



VICARP

Highlights

JANUARY-DECEMBER 2014

36
YEARS

of MAKING USE OF SCIENCE AND TECHNOLOGY IN REBUILDING EASTERN VISAYAS

PRODUCTIVITY: Key to fast recovery

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VICARP *Through the years...*



Since the introduction by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) of the prestigious UGNAY Award in 1995, the Visayas Consortium for Agriculture and Resources Program (ViCARP) has always been in the top 5 of the 14 consortia in the country. It had won the UGNAY Award in 1997, 2003 and in 2008, in recognition of its outstanding management of agriculture and resources research and development in Eastern Visayas. The award carries a P1-million grant, a trophy and a plaque.

ViCARP member agencies and administrators had also won the PANTAS Award-Administrator (for outstanding performance in research administration), PANTAS Award-Researcher (for outstanding research outputs) and the TANGLAW Award (for outstanding research institutions).

ViCARP researchers had likewise won best paper awards, in both basic and applied categories and in the development category, given by PCAARRD every year during the National Symposium for Agriculture and Resources Research and Development (NSARRD).

Moreover, members of the applied communication group (the REACTF) had won the PCAARRD Professional Media Award (Broadcast Category).

Likewise, ViCARP researchers have been winning awards in regional, national and international research symposia and have published their research outputs in national and international refereed journals and have published books and S & T-based technical and semi-technical publications.

Lastly, ViCARP member agencies and researchers have made a difference in the lives of development stakeholders in the region by working closely with the LGUs, the NGOs and the private sector.

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THE AMAZING FILIPINO RESILIENCE

Those who happened to travel from Baybay City to Ormoc City one year after Super Typhoon Haiyan locally known as Yolanda would surely be amazed to see no sign of the super typhoon. Right after the typhoon, one can see 90 percent of the houses totally damaged or roofless and in the evening, it was totally dark. Just a few months after, the electricity was more than 50 percent restored and some houses underwent repair. One year after, one can see no sign of the typhoon.

What is unique in this area? There is only one answer—the Filipino resilience. What is resilience? It is the ability to restore what used to be there. What made this area unique compared to the other areas hit by Yolanda? The magic word is cooperation and collaboration. The people, with support from the local government units, government agencies and non-government organizations (local and international) have worked together toward restoring the damaged properties.

In an interview with rural residents, it was learned that they really made use of the money given to them by the LGUs in cooperation with DSWD to buy building materials so that they could repair their houses. The LGUs and the Department of Public Works and Highways (DPWH) with the help of the people also worked together to clear the roads with fallen trees. The people also helped restore the electricity in their area. For instance, in Barangay Patag (a barangay adjacent to Barangay Pangasugan where the Visayas State University is located), the community mobilized their electricians to help them restore electrical lines and posts and connected them to the main line of the Leyte Electric Cooperative (LEYECO). That is why in less than one month, their electric supply was restored.

At VSU, the faculty and staff were mobilized to clean the whole campus and the General Services Office (GSO) staff were assigned to harvest the uprooted trees and produce lumber to be used to repair school buildings and staff cottages. In two weeks, the topsy-turvy campus was totally cleaned up. Visitors cannot help but ask if we were, indeed, hit by Yolanda.

To help the region, the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) provided funds to help the Yolanda victims. With VSU, the lead institution of the Visayas Consortium for Agriculture and Resources Program (ViCARP), taking the lead, the Consortium Member Institutions (CMI) were mobilized to submit project proposals. Ten projects were funded and implemented in Eastern Visayas, specifically for the Yolanda-stricken areas. Also, the government, through the Recovery Assistance for Yolanda (RAY) Program released funds to government agencies and institutions hit by Yolanda. The funds really made a difference in the lives of people who were victims of Yolanda.

So, the formula is simple. We put together community cooperation, collaboration and financial support to restore what was there before the calamity, and it worked! That is why from Baybay City to Ormoc City, you cannot anymore see the effects of Yolanda. Filipino resilience is really amazing!

WOLFREDA T. ALESNA
Editor

VSU implements PCAARRD-Funded Yolanda Rehabilitation Projects

/Elmera Y. Bañoc

The Visayas State University (VSU), headed by Dr. Jose L. Bacusmo, has been implementing ten (10) projects for the identified areas in Eastern Visayas affected by Typhoon Yolanda with financial support coming from the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD). The implementation started in May 2014

From the 10 projects, 7 are in its full swing of implementation. These included (1) Vegetable Production Using Organic-Based Technologies for Typhoon Yolanda Victims in Eastern Visayas by Dr. Edwin A. Balbarino; (2) Establishment of Organic Fertilizer Production Facilities for Typhoon Stricken Areas in Leyte and Samar Provinces; (3) Science and Technology Community-Based Farming for the Rehabilitation and Growth of the Rice Sectors Adversely Affected by Super Typhoon Yolanda in the Provinces of Leyte and Samar; (4) Establishment of Cacao Production with Intercropping System in Typhoon Yolanda Stricken Jaro, Leyte; (5) STBF

interventions on the Production of Camote and Gabi in Basey, Samar; (6) STBF Interventions on High Value Vegetables in Salcedo, Eastern Samar; and (7) Establishment of Coconut Seed Garden for Eastern Visayas.

The other three (3) projects are on (1) Coordination, Monitoring, Evaluation and Assessment of S and T Based Projects (STBPs) for the Rehabilitation of Typhoon Yolanda Affected Areas; (2) Rehabilitation of Leyte and Samar Province Brought About by Typhoon Yolanda Through Seaweed Farming and (3) Bamboo-based Temporary Shelters.

Dr. Bacusmo encouraged all member agencies of ViCARP to continue looking for opportunities to help rebuild the region, to access more funds rather than look back at the devastating effects of Yolanda.

DA8-ICRISAT-VSU implement the Bhoochetana Approach in Region 8

/Elmera Y. Bañoc

Problems on yields gap? The solution is here.

The Department of Agriculture Region 8 (DARFO8), together with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India and in full support of the Visayas State University (VSU), implemented the Bhoochetana Approach also known as the Yamang Lupa Program.

The program originated from the Government of Karnataka, India. This is an approach suited for rainfed agriculture. Its main goal is to touch the lives of 3.6 million families by increasing productivity of crops in the state by 20% in four years. This is surely possible in the Philippines of which three-fourths of the country's 10 million hectares of agricultural lands rely on rainfed agriculture.

Why called Bhoochetana?

The term 'bhoochetana' means 'reviving the soils'. As the name implies, the Bhoochetana program of the Government of Karnataka and ICRISAT aimed to help dry land farmers in Karnataka (second largest rainfed

state in India) through science-led integrated approach. This involves improved management practices, capacity-building activities and good adaptation strategies to unlock the potentials of agriculture, to increase productivity, and to strengthen coping mechanisms against climatic disturbances.

To boost the average productivity of the 30 districts of Karnataka by 20 percent in four years, the Bhoochetana project was aimed to specifically identify and scale-up best-bet options (soil, crop and water management) including improved cultivars to enhance productivity by 20 percent of the selected crops in 30 districts, and train the Department of Agriculture (DoA) staff in stratified soil sampling at villages, analysis of macro- and micronutrients, and preparation of GIS-based soil maps. Also, the program hoped to build the capacities of stakeholders (farmers and consortium partners) in sustainable management of natural resources and enhance productivity in dry land areas.

Since its implementation in 2009, the Bhoochetana project has been successful in achieving its goals. Through the technical support and scientific approach brought about by this project, the 30 districts of Karnataka were able to attain a significant increase of an average of thirty percent in the crop productivity of their staple crops amidst different agroclimatic conditions.

This commendable success of Karnataka inspired the Bureau of Agricultural Research (BAR), together with the Department of Agriculture-National Rice Program, DA-High Value Crops Development Program (HVCDP), with the strong collaboration of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), to allocate funds for the implementation of the said program to realize the crucial role of rainfed agriculture in the Philippines.

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RCCRC taps ViCARP for its Program Implementation

/Elmera Y. Bañoc

We are trying to work under the Visayas Consortium for Agriculture and Resources Programs (ViCARP) as the working arm”, Dr. Eduardo O. Mangaoang stressed during his presentation of the updates of the Center on August 22, 2014 before the ViCARP-RRDCC and RRDEN-RAC members who attended the 2014 Joint ViCARP-RRDCC-RAC Meeting at VSU, Baybay City, Leyte. Dr. Mangaoang is the Director of the newly established Regional Climate Change R & D Center (RCCRC).

The establishment of the regional Center and the formulation and adoption of the National Framework Strategy on Climate Change based on the Climate Change Act of 2009 (RA 9729) is the best solution to address the threatening impacts of climate change which the Philippines is now experiencing.

Dr. Mangaoang mentioned that the Center's goals include: (1) to promote high level of awareness on key issues on climate change mitigation and adaptation for better and informed decision-making of various stakeholders, particularly the LGUs and (2) to collaborate with other academic institutions, international, national and local organizations to study tropical climate change related problems.

The Center's mission are: (1) to improve knowledge and understanding of climate change and its consequences, and develop appropriate options for mitigation and adaptation, and (2) to integrate these into global, national and local context of sustainable development.

The RDE agenda for Climate Change activities in Region 8 are focused on the six (6) strategic priorities; namely: (1) food security and sovereignty; (2) water sufficiency; (3) ecosystem and environmental stability; (4) human security; (5) climate change adaptation; and (6) sustainable energy, knowledge and capacity development.

Dr. Jose L. Bacusmo, VSU President and RRDCC Chairperson confirmed and supported the ideas of Dr. Mangaoang. VSU added Php1M more to the operational budget of ViCARP to satisfy ViCARP's expanded functions. He further said that when he presented the idea of putting up the regional R & D Center on Climate Change, the other SUC presidents supported the idea.

Dr. Vilma M. Patindol, Director of ATI-NTC, which has been an active member of both ViCARP and RRDEN, expressed the Institute's interest to be involved in the climate change program.




DPM Prof receives Regional Gawad Saka Award

/Joramay Morales, VSU-DDC

Dr. Lucia M. Borines, Professor III in Plant Pathology of the Department of Pest Management (DPM) and head of the VSU Plant Disease Diagnostic Laboratory was awarded as Region 8's Gawad Saka-Outstanding Agricultural Scientist by the Department of Agriculture Regional Field Office No. 8 (DA-RFO8). She received the award on May 29, 2015 during the culmination and awarding ceremonies of the Farmers and Fisherfolk's Month Celebration held in Kanhuraw Hill, Tacloban City.

Gawad Saka is the Department of Agriculture's (DA) annual event in cooperation with other government institutions, non-government organizations, and the private sector. It aims to give recognition and tribute to dedicated individuals and institutions whose exemplary accomplishments in the country's agricultural development and respective fields of endeavor were considered worthy of emulation.

The criteria used in selecting the winner for the Gawad Saka-Outstanding Agricultural Scientist

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.Bhoochetana: The Philippine version

The implementation is governed by the conceptualized project entitled, “Soil Rejuvenation and Natural Resources Management Program: Piloting of the Bhoochetana Concept in the Philippines”. It aimed to pilot and gradually out-scale the Bhoochetana in strategic rainfed areas in the country to contribute in increasing the average productivity of selected crops in the pilot regions by 10-20 percent in three years while improving/preserving the overall soil health condition.

Aligned with Karnataka’s Bhoochetana mission program, the project aims to: 1) determine the micro- and macro-nutrient status of the soils of the agricultural lands in the selected representative sites in Luzon (Quezon), Visayas (Samar), and Mindanao (Zamboanga); 2) identify best-bet options (soil, crop and water management) including improved cultivars to enhance the productivity of selected crops in the selected representative sites by 10-20 percent; and 3) build capacity of the stakeholders (farmers and consortium partners) in the sustainable management of natural resources and in enhancing productivity in rainfed areas.

In the Visayas, particularly in Region 8 (Samar areas), the program is in its full swing of implementation. The 3-year program formally commenced in April 2013 and will end in 2016. The overall implementation is actively headed by Dr. Elvira C. Torres, the Regional Technical Director for Research and Regulations, DA RFO8. It has four major components which are headed by the pool of experts from DA RFO8 and VSU, namely: 1) productivity enhancements, 2) soil sampling, analysis and mapping, 3) capability-building, communication and social mobilization, 4) market development and enterprise building. Recently, series of management, coordination and partnership activities were held.

Three municipalities are covered for pilot implementation. This includes Basey, Sta. Rita and Pinabacdao, Samar. These municipalities are representative of the existing farming systems (upland and rainfed lowland ecosystems), compose of technology receptive farmers, the place is accessible, with assured supports from PLGU/MLGU/BLGUs, strategic location for the area expansion of the project, presence of potential “watersheds” and, lastly, no problem on peace and order.



One of the sites of Yamang Lupa Program at Sta. Rita, Samar. Peanut is among the top crop priorities



Similar to the principle of Karnataka’s Bhoochetana program which includes the 4Cs (Consortium, Convergence, Capacity Building, and Collective Action), the implementation of the Bhoochetana concept here in the Philippines constitutes various significant institutions and agencies to come up with a well-rounded and systematic science-based approach.



DAR installs lady-lawyer as Regional Director for EV

/Jose Alsmith L. Soria

Newly-installed DAR-8 Regional Director Shiela Enciso (left) accepts the responsibilities attached to her new post from her predecessor, Eliasem Castillo.

TACLOBAN CITY – A lady-lawyer now heads the Department of Agrarian Reform (DAR) in Eastern Visayas as Regional Agrarian Reform Adjudicator Sheila Enciso accepted on May 14, 2014 the key of responsibilities from her predecessor in a simple rite.

Enciso, also a certified public accountant, compared her new task with those of the other regional directors, upon accepting her responsibilities from the outgoing regional director Eliasem Castillo, as heavier. According to her, aside from meeting targets in the three major program components: Land Tenure Improvement, Program Beneficiaries Development and Agrarian Justice Delivery, she also has to focus on the reconstruction, rehabilitation as well as reconstitution of lost/damaged documents and facilities resulting from the devastation by super typhoon “Yolanda”.

The recent movement of DAR officials is based on Special Order No. 155, series of 2014 issued by Agrarian Reform Secretary Virgilio de los Reyes on May 4 this year.

Enciso, who hails from Goa, Camarines Sur, is not new in Region-8. She has already served for two years as the RARAD here prior to her new designation.

As the eighteenth DAR regional director named for this region since the agency was created on September 10, 1971, she makes history as the first lady DAR regional head assigned here, and the youngest.

Likewise, under the same special order, two other officials were named to their new posts. Lawyer Virgilio Rosacay replaces Enciso as RARAD, while Ma. Fe Malinao is designated Assistant Regional Director for Administration (ARDA).

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The newly-constructed
coconut tissue culture
laboratory



NCRC-Visayas spearheads 2 major Programs for Coconut

/Elmera Y. Bañoc

Dr. Maria Juliet C. Ceniza, the Director of the National Coconut Research Center - Visayas, together with the cooperating agencies, successfully implemented two (2) major programs for coconut in the Region. These programs are: (1) "Establishing of Coconut Nursery/Seedgarden for Eastern Visayas". The second program is entitled "Reinvigorating the Coconut Industry Through in Vitro Culture (Somatic Embryogenesis) and Strengthening Agricultural Biotechnology Laboratories Using Advanced and Cost-cutting Methods and Products". Both programs are funded by the Philippine Council for Agriculture, Aquatic and Natural Resources Research Development (PCAARRD). These projects started in October 2014.

The cooperating agencies of the first program included the following: Department of Science and Technology Region 8 (DOST R8), Province of Samar, Eastern Samar State University (ESSU), Philippine Coconut Authority Region 8 (PCA R8), Province of Southern Leyte, Naval State University (NSU) and Southern Leyte State University (SLSU).

Coconut nurseries have been established in the respective areas of the cooperating/partner agencies. A total of 59,000 seednuts are already raised.

On the other hand, the second program's accomplishments included the construction of the Tissue Culture Laboratory. It consisted of the staff/exhibit room, incubation room, inoculation room, instrument room and preparation room.

There are one hundred two (102) plumules of Baybay Tall (BAYT), Laguna Tall (LAGT) and San Isidro Dwarf (SNID) varieties that are cultured *in vitro* from October to December 2014 for calloid initiation and multiplication. Calloid initiation was observed in all varieties cultured in media with different concentrations of 2,4 dichlorophenoxy acetic. It was lowest in the first two batches of cultured plumules but increased in the succeeding batches.





Dr. Borines (4th from the right) with other awardees

➔ DPM Prof... (continued from page 6)

Award include the following: quality of scientific work (32 %), productivity of the scientist (23%), creativity of the scientist (20%), and impact of research projects conducted (25%).

Dr. Borines is currently teaching pest management courses, including Plant Protection, Introduction to Phytobacteriology, and Methods in Agricultural Research at the Department of Pest Management of the College of Agriculture and Food Science (CAFS) of VSU. As a regional winner, she will also compete with other winners from the different regions in the Philippines for the National Gawad Saka Outstanding Agricultural Scientist Award 2015.

➔ DAR installs... (continued from page 8)

Rosacay, a native of Calbayog, Samar was a Provincial Agrarian Reform Adjudicator (PARAD) in Laguna prior to his new post. He started his stint in DAR as para-legal officer in Northern Samar way back in 1989.

Malinao, on the other hand, was the Chief Administrative Officer in the same office prior to her new assignment. She is a native of Inopacan, Leyte.

Enciso, Rosacay and Malinao assumed their new posts on May 15, 2014 after the installation rites.

Meanwhile, also under the same special order, Castillo is transferred to Region X.

Over the years, several wines from fruits have been developed. Lambanog, for example, had come in varieties -- from mango, dalandan, soursop, tamarind and berries. Likewise, bahalina or tuba (toddy) has derived its delicious juice from coconut..

Another good material for red wine is taro (VSU Gabi or VG-9). Dr. Julie D. Tan, a scientist from PhilRootcrops in Visayas State University, has developed a wine made of a pure extract from fermented purple taro (acidic variety) and glutinous black rice (Arabon) with rage tape as starter culture as a substitute for black rice in wine production.

This new technology has potential to contribute to the progress of gabi farmers and entrepreneurs. This new health product is called "Tarroz", with antioxidant properties and readily digestible starch grains which are highly recommended to potentially allergic infants and for persons with gastro-intestinal disorders. Studies have also shown that regular consumption of red wine reduces mortality from coronary heart diseases, increase HDL cholesterol (the Good cholesterol) and prevents LDL cholesterol (the Bad cholesterol) from forming.

In making Tarroz, three fermentation processes were generated. First was one-stage fermentation with only 1 inoculum or rage tape only (OSF1). Second, one-stage fermentation with 2 inocula or rage tape and *Saccharomyces cerevisiae* in simultaneous inoculation (OSF2) and third, two-stage fermentation (TSF) with sequential inoculation, rage tape in solid state followed by liquid state fermentation with *Saccharomyces cerevisiae*. Taro, of about 7 and 8 months, was obtained from Ormoc and from experimental fields of the PhilRootcrops. Black rice was purchased from the Department of Plant Breeding and Genetics and from the Department of Agronomy and Soil Science. The starter culture (ragi tape) was secured from Bali, Indonesia and *Saccharomyces cerevisiae* were prepared at the Microbe Culture and Fermentation Laboratory at PhilRootcrops.

In OSF1, a procedure in making Balinese wine was followed. Taro was first washed, peeled, and shredded. A liter of water was added to 500 grams shredded taro and 500 grams black glutinous rice, cooked for 10-15 minutes.

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Drink **Tarroz**: Experience A New Way to Enjoy Red Wine

/Analou Valoria



➔ Drink Tarroz...(continued from page 11)

It was then allowed to cool and was inoculated with about 3 grams of powderized ragi tape. Then, the mixture was transferred in a steel fermentor and pasteurized for 65-70°C for 30 minutes. To increase alcohol content, *S. cerevisiae* were transmitted and inoculated with ragi tape into the cooked taro-rice mixture. Cassava and glutinous rice flour were used as substrates in the preparation of *S. cerevisiae*. Physico-chemical and sensory attributes of the wine were determined.

In OSF2, same procedures to OSF1 were followed. The difference was on the starters used, wherein two tablet starters were inoculated simultaneously into the mixture.

In TSF, first stage followed procedures similar to OSF1. Second stage engaged further fermentation through *S. cerevisiae* tablet starter. Total Soluble Solids (TSS) was adjusted to 20°Brix through dilution with sterilized water before fermentation to give a good condition for optimum yeast activity in the concluding stage. Alcohol was increased and TSS was decreased to about 10-12°B. Fermentation was stopped when desired TSS was achieved and wine was pasteurized at 65-70°C for 30 minutes.

On the other hand, mixing was done by using sterilized forks for 2-3 minutes, to determine the effect of aeration on the physico-chemical and sensory characteristics of the wine. Further, a cylindrical-shaped fermentor with 5-kilo capacity was used to evaluate the physico-chemical and sensory characteristics of the wine.

Results showed that in three different fermentation stages, OSF1 was acceptable, a mix of 50:50 of taro and black glutinous rice, and that there was no significant difference for both sensory and physico-chemical properties between the wine using 1-kilo and 5-kilo capacity.

Alcoholic beverages are not that bad at all. One can perhaps benefit from it if consume moderately and if given more awareness of its nutrient content just like taro, a humble rootcrop giving a new way to enjoy red wine.

Research Credit: Dr. Julie D. Tan
PhilRootcrops, VSU,
Visca, Baybay City, Leyte

Earn Eat *and* this Lucky Meat

/John David Agpalo

Have you heard about the blue swimming crab? Did you know that it is now considered as a lucky meat? It is now becoming a 'thing', a new trend. Did you know that its meat is now considered as a major dollar earner for the country? Yes, you read it right. We are talking about dollars here-dollars from crabs.

Portunus pelagicus, or popularly known as the blue swimming crab, has an emerging demand in both local and international markets today. The demand for processed crab meat, soft-shelled and hard-shelled, has been continuously booming. It represents a valuable component of small-scale coastal fisheries and supports a large percentage of coastal communities in many parts of the country who depend on blue swimming crab fisheries for livelihood.

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➔ Earn and eat...(continued from page 12)

However, the trend of blue swimming crab has been declining over the years. Hence, it has awakened the need for proper management of the remaining resources. Its culture has been dependent entirely on crablet collection which results in a great pressure on wild populations. The interest in the establishment of hatcheries to produce crablets for both reseeding and grow-out culture has also been a major problem. Likewise, the development of a reliable crablets production technology is very important for the sustainable growth of the industry here in our country.

To solve these gaps and improve the seed production techniques, the National Fisheries and Development Resources (DA-BFAR) has supported a project on "Improvement of the hatchery protocol for the blue swimming crab *Portunus pelagicus*". This project aims to also refine the breeding and larval rearing protocol and make the technology make it more viable for adoption of the stakeholders.

There were two batches of blue swimming crabs used in the experiments to determine the suitable stocking densities. The first batch was used to rear zoea to megalopa while the other batch was used to rear megalopa to instar.

These experiments were conducted in a water bath using 10 liters aquariums with moderate aeration and 1 liter plastic container. In the first experiment, sea water was used in the larval rearing and was treated with sodium hypochlorite and neutralized with sodium thiosulfate after 24 hours of aeration.

Green water, rotifers (larval feed) and Artemia were provided. Water exchange was done daily at 30% except at the first two days of rearing. On the second experiment, twelve units of square wooden tanks that are filled with sand-filtered seawater were used in a flow-through water system with moderate aeration. Sand pipes were covered with net to prevent megalopae from draining. Moreover, sand substrates and plastic straw shelters were also provided in the tanks including a macerated trashfish at satiation twice daily. Feeding was adjusted based on the consumption of megalopae.

Uneaten feeds were removed to avoid deterioration of water quality. Then, transformed crablets were collected by draining the water of the tank and manually picked and counted in each tank. Water parameters such as salinity, temperature, dissolved oxygen, and Ph were also monitored weekly using Atago refractometer, thermometer, DO meter and pH meter.

It was found out in their experiments that larval development is shorter at higher temperature. It was also revealed that the excess food in treatments with low larval densities may have polluted the water that caused mortalities. Moreover, highest mortality was observed during the metamorphosis from the last zoeal stage to megalopa and megalopa to the first crab stage. Hence, optimum densities in larval rearing are highly recommended.

There is nothing wrong if we use these God-given resources but also bear in mind that it should be used with discipline and respect. Discipline on until when and where should we use these resources, and respect to God on how you will use these gifts.

So, what are you waiting for? Come and join the blue swimming crab craze! Try it! Who knows, these crabs might be your lucky charms to success! Do not settle for less! Just settle for the blue swimming crabs and earn from it.



Health and Wealth in Organic Farming

/Elmera Y. Bañoc



There is good health and wealth in organic farming!

The initiative of the Local Government Unit of Ormoc City, through the efforts of the City Agriculture Office, made a difference to the lives of some Ormocanons. This is the Development of Natural Organic Farming System Inputs on basic agricultural commodities in Ormoc City which was formally implemented starting in year 2010.

Ormoc City has been known as the cleanest City in Eastern Visayas. It remains true until now especially that the Local Government Unit headed by Hon. Eric C. Codilla has fully adopted the mandate stipulated in Republic Act 10086 of 2010 known as the "Organic Agriculture" Act. The City Agriculture Office immediately organized and coordinated with experts on organic agriculture to fully implement the initiative. Several trainings and hands-on demonstrations on the formulation of the different concoctions to be used in

the farm for the plants, animals and even for humans were conducted. Different promising concoctions were produced and grouped according to its usage. Pioneering adopters of the technology have noticeably become very successful and have continued to spread and encourage farmers to do the same.

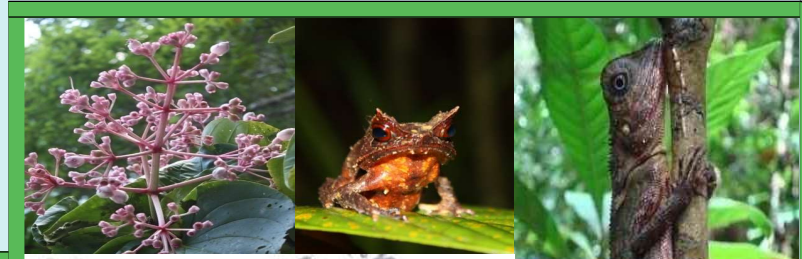
The City Mayor, Hon. Eric C. Codilla, the owner of the AOG, Incorporated farm was the first adopter of the said technology and the technique was applied to his livestock production. He was awarded for having the cleanest dressing plant. He used the Oriental Herbal Nutrient (OHN), Indigenous Microorganisms (IMO), Fermented Plant Juice (FPJ) and Ca-shells as animal drink at 2 tblsp. per liter water. Great effect was observed after several days of application. The broilers were more resistant to diseases especially the avian flu. The Lactic Acid Bacteria Serum (LABS) were used as probiotics and being introduced 3 hours after check in. The owner discovered that the meat has no antibiotic residue. Furthermore, the harvesting time was shortened to 28 days old from 33-44 days before adopting the technology. Thus, productivity increased which led to high revenue. Amazingly, the surroundings attained the free odor society through the use of the IMO and LABS as natural spray disinfectant. With these results, he himself as head of the company requested that the fermentation laboratory be constructed adjacent to the poultry house so they could continue to use the technology and eventually be disseminated to individual farmers

Engr. Luis Fran, the jackfruit man, shifted from using an aluminum-based fungicide to natural farming system to control phytophthora disease in his 35 hectares jackfruit and pomelo plantation. He used the LABS, IMO2 and OHN mixtures at 5 tblsp/liter water applied at bi-weekly interval. After almost two 2 weeks of application, the jackfruit and pomelo infested by the disease have recovered. Now, his farm laborers are the ones preparing the different concoctions for their farm use. In fact, in the year 2012, he got the prestigious award as the Regional Gawad Saka Awardee. Since then, he has become one of the advocates in natural farming system in Ormoc City.

Organic agriculture through natural farming system technology is indeed an environment friendly, socially acceptable and economically feasible way of farming that is also sustainable.

Conserving our **Forests** and Protecting our Environment means saving our **Future**

/Joseph B. Pilapil,
BSDC 4



The unique creatures of
Mt. Silago,
Southern Leyte



Think about how Mother Earth used to be a home to various floras and faunas hundreds of years ago. With thick verdant trees, it must be cool and refreshing before, which is totally opposite to the scorching temperature today due to global warming and degrading forests. Believe it or not, we humans are behind these environmental problems and we are also the ones responsible to solve them.

A project led by the group of Dr. Juliet C. Ceniza from the Visayas State University (VSU) entitled, "Community-based forest restoration and biodiversity protection and management of lowland dipterocarp forests in Silago, Southern Leyte," has successfully

successfully helped in restoring the forests and protecting biodiversity through environmental advocacy and awareness trainings, and capacity building activities among local community residents and stakeholders.

The project was managed and implemented by the Institute of Tropical Ecology and Environmental Management of VSU and was supervised by the VISCA Foundation for Agricultural and Rural Development Incorporated (ViFARD, Inc.) with funds from the Philippine Tropical Forest Conservation Foundation (PTFCF).

In a survey, the project found out that the various stakeholders are aware of the present forest degradation and biodiversity

loss due to illegal timber poaching, wildlife hunting, slash-and-burn cultivation or kaingin and indiscriminate rattan gathering which are the major sources of livelihood for the local communities adjoining the site. Results of interviews and focus group discussions also revealed that the local stakeholders have observed a drastic decline of indigenous plant and animal population in their respective area.

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Photo Credit: Dr. Jose Marlito M. Bande
ITEEM, VSU
Visca, Baybay City, Leyte

→ *Conserving...(continued from page 15)*

The implementation of the project has empowered the communities by reviving the multi-sectoral forest protection committee (MFPC). The project management had deputized 17 municipal and 12 barangay task forces, or bantay gubat, and conducted capacity building and environmental advocacy trainings. Furthermore, the project also implemented alternative livelihood activities in project sites. It has improved existing agro-ecosystems, established a 50-hectare long-term ecological (LTER) plot, successfully pushed for the signing of Memorandum of Agreement (MOA) among key implementing agencies and groups, sealed co-management agreement in the form of legal tenurial instrument for the 50 hectare LTER plot and pushed for the passage of local ordinances to strengthen them, and produced information, education and communication (IEC) materials like flyers and posters on rattan production, rootcrops processing, rainforestation farming, and production of native tree seedlings.

Humans are indeed responsible for the havoc done to our environment. Implementing forest restoration initiatives with strong political will like this project is just a step to solving these issues. By conserving our forests and protecting our environment, perhaps we can be one step closer towards saving our future.

Research Credits: Dr. Maria Juliet C. Ceniza
Dr. Jose Marlito M. Bande
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Less expense, high gains: Hooray for Yam and Cassava

Imagine birthday celebrations without spaghetti, cakes and ice creams. Or, you are caught in a situation when you have no 'pasalubongs' to buy for your loved ones, like "suman", "bibingka" and many other delightful delicacies, in a summer out-of-town visit. How terrible it is to live in bitterness without sweets!

Yam and cassava are two important root crops which are gaining attention among industry stakeholders due to their various uses. Yam or "ubi" is a banner crop identified earlier by the Department of Trade and Industry (DTI). Tubers like yam are used as staple or are processed into various in-demand products like puree for ice cream, powder for cakes and delicacies and many others.

Cassava, on the other hand, is also considered as the third most important food crop after rice and corn which is a major source of low-cost carbohydrate. In the Philippines, it is utilized as food, feed and raw material

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➔ Less expense... (continued from page 16)

for various industrial products. It was also identified as one of the sources of raw materials for alcohol production to help solve energy crisis.

The demands for both are increasing. But due to the limitations of conventional propagation, production remains low and insufficient to meet market demands. Thus, there is a need for sufficient and reliable supply of planting materials or else there will be no sweets and tasty delicacies made from yam and cassava. But worry no more kids and sweet-lovers! The Philippine Root Crop Research and Training Center (PhilRootcrops) is doing its best to develop improved technologies to address the need to fast-track planting material propagation of yam and cassava through a cheaper means. In fact, in a recent study conducted by researchers headed by Professor Villaluz Z. Acedo, entitled "Utilization of cassava starch as low-cost tissue culture medium component for rapid propagation of yam (*Dioscorea alata* L) and cassava (*Manihot esculenta*)", the lack of planting materials especially for yam can now be put to an end.

In the study, tissue culture techniques have been utilized to make the newly-approved high-yielding root crop varieties available. With this technique, mass propagation of clean planting materials is possible.

However, just like in other economically important crops, the cost of tissue culture-derived plantlets is quite high. To reduce production cost, cassava starch was used as a substitute to gelling agent (agar) to explore the use of locally available low-cost alternatives for culture components.

In vitro (artificial) plantlets of 'VU2' yam and NSIC Cv 35 cassava at PhilRootcrops Tissue Culture Laboratory were used as donor plants in Study 1 and Study 2, respectively. Eight, nine and 10 percent of cassava starch and 0.7% agar was used as gelling agent for the control. While different levels of 'Lakan 1' and 'Rayong 5' cassava starch were utilized as agar substitute for the treated ones. The isolated nodal explants were inoculated individually into the culture medium. They were incubated in an air-conditioned room at 27-28°C controlled temperature and illuminated using white fluorescent lamps.

Results revealed that cassava starch used in 'VU-2' yam nodal cultures regardless of source (variety) was found promising as agar substitute. Higher concentration of 9% was needed to produce plantlets comparable to the usual 0.7% agar-gelled medium. It encouraged multiple shoot production. Plantlets produced in cassava starch-gelled medium were healthier and bigger than those in the control. Better potting out survival of plantlets was also observed while on NSIC Cv 35 cassava, the different concentrations of both starches did not favor shoot and root growth compared to the control. Although shoot formation was observed, the shoots did not grow and develop further. Therefore, both Lakan and Rayong cassava starches were not suitable for NSIC Cv35 *in vitro* propagation.

So, here we go! The problem on the lack of cheaper planting materials for yam is now finally over! Thanks for the cassava starch substitution. We can now effectively substitute agar as gelling agent for *in vitro* or artificial propagation of 'VU-2' yam with 9% as the most suitable concentration for growth and development of nodal plants. This scientific breakthrough reduces the cost of producing planting materials from yam which is a high-valued rootcrop.

Enjoy the tasty delicacies and food products made from yam. Spend less and gain more profit. So, farmers and stakeholders, we can now say, Hooray for a cheaper production of yam! "(Quirene Wenceslao, VSU-DDC)



VSU List of Identified Technologies and New information

Technology for Generation

Technology / Researchers
National multilocation trials of promising abaca bunchy top resistant genotypes (PCAARRD) / <i>Lilita R. Gonzal, NPBartolini</i>
Nutrient Management Studies for Abaca / <i>Romel B. Armechin , Ruben M. Gapasin, Beatriz C. Jadina, Roxan Piamonte</i>
Soil Health Improvement in the Disease Infested Abaca Growing Areas of the Country / <i>Romel B. Armechin, Suzette B. Lina, Roxan Piamonte</i>
Evaluation of the Entomopathogen, <i>Lecanicillium lecanii</i> the control of the abaca aphid, <i>Pentalonia nigronervosa</i> Coq. (DA-BAR) / <i>Ruben M. Gapasin, HTrazona</i>
Induction and Molecular Characterization of Systemic Acquired Resistance (SAR) for the Control of <i>Fusarium</i> in abaca / <i>Ruben M. Gapasin, Edgardo E. Tulin, Jesusito L. Lim, A O Del Socorro, Jofil A. Mati-om</i>
Processing of Jackfruit into High Value Food Products (Project 5) / <i>Roberta D. Lauzon, Antonio P. Abamo, FJ Amestoso, Lorena A. Galvez, DAC Varron</i>
Utilization of sludge and ash mixture from the production of alcohol from molasses as source of nutrients for lowland rice / <i>Faustino P. Villamayor</i>
Use of Botanical Pesticides in Improving Coconut Yield / <i>Alfredo G. Dingal, Jerry S. Vestra</i>
Utilization of Cocowater Into Flavored Probiotic Beverage / <i>Maricel A. Leorna</i>
Development and promotion of innovation, feed supplements and feeding schemes for increasing goat productivity (Project 2)/ Development of Nutritional Supplements for Increased Survival and Early-Weaning of Newborn Kids / <i>Lolito C. Bestil, MV Abela, Lorena A. Galvez, Julius B. Cerna</i>
Development of Dairy Food Products From Carabao's Milk / <i>Roberta D. Lauzon, Ivy C. Emnace</i>

Technology for Verification

Technology / Researchers
Carbon Stocks, Carbon Sequestration Potential and Biodiversity Enhancement of Marginal Uplands of Eastern Visayas (Study 5)/ Biodiversity Enhancements and Forest Rehabilitation in Marginal Uplands in Inopacan, Leyte / <i>Renezita S. Come, Marlito Jose M. Bande</i>
Maintenance, characterization and documentation of sweet potato germplasm collection (Phase IV) / <i>Jose L. Bacusmo, Dilberto O. Ferraren, Enrique B. Abogadie</i>
SMicrobial-induced mobilization of micronutrient from soil minerals for different soil environments for increased yield and improved nutritional quality of sweetpotato and purple yam ; Evaluation of Anti-diabetic and Antihypertensive Properties of PRP-1 from Purple Yam (<i>Dioscorea alata</i> L.) and Mannungal (<i>Samadera indica</i> Gaertn) / <i>Edgardo E. Tulin</i>
Development and improvement of the process for the production of fermented rootcrop-based food and non-food products (phase I) / <i>Julie D. Tan</i>
Adapting Clonally Propagated Crops to Climate and Commercial Challenges / <i>Dilberto O. Ferraren</i>

Technology for Piloting

Technology / Researchers
Utilization of Pressed Coconut Meat (Sapal) for Baked Food Products / <i>Maricel A. Leorna, NA Sudaria</i>
Mechanization of village-level processing of abaca industrial products; Development of a twining machine for the production of 1 mm diameter abaca twine (DA-BAR) / <i>Feliciano G. Sinon , Albert C. Martinez</i>

Information for Generation

Technology / Researchers
Rehabilitation of Degraded Upland Using IMO6 and Vermicast / <i>Pastor P. Garcia, Edieser Noriel</i>
Development of Drum-Type Rapid Decomposter / <i>Pastor P. Garcia</i>
Value Chain Assessment of Indigenous Rootcrops: The case of Binagol and Sagmani in Leyte / <i>Marlon M. Tambis</i>
Participatory Approach in Drama Production of Farmer's Indigenous Knowledge in Rootcrop Farming / <i>Jude Nonie A. Sales</i>
Improving Cassava Value Chain for food, Dried Grates, Flour and products in Selected Areas in the Philippines; Geo-Referenced Approach for Enhanced Cassava Industry Development and RDE Planning / <i>Julieta R. Roa</i>
Advance Phenotypic Characterization of the Philippine Carabao and Its Crosses in Region VIII / <i>Alberto M. Taveros</i>
Prevalence of Toxocara (Neoscaris) vitulorum Larvae Infection in milk of Lactating Caracows (Bubalus bubalis) in Selected Barangays of Baybay City, Leyte / <i>Tomas J. Fernandez, Jr.</i>
Scoping Study on Zoonoses in Eastern Visayas/ <i>Eugene B. Lañada</i>
Improved Postharvest Management of Fruit and Vegetables in the Southern Philippines and Australia / <i>Antonio P. Abamo, AA Salabao AL Acedo Jr., MA Benitez</i>
Assessment and Valuation of Natural Assets in the Terrestrial Systems in Sogod Bay, Southern Leyte, Philippines: A Baseline Study / <i>Teofanes A. Patindol</i>
Survey on the Level of Competence and Attitude of CE Faculty at VSU Towards Research / <i>Lijueraj J. Cuadra</i>

Information for Dissemination

Technology / Researchers
Rapid Appraisal on the Viability of Rehabilitating Abaca Farming in Selected Barangays of Sogod, So. Leyte / <i>Maria Aurora Theresa W. Tabada, Antonio P. Abamo, Ruben M. Gapasin, Luz O. Moreno</i>

Baseline Assessment of the Socioeconomic Conditions of the PHERNet Pilot Communities in Inopacan, Leyte. Project 5: Design and Pilot Implementation of Initiatives for Improved Food Production and Environmental Quality Marginal Uplands in Eastern Visayas / <i>Ernesto F. Bulayog, Yasmin S. Casillano, Loren Gemali R. Flandez</i>
Supply Chain Analysis of Sago in the Philippines: Assessing the Viability of Establishing Sago Plantation (Phase 1: Evaluation Research)/ Supply Chain Improvement of Sago in Selected Regions in the Philippines. Phase 1: Evaluation Research / <i>Brenda M. Ramoneda, Sylvia B. Concepcion, Thaddeus R. Acuña, Albert Joseph A. Fedillaga, Nikko L. Laorden</i>
Identifying Opportunities for Improving Success in Artificial Insemination of Carabaos in PCC-VSU Impact Zones / <i>Eugene B. Lañada</i>
Phenotypic Characterization of Non-Descript Breeds of Local Horses, Goats, Pigs and Chickens in Region VIII / <i>Alberto A. Taveros, FT Lolo, MLB Calleja, AM Taveros, MP Tisado, AT Almoroto, AT Orais, WA Cerbito</i>
Assessment and Valuation of Natural Assets in the Aquatic Agricultural Systems in Sogod Bay, Southern Leyte, Philippines: A Baseline Study / <i>Humberto R. Montes, Jr.</i>
Graduate Tracer Study of College of Education Students in 2006-2013 of the VSU, Main Campus/ Tracer Study of BSDE, MAgDev & MS Ag Extension Graduate from 2006 to 2011 of the Visayas State University Main Campus / <i>Fatima T. Baliña</i>

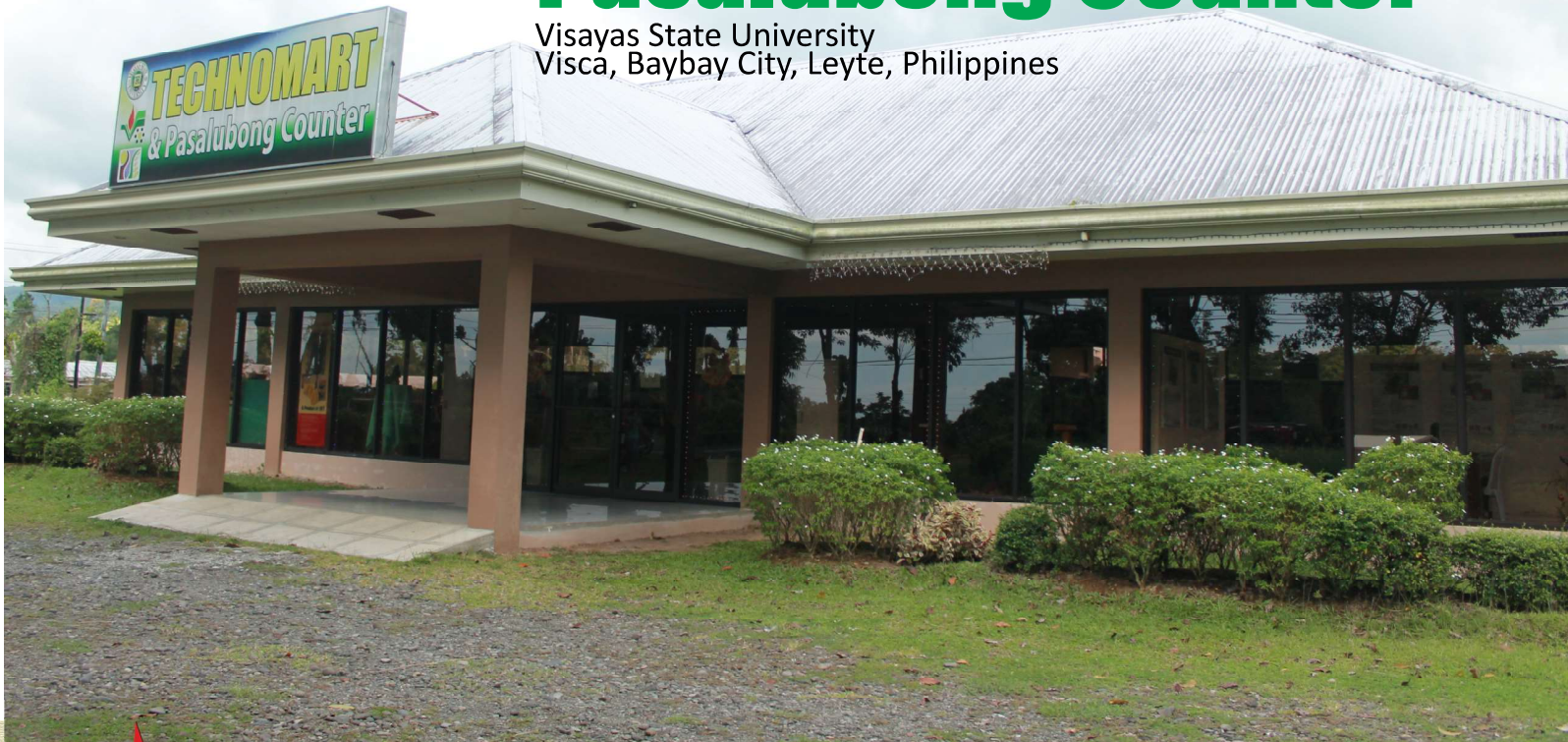
Technology for Dissemination

Technology / Researchers
Phenological Studies on Important Timber Tree Species in Mount Pangasugan, Baybay, Leyte / <i>Hernando L. Mondal, Anatolio N. Polinar</i>
Arbuscular Mycorrhizal Fungi and Inorganic Fertilizer Application for Quality Seedlings Production / <i>Angela A. Ferraren</i>

Come and Visit...

TECHNOMART and Pasalubong Counter

Visayas State University
Visca, Baybay City, Leyte, Philippines



MANDATE

To set up a mechanism for coordination and management of agriculture and natural resources research and development in Eastern Visayas in the areas of production, processing, socio-economic and communication with emphasis on commodities of major importance in the region.

MISSION

To vigorously initiate, effectively coordinate collaborative RD & E and actively mobilize knowledge and technology to achieve more productive, profitable and sustainable fisheries and natural resources in Region VIII.

VISION

A region where quality of life of farmers, fisher folk and processors is improved through more productive, profitable and sustainable agriculture and natural resources management emerging from collaborative regional research and development/extension.



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To: _____

