technology seminars, hands-on training, entrepreneurial skills development, and exposure trips to successful poultry farms. These are conducted to equip cooperators with knowledge, skills, and right attitude towards chicken production and to make them aware of the prospects of a poultry business enterprise.

IFED technologies

Technology options introduced include housing, feeding, and health

management practices to enhance the productive and reproductive performance of the chickens as well as to produce safe poultry meat and eggs.

Housing is the primary and basic intervention to protect the birds from adverse weather conditions, predators, and parasites. It can be made from locally-available materials like bamboo and rice hulls as litter materials. Spraying of extract from fermented banana bracts was done once or twice a week at one tablespoon per liter of drinking water. This practice helps minimize the foul odor of chicken waste to prevent complaints from neighbouring households.

The scavenging nature of chickens was modified through the introduction of improved feeding management technology. Cooperators were taught how to formulate low-cost feed rations to sustain supplementary feeding of the birds. Rations were given based on the specific growth stage of the birds. This also provided the necessary protein requirement of layers to improve egg production.

Another intervention introduced was the use of herbals and plant-based concoctions as natural biologics such as fermented oregano and chilli pepper. With these, the meat and eggs produced were ensured safe because no synthetic growth hormones were injected to the birds and chemical antibiotics were administered as last resort in case of severe poultry diseases.

Herbal concoctions were prepared at 1:1 ratio. A kilo of chopped plant parts was soaked in a liter of molasses and fermented for seven days. After seven days, the juice was extracted and given to the birds at a dose of one tablespoon per liter of drinking water.

Poultry-based enterprise

IFED has given the cooperators options on what poultry business enterprise they would like to engage in – to sell eggs and chicken meat, breeders, hardened chicks, ready-to-lay pullets, or a combination of any of these poultry-based enterprises.

Their association has set standards on the selling price of the produce, both for eggs and birds.

Marilyn Ursua, a resident of Brgy. Bucayab in Bauang, shared that she earns from selling concoctions. She is the President of the Bauang Free Range Chicken Raisers Association organized by the 30 women-cooperators. She sells fermented oregano at Php 15.00 per 250ml bottle. By using natural biologics, they claim that their chicken meat and eggs are safe and healthy which helps them to easily sell their produce. They also had their products displayed and sold quickly during trade fairs and farmers festivals in other municipalities.

“Napinpintas no aglako tayo iti piyyek,” [It is better if we sell hardened chicks] she said. She shared that she spends Php 57-60 per chick during the six-week hardening period and sells from Php 160 to Php 165 per chick.

Based on cost and return analysis, a net income of Php 364,761.80 can be gained for a 100-bird population chicken enterprise while production of F1 ready-to-lay pullets and cockerels can obtain a net income of Php 90,410.21, both for a 24-month production period.

Agri-tourism site

The IFED poultry farms, particularly the farm of Ursua, have gained popularity and became an agri-tourism destination of the municipality. It is frequented by visitors from all over the Ilocos Region and neighbouring regions. Politicians and their staff who visited the farm have signified their interest to duplicate the project as livelihood program for constituents in their respective political jurisdiction.

It was also visited for several times by various local and national media firms, both for print and broadcast, featuring Ursua's experiences about the project, and in poultry raising, in general. She shares the limelight with her fellow women-partners who are also present during interviews and video shoots.

Institutionalization through active partnership

The active partnership of the project team with the local government unit (LGU) of Bauang has strengthened institutionalization efforts through allocation of financial support and manpower complementation. The project was adopted and allocated with funds in the LGU's annual investment plan and replicated the modality to provide livelihood programs for the municipality's 4Ps beneficiaries and members of indigenous peoples (IPs).

The LGU's counterpart is the provision of poultry feeds at a cheaper cost and purchase of incubator for hatching of eggs. Rebecca Sabado, municipal agriculturist of Bauang, revealed that they purchased chickens produced by IFED cooperators and distributed the birds to members of 4Ps and IPs for the livelihood programs initiated by the Municipal Social Welfare and Development.

“Nalaka nga masurutan dagiti technologies, nadaras nga sursuruen dagiti beneficiaries isu nga gumatang kam to pay para iti expansion iti sabali nga barangays,” [The technologies are easy to follow and can be easily learned by our subsequent beneficiaries and adopters that is why we will be purchasing more for our project expansion in other barangays] she said.

On the other hand, Dr. Datuin expressed her happiness about the turn out of the project. “I thank the Lord that He blessed this humble project dedicated to our rural women. It was very fulfilling to hear testimonies from mothers that they are earning additional income from selling chickens and eggs, and that they no longer need to buy eggs from stores because they can simply pick some eggs from their backyard and cook healthy breakfast for their families,” she said.

She attributed the success of the project to the overwhelming support of the LGU. They embraced the

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PHOTOS: DA-RFO 8



Cacao Lavezares: *Acting local, going global*

by Kevin G. Biol
DA-Regional Field Office 8

Cacao (*Theobroma cacao*), known to be the “food of the Gods”, is derived from the Greek word *Theos*, which means God, and *broma* which means food. A quick throwback to the Mayan and Aztec civilization would tell that this crop was used as a royal treat for the Gods. Cacao was regarded as a sacred plant and its beans were valued as currency.

As if the ancient times were reincarnated, Dr. Raul Destura and his family in Lavezares, Northern Samar enjoys royalty with their chocolate business, Cacao Lavezares.

Roots of Cacao Lavezares

Imagine waking up early in the morning, smelling the aroma of *sikwate* (hot chocolate) in a quiet and laid-back town. This is the childhood of Destura and his siblings, which also pushed him to venture to chocolate business. “It

reminds me of happiness and home. It is our favorite drink every morning because our parents used to make *sikwate* when we were young and every time I smell *tableya*, it reminds me of my family,” he shared.

He belongs to a family of farmers. An example of “rags-to-riches” kind of story, his father, Dr. Pedro Destura was a farmer who cultures cacao since he was young. With Dr. Pedro’s perseverance, hardwork, and innate intelligence, he propelled himself from being a farmer to becoming a President of the University of the Eastern Philippines.

Why chocolate?

Needless to say, it is everybody’s favorite. People from all ages sink in their sweet tooth on a soft and luscious chocolate. That is why this kind of business booms and thrives. It is also one of the reasons why Cacao Lavezares was born.

“Because everybody loves cacao. It is the easiest to sell and one of the top agricultural products in the global market,” said Destura, during a business launch in their municipality.

Pride of Cacao Lavezares

Their locally-made chocolates are not just ordinary chocolate treats. They have an automatic mixing equipment that refines and reduces the chocolate’s particle size down to 15 microns. This makes the texture smooth and silky, leaving no grainy texture on the palate. Every bite gives you a luscious flavor with a touch of sumptuousness. “I’m proud to say that we can already compete with the Malagos chocolate of Davao,” Destura said.

Cacao Lavezares offers a variety of drool-worthy chocolate products. From beans to bars, to pralines, truffles and chocolate desserts, Cacao Lavezares

boast itself with carefully processed fermented beans. Their products undergo temperature controlled drying and roasting techniques to give the right aroma and flavor the climate and soil of Lavezares Northern Samar can offer. The grinding and conching process of the cocoa mass are painstakingly done with enough patience and care to achieve quality chocolate bars and couvertures. All these are perfectly executed for sharp tempering to create the company's signature dark chocolate bars of 100%, 70%, 65% cocoa concentrates mixed with natural flavors and sumptuous variety of nuts and dried fruits.

One thing unique about their chocolate products is that none of the chocolate variety uses granulated sugar. Instead, they use coco-sugar as healthy alternative sweetener, adding to its unique flavor while keeping the glycemic index low.

In addition, the business also takes pride in utilizing cacao produced by local farmers in the three islands of Samar: Western, Eastern, and Northern Samar. This suits well for the famous Filipino tagline, "*Tangkilin ang sariling atin*". Samar Island is rich in natural resources, and many farmers are growing cacao in this area.

However, Cacao Lavezares is the first well-established chocolate business in the province of Northern Samar that embodies social entrepreneurship. The business takes into account the importance of human resource development and environment conservation.

"We created Cacao Lavezares as a social entrepreneurship where we give importance to human resource, environment, and profitability. We designed it in a way that would allow our business to flourish without jeopardizing the environment and our people," Destura remarked.

Four pillars of Cacao Lavezares

What is amazing about Cacao Lavezares is that it is not just about him and the

business. Destura conceptualized the business holistically. He considered how the business could make a positive impact to the farmers and the community by establishing the four pillars that support his chocolate business: 1) Cacao Lavezares Farms, 2) Cacao Lavezares Educational Foundation for Children of Farmers, 3) Chocolate Academy-Cacao Lavezares School for Chocolates, and 4) Cacao Lavezares Confiserie.

Destura's caring heart for the community gave him the idea of establishing Cacao Lavezares Farms and Cacao Lavezares Educational Foundation for Children of Farmers. Its primary objective is to empower cacao farmers in the province by providing them the technical expertise in cacao production. The Cacao Lavezares Farms adheres to best farming practices for cacao. The farming team are hands-on in training the local farmers and providing knowledge on how to best monitor and cultivate the cacao plantation.

"We want to advocate best practices in cacao farming by bringing in the latest technologies on post-harvest and processing. We provide technical assistance even as early as raw materials development," he stressed.

Cacao Lavezares built a training center in the heart of Brgy. Urdaneta, Lavezares' Northern Samar with the best view of the island cove and the Pacific Ocean. The training program is continually updated and regularly provided to the farmers of the three Samar provinces.

The educational foundation, on the other hand, aims to provide educational scholarship to cacao farmers' children in the province who want to take up agri-related courses. The company provides educational support to the children of cacao farmers. It believes that the best way to break the cycle of poverty is through education.

"We feel that the best way to give back

to our farmers is to give their children educational support, but not on a monetary basis," Destura uttered.

The company strongly supports the idea that when a child ends up a degree in agriculture, such knowledge can be brought into the homes of farming families. This would allow integration of best knowledge and practices in farming techniques in the hope of generating greater land productivity of the farmer's piece of land—improving family income and increasing capacity for self-sufficiency.

Destura shared that with this kind of initiative, farmers will be able to improve their lives and pull themselves out of the cycle of poverty, and that the province will have a community of knowledgeable and empowered individuals.

The third pillar is the establishment of the Chocolate Academy- Cacao Lavezares School for Chocolates in Marikina City. This program is designed to increase awareness and expertise in chocolate making process in the Philippines. The school aims to produce the best and brightest individuals in artisanal chocolate making. The company will tap the top graduates to take the lead in designing artisanal chocolates for the future branches of the Cacao Lavezares Confiserie in the Philippines.

The final pillar, the Cacao Lavezares Confiserie, is a chocolate shop that sells the best chocolate treats using Samarenos' cacao. The confiserie serves as the "art gallery," showcasing the best pieces of chocolate. The company aims to showcase innovative products, utilizing the best flavors coming from the whole archipelago that best complements the cacao of Samarenos. Its initial staging ground is located in Marikina City, and soon to two other confiseries to open in 2019.

Embracing the challenges

Just like any other businesses in its infancy stage, problems and challenges are always present, but Destura already

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PHOTOS: DA-RFO 5

Profit-earning potential of growing organic *Pili*

by Irene O. Marticio
DA-Regional Field Office 5

Bicol region is home of the delightful and classic *Pili* nut, known for its flavorful crunchiness, delectable taste as well as its oil that has healing properties.

Pili is an indigenous crop of the Philippines and is considered as the flagship commodity of Region 5. It is abundant in Bicol, particularly in the provinces of Sorsogon and Albay.

The Philippines is the only country that is capable of commercially producing and processing of *Pili*-based foods and by-products. It is a major export crop because it is not perishable and it can be a good substitute for *macadamia*, *pistachio*, almonds, and other nuts in the world market. It can be stored for one year without deterioration of quality. The fruit can be marketed fresh, as shelled nuts, dried kernel, or can be processed into various delicacies.

Pili is a prolific tree with a yield potential that is comparable with or even better

than other crop nuts. Many of its plant parts are used in the food industry, providing significant employment to farmers, fruit gatherers, processors, and handicraft makers.

***Pili* Development Program**

The High Value Crop and Development Program (HVCDP) of the Department of Agriculture-Regional Field Office (DA-RFO) 5, in collaboration with DA-Regional Outreach Station (ROS) Albay Experiment Center, spearheaded the *Pili* Development Program with the goal of boosting the *pili* industry and promote its massive production in the region.

This is a collaborative program with DA, local government unit (LGU), and private sector. It aimed to establish technology demonstration farm and *Pili* orchard, and support farmers through the conduct of trainings and provision of planting materials.

According to Rosita Imperial, regional HVCDP focal person, farmers were provided with 100 pieces grafted *Pili* per hectare basis and were supported with technical assistance. The farmers were validated by the LGU-HVCDP coordinators and were entered into a Memorandum of Agreement.

According to Maria Gina Buenaflor, science research specialist of the ROS Albay Experiment Station (AES), *Pili* may be planted by monocropping and intercropping systems. “During the first year, cash crops can be planted while *Pili* is still unproductive and intercropping can be done after the fifth year,” she added.

Choosing the right variety

Several *Pili* varieties such as Laysa, M. Orolfo, Magnaye, Lanuza, Magayon, Mayon 1, Mayon 2, and Orbase can be used. These varieties were developed by DA-AES and approved by the National

Seed Industry Council (NSIC).

Nympha Autos, senior science research specialist of DA-AES, mentioned that these varieties have the capability to withstand typhoon because *Pili* is considered as one of the typhoon resistant species. She also said that it is early maturing and high-yielding because these varieties bear fruits as early as two to three years after planting.

Managing the farm

Before planting, the field should be well-prepared, which is done by plowing and harrowing the farm. After land preparation, layouting and staking is done to get a perspective view of the orchard before planting the trees. The seedlings are directly planted at a distance of 6 x 8 meters for monocropping and 10 x 10 meters for intercropping, Buenaflor explained.

During planting, least five grams of organic fertilizer or a handful of chicken manure are applied at the bottom of the hole and covered with thin layer of soil. The plastic bags of the seedlings are carefully removed and the seedlings are gently dropped at the center of the hole. The seedling must be covered with soil and pressed gently to ensure firm contact of the root into the soil, added Buenaflor. *Pili* production needs less labor and farm inputs, thus lesser production cost. As the planting distance is far apart, hand weeding and maintenance is likewise easier, said Buenaflor.

Pili farming: a better option

Jose Amador, 77, of Guinlajon, considered *Pili* farming a better option when he decided to quit his old job as public utility jeepney driver. He started tilling the family's 12-hectare property in Brgy. Guinlajon, Sorsogon City and became a full-time farmer. In 1987, he started *Pili* plantation using grafted seedlings. He is the pioneer in growing grafted *Pili* in the country.

Before shifting to *Pili* plantation, he planted calamansi trees in his

4.5-hectare land from his earnings as a jeepney driver. Amador said, "Money was flowing but after 10 years of planting, production started to decline. The calamansi production can only give good income from 3-10 years, after that, it becomes unproductive when it reaches the peak of production," he revealed.

"I started with *Pili* when I bought about 300 pieces grafted *Pili* and planted them in 1987. After three years of planting, it bore fruits," Amador said. As the grafted *Pili* trees get older, they produce more fruits. All they do is provide fruits for decades or even for a century. "*Pili* is a centennial tree. It can live and bear fruits for over 100 years for generations. It grows and bears fruits without any human intervention, no fertilizer and pesticides," he added.

With *Pili* production, Amador was able to send his two children to college earning them degrees in medicine and marketing.

Socio-economic and other benefits of *Pili*

According to Amador, Bicol farmers should take full advantage of the *Pili* nut industry. It is currently being enhanced by the government through DA by helping farmers and landowners switch to commercial production to cater to global market.

The enhancement program of DA-RFO 5 aimed at the expansion of *Pili* plantations and development of good practices in production and finished product processing.

DA distributed thousands of grafted *Pili* for free to growers all over the region to expand the local production and developed *Pili* as a major export crop.

Amador added he has also been helping DA in producing these planting materials by way of sharing thousands of his grafted seedlings to the agency for a minimal fee to cover the labor cost.

He is often being tapped as resource speaker on *Pili* grafting. His farm has been a techno-demo site for DA, on-the-job trainings and experiments on *Pili* and by-products by several universities and colleges.

He had been recognized as a *Magsasakang Siyentista* (scientist farmer) for DA-Bicol Region for his pioneering of modern *Pili* farming in the area. In 2014, he was recognized as the national champion in The Outstanding Farmers of the Philippines (TOFARM) awards in recognition of his efforts in inspiring other farmers to go on farming. He was also awarded in Gawad Saka as an outstanding farmer for high value crops. ###

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project, allocated counterpart funds, and assigned staff and hired veterinarians to complement the manpower of the DA in carrying out project activities, particularly during monitoring and data gathering and providing technical assistance to walk-in visitors who are interested to learn more about the project. She hoped that the project will be adopted nationwide in areas where poultry raising is feasible in order to benefit more farm families and turn them into agripreneurs.

"As long as you put your heart to any development endeavor, coupled with supportive staff and project partners, there is no way that your project will not succeed," she added.

After two years of implementation, the project has been expanded in the municipalities of Santa Catalina, Ilocos Sur; Bacnotan and San Juan, La Union; and Mangaldan, Santa Barbara, and Labrador, Pangasinan.

With IFED project, chicken raising is envisioned to be a sustainable source of income for farm families coupled with a commitment of promoting better nutrition for rural communities through the production, distribution, and consumption of healthy and safe poultry products. ###



Unoy Rice

It is a collective name for the traditional or heirloom rice produced in Kalinga Province for home consumption. In 2013, the Department of Agriculture (DA) entered the world of heirloom rice production and marketing. A study titled, "Raising Productivity and Enriching the Legacy of Heirloom/Traditional Rice through Empowering Communities in Unfavorable Rice-based Ecosystems" also known as the "DA-IRRI Heirloom Rice Project (DA-IRRI HRP)" was conducted. The project was implemented in partnership with the International Rice Research Institute (IRRI), in collaboration with the Philippine Rice Research Institute, Bureau of Plant Industry, state universities and colleges, local government units, and farmer-beneficiaries. The project, funded through the Bureau of Agricultural Research, has become instrumental in organizing small farmers' groups into a provincial cooperative to cater to the heirloom/traditional rice business at the provincial level. (Photos: RDelacruz/BAR)



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