July-December 2013

ViCARP Highlights

Thirty five years of trying to make a difference in the lives of farmers and other stakeholders in Eastern Visayas.

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While ViCARP received the laud and trophy for winning the Tanglaw Award and first runner-up for Ugnay Award at the Sofitel Philippine Plaza Manila, CCP Complex, Pasay City on November 8, 2014, Super Typhoon Yolanda wreaked havoc in Samar and Leyte. The loss of lives and crops were unimaginable. Thousands were affected including ViCARP and its partner member agencies. Even then, ViCARP was able to support and help its members of the consortium.

Editorial

In the January-June 2013 issue of the ViCARP Highlights, I asked: "Is climate change a bane or a boon?" and I said that we (at VSU) have not been hit by a single typhoon since December 1998. What's the big thing? Not being hit by a typhoon for almost 15 years is something because when I came here in 1975 until the early 90s, Baybay was always hit by an average of 23 to 26 typhoons per annum. So, in that editorial, I suggested that the Department of Agriculture should start developing Region 8 as a fruit bowl like Davao and assist farmers in acquiring quality fruit trees because actually fruits that used to be only grown in Davao like durian, marang, mangosteen, rambutan, lanzones, just to name a few, can well grow here.

However, in November 8, while the ViCARP management and staff were happily receiving the big awards from DOST-PCAARRD—the Tanglaw Award for VSU (which carried a cash award of PhP2-million and a trophy) and the PhP500-thousand cash award for ViCARP as first runner-up in the Ugnay Award—at the Sofitel Hotel in Manila, we at VSU were experiencing the wrath of Tropical Typhoon Haiyan or Typhoon Yolanda with the strength of 325 kph. At the VSU campus alone, we lost 15 to 20 percent of our trees. But Tacloban city and its neighboring towns lost not only properties worth millions but thousands of lives because they were not only hit by Yolanda but also hit by the typhoon surge rolling as high as 20 feet or more. So, those that the strong wind torn to pieces were washed away by the waves of the angry sea leaving no trace of those former structures along the shore.

Some said Yolanda is the effect of climate change. But can we really attribute it to climate change? What about a similar typhoon that hit Tacloban and Central Visayas in October 6, 1912 (about 100 years ago) that killed around 6,000 in Tacloban and neighboring towns or about 25,000 people in Central Visayas? Could that be attributed too to climate change?

What is climate change? According to the Wikipedia, **climate change** is a significant time variation in weather patterns occurring over periods ranging from decades to millions of years. Climate change may refer to a change in average weather conditions, or in the time variation of weather around longer-term average conditions (i.e., more or fewer extreme weather events). Climate change is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Certain human activities have also been identified as significant causes of recent climate change, often referred to as "global warming" (http://en.wikipedia.org/wiki/Climate_change).

With Wiki's definition, we can say that Yolanda is one of the effects of climate change. So, what can we do to solve this problem? This question, I think, could be answered by our global experts. International fora had been organized to tackle this particular issue and a lot of recommendations have been made. Several studies have also been conducted to find out some climate change adaptation strategies different groups of people in different countries have developed and tried. The Philippines has also formed a coordinating body that helps manage and reduce risks, the National Disaster Risk Reduction and Management Council (NDRRMC).

But can we really reduce the effects of climate change? For me, only God knows.

VH Editor

ViCARP initiates Typhoon Yolanda relief operation; PCAARRD donates goods for PMA

In response to the aftermath of the deadly Typhoon Yolanda, which struck Leyte, Samar, and the Biliran Province, the Visayas Consortium for Agriculture and Resources Program (ViCARP) and the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) sent out help to partner member agencies.

A total of 646 packs of basic food like milk, sugar, coffee packs and some canned goods were distributed. On the other hand, PCAARRD donated loads of clothes, blankets, shoes and towels. These were given to 17 member-agencies that were badly affected by the typhoon. These include the Bureau of Fisheries and Aquatic Resources (BFAR-8), Department of Agriculture (DA-8), Department of Agrarian Reform (DAR-8), Department of Environment and Natural Resources (DENR-8), Department of Science and Technology (DOST-8), Eastern Samar State

University (ESSU), Eastern Visayas State University (EVSU), Philippine Fiber Industry Development Authority (PhilFIDA-8), National Economic Development Authority (NEDA-8), Naval State University (NSU), Office of the Provincial Agriculturist – Biliran (OPA-Biliran), Office of the Provincial Agriculturist – E. Samar (OPA-E. Samar), Office of the Provincial Agriculturist- Leyte (OPA-Leyte), City Agriculture Service Office – Ormoc (CASO-Ormoc), Philippine Coconut Authority (PCA-8), Samar State University (SSU) and Visayas State University (VSU).

Typhoon Yolanda, or Haiyan was the strongest tropical cyclone ever recorded that hit the Philippines on November 8, 2013. It brought killer winds with velocity of up to 315 km/h (195mph) and claimed thousands of lives and billions of properties (Source: PDNA Report 2014). The National Disaster Risk Reduction and Management Council (NDRRMC) declared fatalities of over 6,300, displaced and affected 3,424,593 families and over PhP89 billion infrastructure, productive, social and cross-sectoral damages. *Ireen Grace S. Palima/ViCARP*

ViCARP is Ugnay Award first runner-up

The Visayas Consortium for Agriculture and Resources Program (ViCARP) was CY 2013 Ugnay Award first runner-up. The award was given during the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) Awarding Ceremonies held on November 8, 2014 at the Sofitel Philippine Plaza Manila, CCP Complex, Pasay City.

PCAARRD granted ViCARP a cash incentive of PhP500,000. It was received by Dr. Bacusmo together with Dr. Othello B. Capuno, VP for Research and Extension and ViCARP Director.

VSU claims Tanglaw Award

The Visayas State University led the other contenders for the Tanglaw Award and claimed the victory as the Most Outstanding Research Institution during the PCAARRD Awarding Ceremonies on November 8, 2014 at the Sofitel Philippine Plaza Manila, CCP Complex, Pasay City.

The award, which amounted to two million pesos (PhP2,000,000.00) research grant, was received by Dr. Jose L. Bacusmo. It was the fourth Tanglaw Award accorded to VSU. The first Tanglaw Award was received from the then Philippine Pres. Ferdinand E. Marcos on November 10, 1977 during the 5th PCARR Anniversary Celebration. The second Tanglaw Award was earned by the PRCRTC (now PhilRootcrops) on December 19, 1980 and received by its director, Dr. Marianito R. Villanueva. The 3rd Tanglaw Award was earned again by PhilRootcrops and received on November 10, 2010 by its director, Dr. Julieta R. Roa.

The recognition was anchored on the theme "PCAARRD: Kaagapay sa Pag-unlad ng Industriya ng Sakahan at Pangisdaan." The Tanglaw Award is a prestigious recognition of research institution that has made an important impact to research and development in the agriculture, aquatic and natural resources sector. The award requires a grueling search among research institutions across the country. It is anchored on criteria based on technology developed/utilized, financial resources generated for the past five years, capability building and big accomplishments.

ViCARP RRDCC Chairman is Region 8 Gawad Saka Awardee

Dr. Jose L. Bacusmo, ViCARP RRDCC Chairman and VSU President, is the recipient of the 2013 Regional "Gawad Saka" Award (Outstanding Agricultural Scientist) for Eastern Visayas.

As regional winner, Dr. Bacusmo will be competing with other winners from the different regions throughout the country in the 2014 National Gawad Saka Search (Outstanding Agricultural Scientist), the most prestigious award conferred by DA to an individual who has done outstanding research work in the field directly related to agriculture and fisheries.

Gawad Saka is an annual event of DA in cooperation with other government institutions, non-government organizations and the private sector which aims to give due recognition and to pay tribute to dedicated individuals and institutions whose exemplary accomplishments in their respective fields of endeavor and contribution in the country's agricultural development are deemed worthy of emulation.

Dr. Bacusmo will receive a trophy and a cash award of PhP30,000 from the Department of Agriculture–Regional Field Office No. 8's (DA-RFO 8) during the culmination of the Farmers and Fisherfolks' Month on May 30, 2014 at the DA-8 Multipurpose Hall in Tacloban City.

Dr. Bacusmo will also be the region's finalist to the 2014 National Gawad Saka Outstanding Agricultural Scientist. A field validation, interview and assessment will be conducted. The criteria used in selecting the winner for the Regional/National Gawad Saka Award (Outstanding Agricultural Scientist) are as follows: a) Quality of scientific work – 32%; b) Productivity of the scientist – 23%; c) Creativity of the scientist – 20%; and d) Impact of research project/s conducted – 25% with a total of 100%.

JFMBaldos

NwSSU taps ViCARP for TW on Writing and Reviewing Research Articles for Peer-Reviewed Publications

The Northwestern Samar State University (NwSSU) requested the Visayas Consortium for Agriculture and Resources Program for an intense training-workshop on Writing and Reviewing Research Reports for Peer Reviewed Publication.

The NwSSU Research and Extension Division fell short on producing quality research outputs, where researchers have weakness in writing research reports for publication, Dr. Marietta L. Espina, VP for Research and Extension admits. In response, ViCARP and the Visayas State University (VSU) optimized the workshop by requiring the participants to send e-file of their expanded abstract of papers that they will work on during the training. The training was conducted on December 16-20, 2013 at the OVPRE, VSU, Visca, Baybay City, Leyte.

Fourteen participants presented their research paper during the mini-symposium activity. The training had emphasized on journal writing, strategy and effective writing. The participants were also refreshed on writing the methods, results and discussion, and introduction section for their paper. *Ireen Grace S. Palima/ViCARP*

NEWS

VSU Prof is SEARCA Professorial Chair awardee for 2013

Dr. Annabella B. Tulin, a soil science and plant nutrition professor of the Visayas State University (VSU), has been awarded a Professorial Chair Grant for 2013 by the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA).

Dr. Tulin has been connected with VSU since 1980. As a senior scientist, she has been actively and significantly involved in various plant nutrition research and extension projects with local and regional partners, specifically for vegetable and root crops.

As SEARCA Regional Professorial Chair awardee, Dr. Tulin will be presenting a public lecture on "Micronutrient Biofortification of Soils from Marginal Uplands for Increased Yield and Improved Nutritional Quality of Vegetables and Rootcrops" within the Academic Year 2013-2014.

The SEARCA Regional Professorial Chair Grant is awarded to institutions and individuals in recognition of their contribution in promoting academic excellence in the fields of agriculture and related sciences.

The Award gives due recognition to outstanding Southeast Asian experts in the academe in specific fields of study relevant to the broad themes of Agricultural Competitiveness and Natural Resource Management. The study areas include, but are not limited to, social sciences, marine and fishery sciences, environmental sciences, economics, and rural development-oriented fields.

The grant is open to any outstanding Southeast Asian academicians, particularly those working in the fields of study relevant to the priority thrusts of SEARCA within its current Five-Year Plan. *JFM Baldos/VSU*

ViCARP staff attend event management seminar

Two ViCARP staff, Pauline S. Caintic and Ireen Grace S. Palima, attended the Knowledge Session on Event Management sponsored by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) on September 5,6, 2013 at the Sol Y Viento Hot Springs Mountain Resort, Pansol, Calamba City.

The knowledge session expounded on the theme: Making a Difference through Celebrations. PCAARRD has been promoting and creating celebrations in every region through the Farms and Industry Encounter through Science and Technology Agenda (FIESTA). FIESTA events involve key players in the agri-industry.

Last year, ViCARP and RRDEN sponsored the first Jackfruit Fiesta. The VICARP participants were able to share the experience with the other attendees. Ms. Cynthia R. Bernabe of Wishworks-Events, Co, one of the country's top event organizer and seminar speaker, emphasized the importance of event strategic planning and coordinating the event. Important aspects like evaluation and issues in the event management were thoroughly discussed during the open forum. The activity was sponsored by PCAARRD. *Ireen Grace S. Palima/ViCARP*

Jackfruit STCBF conducts Jackfruit Production training and technology clinic

Farmers from Mahaplag and Abuyog, Leyte actively participated in the consecutive training conducted at DA-RIARC. Topics discussed during the training were based on the results of the STCBF baseline survey for the stakeholders' production practices.

Resource persons were Ms. Brenda B. Almeroda (RIARC Abuyog Pest Management Laboratory In-charge), and Dr. Lucia M. Borines (VSU-PDDL Office Head). Ms. Almeroda discussed the Phenology of Jackfruit, Major pests in jackfruit, Recommended applicable technology on jackfruit production, and led the jackfruit technology hands-on activities, while Dr. Borines discussed the Best nursery management practices for Phytophthora and Phytophthora disease management. The morning session was allotted for the lectures, while technology clinics were performed in the afternoon.

Jackfruit STCBF stakeholders from Baybay, Javier and Inopacan were set to attend a similar training in November, but it was cancelled due to the extent of damage caused by super typhoon Yolanda in Eastern Visayas. *Jonalyn G. Saulan/ ViCARP*

STCBF Project on Jackfruit Production conducts Lakbay-Aral

A total of 56 jackfruit growers from Baybay, Inopacan, Javier and Abuyog participated in the Science and Technology Community-Based Farm (STBF) Lakbay Aral to Brgy. San Isidro, Mahaplag, Leyte on July 2 and 3 and August 1, 2014.

The STCBF Lakbay Aral aimed to enhance stakeholders' active participation in the project. Mr. Job Abuyabor, Region 8 Magsasaka Siyentista for Jackfruit Production, welcomed the farmers to his farm and keenly answered participants' queries over an informal discussion.

Participants also observed the preparation of Metarhizium anisopliae at the jackfruit farm. Mr. Abuyabor emphasized the importance of overseeing the production with an open mind set to adopt recommended technologies so as to improve jackfruit yield.

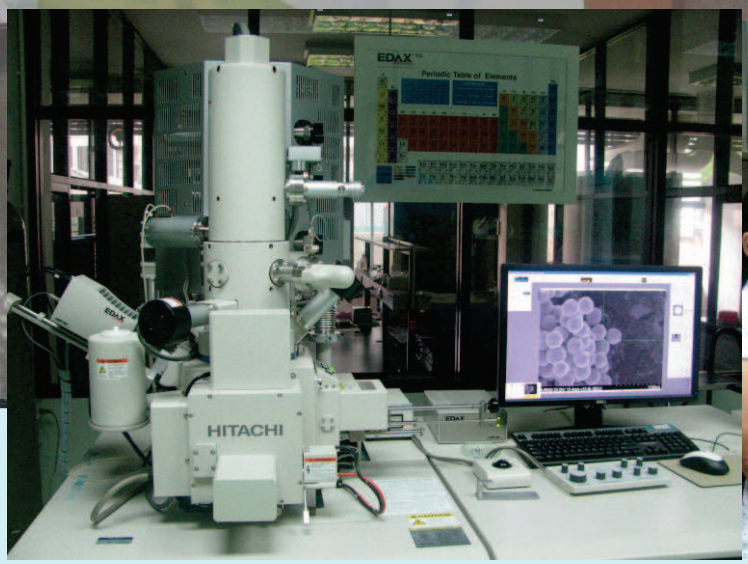
The activity is part of the Jackfruit STBF efforts to gather the jackfruit growers in the 5th district of Leyte and increase the jackfruit production with the use of recommended practices.-
Jonalyn G. Saulan/ ViCARP

ViCARP goes to Thailand

By Ireen Grace S, Palima

What is the best time to go to Thailand? For ViCARP, the best time was on September 23-27, 2013. It has been said that educational trips will shape the experiences and make better out of the employees. Thus, the trip was part of the continuing education on agricultural research and technology management for ViCARP staff and partner-member agencies (PMAs).

With a love for travel and knack for adventure, it is no wonder that wherever ViCARP goes, they bring with them enthusiasm and confidence. Dr. Jose L. Bacusmo, ViCARP-RRDCC Chairperson and Dr. Othello B. Capuno, ViCARP Director, led the group of 19, composed of ViCARP Coordinators, staff and PMAs namely SLSU, OPA-Maasin, DOST, DA, and CLGU-Ormoc.



Research centers in Thailand

The group visited the National Center for Genetic Engineering and Biotechnology at Thailand Science Park. It is a research center under the umbrella of the National Science and Technology Development Agency, Ministry of Science and Technology in Thailand. The group were briefed about their research units on bio-resources, agricultural biotechnology research, food biotechnology, medical molecular biotechnology, genome institute, biochemical engineering and pilot plant research and development unit, excellent center for waste utilization and management (EcoWaste), cassava and starch technology research unit, rice gene discovery unit and the rest of their specialized laboratories. Dr. Bacusmo also explored possible research collaborations and programs with the center.

The group then explored the Kasetsart University Research & Development Institute (KURDI) and Institute of Food Research and Product Development. The group was able to compare with and learn recent research trends and high tech equipment from KURDI to their respective offices.

They also went to the Asian Institute of Technology (AIT), a world-renowned institute that promotes technological change and sustainable development in the Asia-Pacific region through higher education, research and outreach. The group was treated to a sumptuous lunch by former VSU faculty and staff who now work at AIT.

Fun in Thailand

As ViCARP's first international travel, the trip meant not only to visit the research centers and universities, but also discover the quintessential Thai-ness, tropical climate, fascinating culture and lifestyles of Thailand. The group had the opportunity to explore the country that has been tagged as the amazing magnet for travelers all over the world.

The tour included the cruise along the Chao Praya River, the birth of Thai civilization, aboard the Chao Praya Princess Cruise. The majestic Grand Palace and the Temple of Emerald Buddha or the Wat Phra-kaew, one of the most sacred Buddhist temples in Thailand were among the destinations. The group also went to Sampran Riverside or Rose Garden and witnessed the Elephant Show and Thailand's cultural show.

The trip would not be complete without the taste of Thailand dishes, which are a pleasant explosion of four flavors: salty, sweet, sour and spicy. The group never missed the Thai dishes like the Tom Yang Goon, a combination of spicy hot and sour flavor with the aroma of fragrant herbs like lemon grass, lime leaves and chili and fish sauce. They also tasted famous noodle soup like kuay tiew and other dish like Pad Tai, and Som Tam, or the spicy papaya salad. The food experience was heightened while they dined atop the 88th floor of the Baiyoke Sky Tower, Thailand's tallest hotel with a revolving deck.

ViCARP was able to immerse with the culture and history of Thailand. While exploring research and development possibilities, they were able to engage into the sanukli-lifestyle and reflect good practices from the Thais on their own. Indeed, traveling from time to time is a healthy activity for employees, and it is one they will surely not forget.

HERE'S A CHEAP CONTROL FOR RICE BLASTS AND BLIGHTS

Junette Dawn A. Baculfo, VSU-DDC

Here's good news to rice farmers! You can now fight rice blast and bacterial blight at a cheaper price!

Results of a recent study of the Department of Pest Management (DPM) of the Visayas State University (VSU) in Baybay City, Leyte revealed a better way of fighting these rice diseases. Farmers can now finally free their mind from worry.

The study, which was spearheaded by Dr. Lucia M. Borines, demonstrated potential chemical elicitors that best bring out Systemic Acquired Resistance (SAR) in rice plants to make rice plants resist and control two very most important diseases--bacterial blight and blast. This method has been found to be cost-effective.

Chemicals that had been reported to induce SAR includes Boost Bion, Salicylic Acid (SA), Aspirin, Chitosan, Acetic Acid, Linoleic Acid, Gamma amino buteric acid (GABA), Silicon dioxide (SiO_2), Thiamine, Nordox (Cyprus Oxide) and Beta-amino butyric acid (BABA). These chemicals have been tested and sprayed on Xanthomonas oxyzae PV pyncularia grisea Isolation – race 6 or IR24 rice from IRRI and Pyricularia girsea Isolation. Both varieties are susceptible to bacterial blight pathogens and blast infection, respectively.

In the study, all of the compounds tested produced significant reduction in disease severity in the plants. The effective chemicals found to fight against bacterial blight were BABA, GABA, Boost, SA,, Acetic acid, and Aspirin while Boost, SA, Acetic Acid and BABA were effective in making the rice plant resistant to blast.

Dr. Borines pointed out that although these compounds vary slightly in their effectiveness, they greatly differ in terms of price. The cheaper yet effective elicitors against the two diseases include salicylic acid, aspirin, SiO_2, and chitosan. Boost, although a little bit more expensive than these three, is still cheaper compared to others. Thiamine and GABA were moderately expensive while Linoleic acid was the most expensive.

The DPM scientist also stressed that in terms of yield, it did not vary much between the treatments although the highest yield was from chitosan—treated plants.

Surely, this is a good development to rice farmers. Now, who does not want a cost-effective way of fighting the two most important diseases of rice?##

Herbal dewormer for goats is now IP-protected

Ella Lois T. Bestil/ VSU

Dr. Tomas J. Fernandez, a researcher at the Department of Veterinary Medicine, claimed intellectual property protection last year for the herbal dewormer preparation against H. contortus, a roundworm that affects goats. This dewormer, in liquid form, is not yet available for commercialization, though.

The herbal dewormer is a mixture of crude ethanolic extracts of the *makabuhay, caimito* or star apple, and *makahiya* plants. *Makabuhay* and *makahiya* plants are weeds that can be seen in anyone's yard.

Using these pervasive sources, control for roundworm infection does not have to be a burden for goat raisers, who usually buy commercial anthelmintics that pose the risk of parasite resistance after continued use. Besides resistance development, commercial roundworm controls are usually costly and limited, and its residues in the goat's manure are potential environmental pollutants.

The mixture is administered orally to goats and other small ruminants at an interval of 14 days per dosing. The dosage should be 1.5 ml per kilogram body weight of the animal.

Fernandez's research found that the use of the herbal dewormer has significantly reduced the eggs of H. contortus in goat's manure based on percent fecal egg concentration reduction. The mixture contains bioactive compounds such as tannins, alkaloids, anthraquinones, and flavonoids which are toxic to and can ultimately kill adult roundworms. Intestinal inflammation caused by these parasites can also be healed by this herbal dewormer composition.

Preparation for the herbal dewormer required air-drying of the three component plants. They were then cut into small pieces and pulverized. Pulverized leaves of each plant were infused in ethanol for 48 hours using a certain ratio. After keeping the crude ethanolic extracts in the refrigerator overnight, the liquid that floats above the precipitate will be transferred to a screw-capped test tube and kept at room temperature. This liquid now becomes the herbal dewormer.

The certificate of Utility Model registration of the herbal dewormer composition was issued on Jan. 2, 2013. This grants the inventor and the university exclusive rights to make, use, sell or import the technology within seven years from the date of filing. Tests on the effectiveness of the capsule and tablet form of this composition will still be verified under field conditions.

S&T FEATURES

Increase your mango's shelf-life without using chemicals

Isabelle Vae Amoranto, SLSUDDC

"Here is good news for mango exporters and those in the ripe mango business! You can now increase your mango's shelf-life without using chemicals"

Mango is the top three exported fruit of the country, next to banana and pineapple. But, it has a very short shelf-life where maximum ripening is at 3-4 days after harvest, which limits its capacity to be transported in long distances. For exporters, this is a major problem. And not only that, mangoes are prone to post-harvest diseases caused by pathogens. These diseases make the mangoes unappealing in the market. Though chemical pesticides help in fighting these diseases, using them would endanger the environment and health of the people. What then is the option left?

Experts from the Southern Leyte State University (SLSU) and Visayas State University (VSU) strongly recommend the use of chitosan. They pointed out that chitosan has biological properties that prevents the growth of fungi and bacteria.

The researchers, Dr. Dewoowoogen P. Baclayon of SLSU and Dr. Candelario L. Calibo of VSU explained that chitosan can be extracted from exoskeletons of crustaceans, insects, fungi and some algae. In their study on the "Potentials of Laboratory-produced Crab Chitosan as Postharvest Treatment in Mango Fruit," laboratory-produced crab chitosan was applied in mangoes during postharvest. As control, a commercially available chitosan (Stigma) was also applied for comparison purposes.

The results of the study positively determined that both the chitosan they produced and Stigma slowed down the growth of the organism Diplodia natalensis, which cause the stem end rot disease in mangoes. They found out that chitosan acted as a barrier that limits the availability of nutrients so as not to sustain growth of pathogens. Moreover, chitosan not only prevented growth of pathogens, but also stimulated resistance of living tissues to invading pathogens. It does not only protect the fruit but also teaches the host tissues to protect themselves. Double-protection, I can say!

The researchers also found out that weight loss was reduced. They explained that chitosan molecules filled up the spaces in the epidermal tissues where water exits. With chitosan in place, there's no way out for them now. With the weight loss reduced and rate of fungal infection slowed down, shelf-life of mangoes can now be extended. They can now travel long distances without reducing their quality.

Though both the laboratory-produced and the Stigma chitosan inhibit pathogenic growth, the cost has a very big difference. The Stigma chitosan costs thrice as much as the laboratory-produced chitosan. With the newly produced chitosan, exporters could definitely save a whole lot of money.

Aside from having longer shelf-life for your mangoes, they are also pesticide-free. If you are planning to grow mangoes for export, you might as well try the locally-produced chitosan and work your way up the ladder of success.###

Making Money from Tikog Art and Culture

Gladys Ruiz | VSU-DDC

Mat weaving in Basey, Samar only started as a household-based micro industry by our ancient Waray-waray women. This served as an income generating leisure in the olden times. Today, for our modern people, they see it as a form of art and culture rather than an income generating activity. But who says that we can't make money from this art and culture?

The woven art of tikog-mat industry had been providing job opportunities to the people of Basey. Tikog (Fimbrystilis Utilis) is a local grass that usually grows in the marshland areas. The fact that the tikog-mat production is already a multi-million peso industry will give you a clue on how the people who engage in the tikog-mat weaving business succeed. An example of these successful people is Delza Morales. Would you believe that her enterprise yearly sales would reach from 3-4 million pesos? She started with the capital of PhP30,000 and it made her enterprise last for 63 years. Now, it's the most successful tikog- mat weaving industry in Basey.

Now, there are already unlimited demands of the tikog-mats in the foreign market. With its humble beginning, who would think that tikog-mats from Basey are already known worldwide!

Thanks to the skilled workers who weave and embroider tikog-mats with distinguishing quality. They are so creative that they were able to think of making another handicraft product from the woven

and embroidered tikog-mats. With that, they did not just produce mats but also items like fruit trays, wallets, hats, dividers, curtains, accessories and many household garments.

So, how was tikog converted into a profitable and world class product?

First is the preparation of the tikog--the main raw material to make the product. In the case of Basey, they have to buy tikog from other municipalities in Leyte because they don't have enough supply of the said raw material. The tikog then undergoes sun-drying for five days until the green color becomes shiny brown. After drying, they are sorted--the process by which the roots and flowers are cut. Then, they are dyed to give colors to the stalks and convert them into straws. Tikog straws are cut according to the desired length. They are now ready for manual weaving to produce the mats. Once done, you can put designs to the mats as finishing touches. These mats can also be used to make other products such as bags, wallets and others depending on how creative you are.

But behind this success of the tikog-mat industry in Basey is a sad reality. The production is quite slow because it is done manually. There is no available technology that would help the production to be efficient. Aside from this, the industry also lacks manpower. Majority of the highly skilled workers are the old ones. Only a few number of the younger generation engage themselves in mat weaving. This causes threat to the productivity of mat weaving industry. Thus, the industry needs the younger generation to sustain the productivity.

The love of our culture, arts and tradition really teaches us on how to be creative and resourceful. This only proves that we don't need to find imported products when we know that we can make our own. All we need is just to use our resources.

So, who says that we can't find money in this tikog art and culture? Let's experience success, like Delza Morales of Basey, Samar, while preserving our own art and culture!

TAHONG EMBUTIDO, TAHONGGANISSA AND DRIED TAHONG: FROM LAB TO MARKET

Lanny Flor B. Mahilum, VSU-DDC and Ireen Grace S. Palima, ViCARP

Green mussels, locally known as *tahongs*, are usually cooked sauteed, buttered or stir-fried. But now, they are making waves as *tahongs* are developed into *tahong* embutido, tahongganisa and dried *tahong*. Packed with vitamins A, calcium and iron, the products do not have trans-fat, making it good for people with heart ailment and those who are on a strict diet.

A study entitled, "Green mussel (Perna viridis) value added product improvement for commercialization," by Leonora Doncillo, Nilda Combras and Ronald L. Orale of the Samar State University, was conducted to improve the quality attributes of tahongannisa, tahong embutido and dried tahong from green mussel (Perna viridis) for commercialization.

The green mussels or *tahong* from Jiabong and Bunuanan in Catbalogan, Samar were subjected to several processes. Freshly harvested *tahong* were bought from *tahong* farmers and detailed processes followed in making the three products. The new *tahong*-based products were subjected to descriptive sensory evaluation. The *tahong* embutido, tahonganisa and dried *tahong* have gained a handful of positive feedbacks with regard to taste, aroma and texture.

The dried *tahong* was the most accepted product among the three. Its shelf life may last up to five months at 40^{0}C. It can reach up to 11 months though if stored at 20^{0}C. The researchers do not recommend natural sunlight drying due to unsteady environmental temperature and humidity. The risk of contamination from dust, insects and bacteria is high if drying method is relied only on sunlight.

On the other hand, the tahongganisa has low popularity among the products. It is made from 100% *tahong* meat. When subjected to frying, the meat changes to darker color making it unattractive to customers, specifically to the kids. The researchers suggest adding more fish meat and using attractive coating like the ones used in hotdogs to conceal the true color of the product. However, the product needs to be stored at -14^{0}C and can be kept up to 18 months if vacuum packed using a 200mmx 140mm x 100 microns nylon/LLDPE packaging material. The product must be at all times refrigerated to maintain its freshness.

Like the tahongganisa, the *tahong* embutido has low acceptability because of its bland color. When the researchers added white fish meat, the color and taste of the product improved. Steaming the *tahong* embutido was highly recommended in maintaining the color of the product. Packaging and storing the product is similar with the tahongganisa.

The research was recommended for further studies to improve the color without sacrificing the natural nutrients present in the main ingredients. They also suggested enhancing the taste without sacrificing the unique taste of *tahong*. However, they emphasized that strict follow through of the protocol must be followed to ensure safety of the product. The researchers welcome interested individuals who want to adopt the technology. They only need to coordinate with SSU-CFMS.

Relief goods from the Philippine Council for Agriculture, Aquatic and Natural Resources, Research and Development (PCAARRD) of the Department of Science and Technology and those of ViCARP ready for distribution to consortium member agencies affected by the Super Typhoon Yolanda.

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ViCARP Highlights

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Visayas Consortium for Agriculture and Resources Program (ViCARP)
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