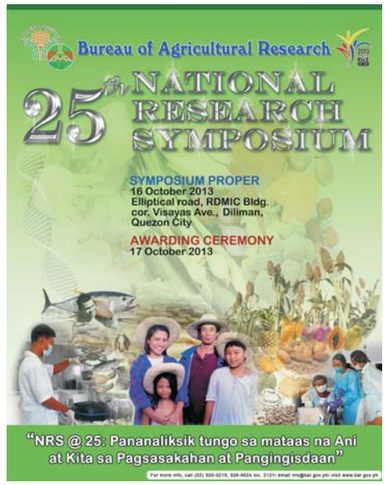
BAR's NRS turns silver;

IRRI's Deputy Director to keynote

The annually-held National Research Symposium (NRS) of the Bureau of Agricultural Research (BAR) will hold its silver year on 16-17 October 2013 with the theme, *NRS@25: Pananaliksik Tungo sa Mataas na Ani at Kita sa Pagsasakahan at Pangingisdaan*. The theme highlights on research results gearing towards achieving high production and income in the agriculture-fisheries sector thereby improving the plights of the farming and fishing communities.

The activity will kick off on October 16 at BAR with the presentations of citation awards for AFMA R&D Paper Qualifiers to be led by BAR Director Nicomedes P. Eleazar and Assistant Director Teodoro S. Solsoloy. The opening program will be followed by the presentations of R&D papers in simultaneous sessions.

The awarding of the AFMA Best R&D Papers and Best Poster will be on October 17 at the Bureau of Soils and Water Management (BSWM). Dr. Bruce J. Tolentino, deputy director-general of the International Rice Research Institute (IRRI) will keynote the event. The finalists for the Gawad Saka Search for "Outstanding Agricultural Scientist" and "Outstanding Agricultural Researcher" will also be announced during the event. Another highlight is the launching of two revised books: 1) Competitive Research and Development Grants Manual (CRGM), and 2) Philippine Rainfed Agriculture Research , Development and Extension Program (PhiRARDEP). Both



"NRS @ 25: Pananaliksik tungo sa mataas na Ani at Kita sa Pagsasakahan at Pangingisdaan"

are references/guidebooks for stakeholders in prioritizing and funding BAR researches and other R&D initiatives.

NRS is a competition that extols the significant roles and accomplishments of R&D practitioners and their works in the fields of agriculture and fisheries. The symposium highlights important research results and technologies generated and conducted by researchers and scientists making it a good venue to disseminate new technologies and knowledge, in support to agriculture and fisheries modernization.

This year, 130 paper entries were received, 44.62 percent (58) of which came from the state universities and colleges (SUCs) and 31.54 percent (41) came from various DA-staff bureaus and attached agencies. The remaining chunks came from DA-RFUs and other non-DA agencies with 22.31 percent (29) and 1.54 percent (2), respectively. ### ***(Rita T. dela Cruz)***

Bhoochetana program...from page 13

The three pilot groups identified and presented the information needs in their respective areas based on essential aspects such as sociodemographic and biophysical characteristics, climate, farm description, practices, components, farm inputs, cost and outputs, postharvest practices, processing, marketing, political scenario, institutional agreements, and needs, plans and aspirations.

Afterwards, these information needs were paired with the proper PRA tools in order to identify them in the most efficient way. The PRA tools discussed were key informant interview (KII), focus group discussion (FGD), secondary source, transect walk, mapping, seasonal calendar, trend analysis, Venn diagram, ethnobiographies, matrices, problem tree analysis, and more. Before the workshop ended, the three groups also presented their work and financial work plans.

"This program is a relevant and timely initiative especially now that climate change has been imposing threats to agriculture. Hopefully, we will extend this program to other regions of the country until we maximize its potential in increasing productivity and resiliency," concluded Dr. Nicomedes P. Eleazar, BAR director. ### ***(Leila Denisse E. Padilla)***

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BAR caps off 9th NTF; Eleazar underscores PPP

BAR Director Nicomedes P. Eleazar mentions that through the partnership of various agencies, commodities such as adlai, sweet sorghum soybean, etc are now gaining attention in the market. (L-R) Seated at the presidential table are DA Undersecretary Segfredo R. Serrano, ACIAR Country Manager to the Philippines Cecilia O. Honrado, ICRISAT Dir. Gen. William D. Dar, Representative of 1st district of Sorsogon Evelina G. Escudero, and BAR Asst. Dir. Teodoro S. Solsoloy. PHOTO: RDELACRUZ

The Bureau of Agricultural Research (BAR) successfully capped off the 9th Agriculture and Fisheries National Technology Commercialization Forum and Product Exhibition (NTF) on 11 August 2013, SM Megatrade Hall 2, Mandaluyong City with more than 6,000 attendees this year.

The event, which is annually celebrated in line with the anniversary of BAR, aims to:identify, disseminate, and promote mature technologies in the fields of agriculture and fisheries; establish and strengthen linkages and networks among various stakeholders; and provide a venue for business matching opportunities, and other ventures for profitable agricultural enterprises.

The activity kicked off with the ribbon-cutting ceremony led by Dr. Segfredo R. Serrano, undersecretary for Policy, Planning, Project Development, Research and Regulations of the Department of Agriculture (DA). He also served as the keynote speaker. Assisting him were: Rep. Evelina G. Escudero of the first district of Sorsogon, ICRISAT Director-General William D. Dar, BAR Director Nicomedes P. Eleazar, and BAR Assistant Director Teodoro S. Solsoloy. Also present was Dr. Cecilia O. Honrado, country manager of the Australian Center for International Agricultural Research (ACIAR), who joined the presidential table.

Meanwhile, Dir. Eleazar highlighted in his opening message the growing interest in Public-Private Partnership (PPP) including those research and development (R&D) led initiatives that are now gaining its way into the market like adlai, sweet sorghum, soybean, seaweed, milkfish, and tuna.

"We are proud to have accomplished a lot for soybean. As of December 2012, a total of 1,685 hectares were planted with soybean, producing 99,808.5 kilograms and distributing 61,955.3 kilograms of seeds to farmers," the bureau chief reported.

He further acknowledged BAR's established partnership and collaborative works with the DA family, other government agencies, local government units, private sectors, and non-government organizations.

With this year's theme, *"Pagpapalaganap ng Teknolohiya Para sa Mataas na Antas ng Pagnenegosyong Pangsakahan at Pangisdaan"*, Dir. Eleazar underscored the importance of technology generation, dissemination, and marketing of agricultural produce. He also recognized various agencies that

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IN THIS ISSUE...

Promote and patronize Philippine products

- Usec Serrano

PHOTO: NDELROSARIO

Urging the buying public and consumers to promote and patronize Philippine products, Department of Agriculture Undersecretary Segfredo R. Serrano, representing Secretary Proceso J. Alcala, served as the keynote speaker during the opening of the "9th Agriculture and Fisheries Technology Forum and Product Exhibition" on 8 August 2013. Love for country, he said, can be best measured if "we, as consumers, deliberately buy Filipino products."

In his message, he mentioned that it is already harvest time in the context of product promotion. "Products being displayed in the tech forum are now ready to be promoted throughout the country, and perhaps, in the international market together with the traditional food crops and fishery products which are already being exported."

Usec. Serrano said that there are things that need to be done in order for the agricultural and fishery products to be competitive in the world market. "Competing with our Asian neighbors in terms of food production is a long shot and we need to benchmark our products, compare them with the products of our competing Asian neighbors. By doing so, we are able to calibrate our food production strategies and be at par with them." He also stressed the need to focus more on product development and packaging and "use to our advantage the whole process of value chain in food production." This, according to Usec. Serrano, will place the country in a competitive advantage.

Another area that the government should look into according to Usec. Serrano is in the area of agricultural research and development (R&D) and technological investments. Extensive researches on food and fishery production will help the state in identifying potential, marketable, and highly competitive agricultural products that will create the needed market niche. "We therefore need to develop and enhance our production mechanism that will encourage local food manufacturers and exporters to join the government in the advocacy of championing local products. The role of Public-Private Partnership (PPP) is viewed as an opportunity to broaden our food production network", he said.

The importance of water and its uses as well as land in agricultural production were further articulated by the undersecretary in the mere context of climate change. He said that climate change is inevitable and is a direct and real threat to the agriculture and fisheries sector. He therefore urged and encouraged the R&D communities and the academe to take a closer look on the slow onset of events brought about by this phenomenon. The important thing, according to him, is the adaptation strategies formulated by the government to combat the ill effects of climate change, which he considered as the game changer, and thus the "need for us to be proactive in our deliverables and approaches."

To tap it all, Usec. Serrano articulated on the need to enhance human resources and to make the most out of it in the whole gamut of agricultural and fishery production. He further encouraged the scientific and research communities, state universities and colleges, the government, and the private sectors to individually and collectively share their expertise for national development. For this to merit success, research, development, and technologies must be spread to the people through education, spread of technology, and agricultural extension. ### ***(Patrick Raymund A. Lesaca)***

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Bringing back the bounty of "Aramang"

by: Wilson G. Viloria II

The red shrimp (*Nematopalaemon tenuipes)*, locally known as *"Aramang" or "Alamang"* is an endemic species in the river estuaries of Aparri Cagayan which had gained popularity and acceptability not only in the local market but also in the foreign market specifically Japan and other Asian Countries.

This endemic shrimp, like any other known fishery resource, has been subjected to high exploitation resulting in low production and economic returns due to uncontrolled rate of massive harvest.

The biology of *Aramang* is not yet known, thus scientific/technical and acceptable management measure has not been formulated, yet continuous harvest is being done that may eventually lead to extinction. The need to contribute to its biology as basis for formulation of a sound management measure is imperative to be able to bring back the bounty of the *Aramang* industry which Aparri was known for. Also, with sound management measure, it will ensure the sustainability of the production of *Aramang,* which the Appariano fishermen is depending on as source of their livelihood and nutrition.

This lead to the implementation of a study titled, "Some Aspects of Biology and Management of *Nematopalemon tenuipes*, Spider Shrimps (Aramang)" which focused on the assessment of the growth and reproduction parameters of *Alamang* as input to the formulation of management and conservation measures of the species. The study is conducted by Dr. Romeo C. Culasing from the College of Fisheries and Marine Science–Cagayan State University, Aparri Campus. The paper won first place during the "4th BFAR-NFRDI Scientific Conference" under the socio-economics and postharvest category, held at the Bureau of Soils and Water Management (BSWM), Diliman, Quezon City.


Aramang
PHOTO COURTESY OF RCULASING

Dr. Culasing presented three major findings in his paper. First, the length infinity which is 86 mm or 8.6 cm indicates that the *Alamang* are small and K value of 1.400 indicates that it has short life span approximately more than a year and is a fast growing species. Second, the size at recruitment which is 2.6 cm or 26 mm is very far below the average size of 5.07cm or 50.74 mm which means that the existing fishing gear used very small mesh sizes which result to the catching of undersized *Alamang.* Lastly, the egg bearing specimen is above 50 percent of the catch in the months of March, September and October and above 50 percent of the catch were without eggs in the months of January and May. The smallest sample with egg was 2.9 mm or 29 cm.

In line with these results, he drafted a proposed management scheme for consideration of concerned agencies over the *Aramang* resource to improve its quality and a better price and to increase the reproductive processes which will result to a larger population of younger stocks to replace the exploited ones. ###

For more information about the project, please contact Dr. Romeo Culasing through 0915-507-6599.

Support to Surigao...from page 12

launched in conjunction with the field day. It serves as one of the major activities under the project which targets to feed 100 pre-schoolers from Cahalinan, Poblacion, and Bangsud Day Care Centers with soya milk and other soy-based products for a year. A cooking demonstration on preparing soymilk was also conducted.

Despite the promising potentials of the crop, one of the problems besetting the soybean industry in Surigao del Sur is marketing, especially on how to maintain the price on a stable level which discourages some of the farmers to plant soybean. The provincial government through Governor Johnny Pimentel said that in cooperation with the Department of Agriculture (DA), they are more than willing to intensify information dissemination on the benefits of soybean through the conduct of trainings and seminars that will teach the farmers to plant soybeans, leading to increase in production. Likewise, Tago Mayor Rogelio Pimentel helped in facilitating the conversion of a multi-purpose area into a storage and marketing facility for soybean. Ms. Manos also discussed her plan to collaborate with Mayor Pimentel regarding the establishment of a database containing the profile of soybean farmers in the province for more efficient market-matching activities.


A feeding program is also held as part of the field day where pre-schoolers are fed with soybean milk and soya pancakes.
PHOTO: ABRION

Being a short-gestating and protein-rich crop, soybean will surely be of great help to the farmers of Surigao del Sur. Due to its potentials, there are plans to expand the project in other municipalities within CARAGA region including Cantilan, Carmen, Madrid, Lanuza, Barobo, Lingid, Bislig in Surigao del Sur as well as Trento and Talacogon in Agusan del Sur. ### ***(Anne Camille B. Brion)***

Promoting guraman, an iron-rich sea vegetable

by: Rita T. dela Cruz

Fresh or dried, guraman doesn't look anywhere the word enticing or appealing. They look like slimy worms when fresh and grey wires when dried. But as looks can be deceiving, the same goes for this vegetable from the sea. Once guraman is processed, it becomes one of the most valued fishery resources, producing appetizing dishes and food products like lomi, chips, or yema.

Guraman (*Gracilaria firma*) is a type of seaweed that is abundant in Baguey, Cagayan province. There are other seaweed species in the region, among them include: ar-arosip (*Caulerpa sp*), pukpuklo (*Codium sp*), aragan (*Sargassum sp*), kul-kulot (*Padina spp*), gal-galis (*Halimenia sp*), lumut (*Enteromorpha spp*), kanot-kanot (*Eucheuma*), and gamet (*Porphyra*) but majority of the seaweed production consists of guraman.

Report from the National Nutrition Council (NNC) has ranked the Cagayan Valley Region with the highest case of iron deficiency anemia (IDA) based from the latest survey conducted by Food and Nutrition Research Institute (FNRI). And so, for the past two years, the Bureau of Fisheries and Aquatic Resources (BFAR) Region II has taken the lead in promoting guraman and other types of seaweeds in Cagayan to increase its consumption and to address iron-deficiency anemia in the region.

According to NNC, seaweeds have 20 times more vitamins, minerals and amino acids than vegetables, and 25 times more iron than beef. It helps cure goiter, strengthen the immune system, and expel phlegm. More importantly, most seaweeds are cheaper compared to land vegetables.

Given the abundance of guraman, Dr. Evelyn Ame of BFAR II felt discomfited knowing that most of these seaweeds are not consumed and fully optimized to their potentials.

With this, BFAR II is promoting various guraman-based dishes and other food preparations that may entice the public to consume this iron-rich vegetable from the sea. Among these food products include: puree, yema, leche flan, chips, and pickles. They were also featured in the exhibit booth of BFAR II during the 9th Agriculture and Fisheries Technology Forum and Product Exhibition held on 8-11 August 2013 at SM Megatrade Hall 2, SM Megamall, Mandaluyong City.

Ms. Proserfina R. Reyno of BFAR II, during an interview, mentioned the many uses of guraman puree and how this simple ingredient can be turned into various dishes. She said that guraman can also be added to flour to make noodles, which can be made into various noodles preparations including canton, guisado, miki, and lomi. The preparations do not require special equipment and can be done in households or as a livelihood venture.

"Guraman is inexpensive and does not spoil easily so you can store them for a long period of time when dried," Reyno said. ###

For more information, please contact Ms. Proserfina R. Reyno of DA-BFAR II, Tuguegarao City at Tel. No. (078) 304-5331 or email: prosereyno@gmail.com

PHOTOS: RDELACRUZ

BAR caps off...from page 1

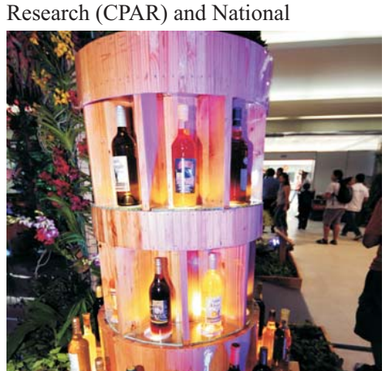
PHOTOS: MEAQUINO

(Left) Central display setting
(Right) Ribbon cutting ceremony
PHOTO: RDELACRUZ

participated in the exhibit. He said, *"saludo kami sa inyo. Ang inyong dedikasyon at kagustuhan na matulungan ang ating sektor ang siyang nagbigay daan sa lahat ng ito. Kayo ang nagsilbing instrumento patungo sa isang mas masigla at matagumpay na pagnenegosyo."*

"At taun-taon, buong pagmamalaki natin itong napapalaganap sa lahat, hindi lamang upang ipakita sa kanila na may ginagawa ang ating sektor kundi para ipakita sa kanila na handa na tayo. Handa na tayong ipagbunyi ang produktong Pilipino sa buong mundo," Eleazar added.

One of the highlights of the opening program was the ceremonial launch of the *Channels of Progress: Bringing Innovations Closer to People,* a coffee table book authored by Dr. Nicomedes P. Eleazar. The publication is a compendium of successful stories of the two banner programs of BAR: Community-based Participatory Action Research (CPAR) and National Technology Commercialization Program (NTCP).



Fruit wines are one of the featured technologies in the central setting display.
PHOTO: MEAQUINO

The book is envisioned to inspire its readers to venture in agriculture and fisheries industries which are an open field of opportunities for everyone. It also aims to encourage researchers and scientists to generate more technologies that will benefit the stakeholders, and serves as a venue to establish networks and markets to strengthen collaboration with other research institutions, partners, and private individuals.

The four-day event also showcased various products, services, and commercial technologies on the following categories: high-value crops, livestock, fisheries, natural products/natural ingredients for health and wellness, organic agriculture, and climate change. These technologies were generated by 107 exhibitors from the DA family, state universities and colleges, and private sectors.

The University of the Philippines Los Baños (UPLB) Edible Landscaping team led by Prof. Fernando C. Sanchez, Jr. designed the central setting display for the exhibit. It highlighted four major areas: 1) fresh produce, 2) fruit wines and finished products, 3) agri-machineries, and 4) different rice varieties: brown, red, black and white. The fresh produce area included fresh fruits and vegetables and an edible landscape of herbs and spices, indigenous plants, garlic, and onions. It also featured the 'pinakbet' and 'chopsuey' vegetables and different fruits. Also featured in the central setting were indigenous plants and underutilized crops which are now being processed into various fruit wines (i.e. *bignay*, abui, *lipote*, *oregano*, *duhat*, *arius*, *sapinit*, mango, sweet potato, etc.) and various products from bangus, tuna, chevon/mutton from small ruminants-goats/sheep which are packaged into cans or bottles.

Aside from the product exhibit, technical and popular seminars were presented which were actively attended by interested individuals. Technical topics included intellectual property rights, honey, organic rice, mushroom, catfish, vermicomposting, legumes, Nile tilapia, and underutilized native fruits.

On the other hand, popular seminars/technology demonstrations were on soybean, sweet sorghum, medicinal plants, native pig meat and skin, tilapia ice cream, vermiculite-based soilless growing medium, and agricultural photography.

The first ever winner of Regions' Got Talent were hailed during the third day. Regional directors, managers, researchers, and other representatives from the DA family showcased their talents, creativity, and stunning costumes.

During the closing ceremonies, Dir. Eleazar and Asst. Dir. Teodoro S. Solsoloy extended their heartfelt appreciation to all exhibitors and participants, sponsor, guests, and BAR staff.

The 9th Agriculture and Fisheries National Technology Commercialization Forum and Product Exhibition is led and coordinated by the bureau's Technology Commercialization Division (TCD) headed by Mr. Anthony B. Obligado. The DA-High Value Crops Development Program (HVCDP) served as this year's sponsor. ### ***(Ma. Eloisa H. Aquino)***

Dar underscores tech upscaling as key to elevate agri & fishery enterprise

ICRISAT Director William D. Dar proposes the Inclusive Market-Oriented Development (IMOD) approach to be used by the government.

A true advocate of science and technology, harnessing it as a means to increase agricultural productivity in the country, Dr. William D. Dar, director general of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), highlighted on the need to upscale technologies to benefit smallholder farmers and fishers in the Philippines in his speech during the opening of the 9th Agriculture and Fisheries Technology Forum and Product Exhibition held on 8 August 2013 at SM Megamall, Mandaluyong City.

"Upscaling technology to elevate the agriculture enterprise with smallholder farmers as the ultimate beneficiaries is vital in attaining sustainable food and nutrition security and improved livelihoods for the country's rural poor," said Dar.

Following the World Bank vision's agriculture for development, Dr. Dar sampled ICRISAT's strategy on improving access to markets and establishing efficient value chains which has been at the center of every "research for development" initiatives of the institute. "We call our approach Inclusive Market-Oriented Development or IMOD, specifically aimed to benefit the poor by moving them from impoverished subsistence farming to prosperous market orientation," he added.

Dar proposed five areas along the IMOD approach in which the Philippine government needs to put more investment on to ensure that smallholder farmers and fishers will be benefited. These areas include: dryland or rainfed areas, applied research, human resource, public-private partnership, and modern genomics.

Aside from Dar gracing the opening program, ICRISAT also joined in the event as one of the international exhibitors alongside the Malaysia-based WorldFish Center and the Philippine-based Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA). This is ICRISAT's first time to join in the event as one of the exhibitors.

The booth of ICRISAT featured "The DA-BAR-ICRISAT Partnership: Making Life Better for Smallholder Farmers" which served as an effective platform for active interaction and engagement among partners and stakeholders for both institutions. The exhibit showed various R&D initiatives, partnerships focusing on the introduction of ICRISAT-bred crops like sorghum, pigeonpea, peanut and groundnut into the Philippines. Other R&D initiatives focused on community-based watershed management, policy advocacy, capacity building and other cutting-edge innovations on rainfed agriculture. ### ***(Rita T. dela Cruz)***

Escudero urges agri sector to make Filipino products globally competitive

Hon. Evelina G. Escudero encourages the intensification of promotion of the locally produced products and technologies.
PHOTOS: RDELACRUZ

A frequent visitor of the annually-held "Agriculture and Fisheries Technology Forum and Product Exhibition," Representative Evelina G. Escudero of the first district of Sorsogon revealed that she is indeed a fan of this event. She mentioned that she goes to the event not only to shop for agri products but mostly to know the latest trends and technologies that the agriculture and fisheries sector have to offer to consumers.

Gracing the 9th tech forum and product exhibit, this time as a guest speaker, Escudero mentioned three important points.

First is the need for our local producers to be globally competitive. "The reality of global competition is here. Local goods need to compete with those from abroad which are being sold to a much cheaper price. Take for example our local garlic which is around P110-120/kg which

Tilanggit: The next big hit in the local market

by: Liza Angelica D. Barral

Dried squid and *danggit* are two of the popular and high-value processed fishery products patronized by Filipinos due to its distinct taste, aroma, and crispiness. But have you heard of this new product called *tilanggit*?

Tilanggit, also known as *tilapiang dinanggit*, was inspired from the usual *danggit* (Rabbitfish), a famous fishery product from the Visayas. It is prepared similarly to *danggit*, which is horizontally cut into half and preserved through drying techniques. One of its distinct characteristics is that it is meatier as compared to *danggit*. Since the new product is seen having a huge economic potential, research and development initiatives are on track.

One of the agencies that ventured in this product breakthrough is the Bureau of Fisheries and Aquatic Resources-Regional Fisheries Research and Development Center X (BFAR-RFRDC X) headed by Ms. Gigi C. Albor.

According to Mr. Vianney Anthony A. Gapuz, regional focal person for Community-based Participatory Action Research (CPAR) and OIC of Inland Resource and Management Sector of BFAR, the idea started during the Research Development and Extension (RDE) Review with Philippine Center for Aquatic and Marine Research and Development (PCAMRD) Zonal in 2005.

"The concept of *tilanggit* gave grounds in the region when BFAR embarked on producing tilapia for fillet," Gapuz explained. Further, *tilanggit* is also developed in Region X as one of the components of an ongoing CPAR project on tilapia culture in Pangantucan, Bukidnon.

Gapuz also explained the selection process of tilapia for producing *tilanggit*. "As male tilapia grows faster and bigger than female tilapia, after segregation at 50-80 grams, the remaining female tilapia are processed into *tilanggit*, since only the male tilapia are cultured up to the desired harvest size of 250-450 grams," he said.

Huge opportunities for *tilanggit*

Tilanggit production is seen by the region as a good source of alternative livelihood. In fact, some fisherfolk associations and other individuals are starting to produce *tilanggit*. However, it is a seasonal activity because *tilanggit* production depends on the supply of quality tilapia. As of now, the common selling price is at 50 pesos per 100 grams and is bought through order basis.

In an effort to commercialize *tilanggit* through product development, RFRDC X is proposing a project under the National Technology Commercialization Program (NTCP) of the Department of Agriculture-Bureau of Agricultural Research (DA-BAR). According to Mr. Gapuz, they have selected farmer cooperators for the project. Recently, RFRDC X started the promotion by featuring tilanggit during the 9th National Agriculture and Fisheries Technology Forum and Product Exhibition on 8-11 August 2013 at SM Megamall.

RFRDC X is eager in pursuing RDE through *tilanggit* commercialization to bring it from household to commercial level. "We need to develop *tilanggit* into a commercial product wherein it will be a regular demand in the grocery market," Mr. Gapuz concluded. ###

Bhoochetana program...from page 9

The three pilot groups identify the information needs and proper PRA tools in order to identify them in the most efficient way. PHOTOS: LPADILLA

Strategic planning and target setting are two important matters since current agricultural scenarios vary among communities which entail variation in actions and interventions to be performed in order to arrive at the desired scenario with the desired outputs at hand. The framework thus follows the process of identifying the current scenario and the suitable action/intervention to arrive at the desired scenario.

The deliverables for the first year of the program are: 1) site selection, 2) site characterization, and 3) capacity building and market linkage. During the forum, the three piloting groups (Luzon: DA-RFU IVA and SLSU, Visayas: DA-RFU VIII and VSU, and Mindanao: DA-RFU IX and WMSU) confirmed to deliver the first two on the list before 2013 ends.

Information needs and PRA tools

The workshop was led by Dr. Roselyn F. Paelmo and Ms. Leila D. Landicho, university researchers of UPLB, and Dr. Robert G. Visco, director of UPLB-Institute of Agroforestry (IAF).

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Support to Surigao del Sur's SOYBEAN INDUSTRY intensified

Members of farmers' association in Tago visit the project site during the field day.
PHOTO: ABRION

Mindanao, especially the CARAGA region, has the biggest soybean production in terms of area with 1,050 hectares dedicated to the planting of the crop. Surigao del Sur is one of the major soybean producing areas in the region making soybean a thriving industry since the 1980s. Most farmers in the province, especially in San Miguel and in Tago where bulk of the soybean is being produced, consider it as a major cash crop due to its potential in solving problems on hunger and malnutrition.

To boost and further enhance the soybean industry, the CARAGA region initiated a development project implemented under the national program spearheaded by the Bureau of Agricultural Research (BAR) titled, *Building Sustainable Soybean Industry in the Philippines*.

"We started our initiatives three years ago and concentrated our efforts on different on-station researches. One of those researches is adaptability yield trials wherein we used the 14 new varieties developed by the Institute of Plant Breeding of the University of the Philippines Los Baños (IPB-UPLB) under the leadership of Mr. Elmer Enicola. On top of those, we also have an observational nursery where we raise about 2,000 strains of soybeans. We subject them to different stresses and select which among them are adaptable to the locality," explained Ms. Wilfreda Manos, manager of CARAGA Research Integrated Agricultural Research Center, and project leader. She furthered that the development of the soybean industry in the region will not only serve as a source of cash for the farmers, but also as foods for human consumption and feeds for the animals.

Currently, a component of the project being focused on is the processing of soybean. According to Ms. Manos, even if Surigao del Sur farmers have already been planting soybean in the past, it is just now that the farmers are learning on the value-adding technologies for soybean. Through the conduct of trainings, the farmers were taught how to make soya milk, *taho*, and *tokwa*.

In support to this, BAR through the Philippine Center for Postharvest Development and Mechanization (PhilMech) funded processing equipment which are housed at the SCI facility in Tandag. Among the equipment include a milk extractor which they use for the production of soy-based products including soya milk and chilled *taho*. These are being sold in nearby schools, hospitals, and at the SCI Cooperative.

Soybean farmers' field day

Aimed at showcasing the 14 varieties of soybean to the farmers, a field day was held in Tago. "This [field day] will give the farmers options to choose the best and suitable varieties which they can use aside from the local variety," said Ms. Flor Pante, focal person for technology demonstration on soybean.

According to Ms. Pante, some of the farmers were able to observe the susceptibility of the local variety to pests such as bean fly and aphids. Hence, the field day served as a good venue for them to look for promising varieties which they can plant in their respective farms. Aside from the tested varieties *Tiwala 10, Tiwala 8*, and the local variety, *AGS 374* arose as one of the varieties preferred by farmers because according to them, the variety does not easily collapse, contains big seeds, and is resistant to diseases.

With soybean's nutritional value, a feeding program was also

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is way up in price compared to the imported garlic which only cost around P50-60/kg.

She encouraged everyone to give this case a "serious thought" and to look where agriculture has gone wrong. "BAR serves as a conduit in this study to know where we have gone wrong and to determine specific solutions. This is where integration of research and technology comes in, including the fisheries sector," she said.

Another issue that Escudero pointed out is the need to address the discriminating taste of the local consumers both quality- and price-wise. "There is a need for us to create the wave, the initiator of change and see the potentials of our own biodiversity. Research will do that for us. I am happy that BAR is helping us on this aspect especially on developing our indigenous resources especially those that are unknown to many like the batuan, which I've learned is actually an effective sour agent. Let us learn from the "advertising gurus" because they mostly dictate the consumers' needs."

In line with this, she mentioned the need to advertise local products so that more people will know that technologies are already available and that all of these are products of research. "Advertising is a great conduit for the consumers to know what products are available in the market," the congresswoman shared.

The last point that Escudero said is on optimizing social media in lieu of free advertising and making people aware of our local products. "We can tap the potential of social media and networking to easily introduce to our peers and refer them to experts. With just the click of the mouse, we can easily get the information we need. Our farmers, fisherfolk, and entrepreneurs to tap these tools to easily connect with the consumers which will translate to lower price and increase market share," she concluded. ### ***(Rita T. dela Cruz)***

Book on CPAR, NTCP success stories launched

In an effort to attain a sustainable agriculture and fisheries sector, the Bureau of Agricultural Research (BAR) has always been at the forefront in ensuring that technologies generated from research and development (R&D) are translated into practical use by the sector and stakeholders.

Looking into the necessity to share and disseminate research results with impacts, BAR launched a coffee table book compiling success stories in the agriculture and fisheries sector. The publication was introduced to the public during the opening of the 9th Agriculture and Fisheries National Technology Forum and Product Exhibition on 8August 2013 at SM Megamall, Mandaluyong City.

The book titled, *Channels of Progress: Bringing Innovations Closer to People* is authored by BAR Director Nicomedes P. Eleazar. It contains 54 stories from BAR-funded projects under its two banner programs: Community-based Participatory Action Research (CPAR) and National Technology Commercialization Program (NTCP).

The book is divided into three agriculture sub-sectors, namely: crops, livestock and poultry, and fisheries. It embodies the tales of beginnings, hardwork, and successes of the project beneficiaries and adopters by utilizing the technologies and services generated and offered by the Department of Agriculture (DA) and other partner R&D institutions.

Aside from the visible and positive effects in terms of productivity and income of the farmers and fisherfolk, the stories narrated in the book reflected how the people make actions towards their own development. Women empowerment, agribusiness enterprise development, strengthening of cooperatives, and enhancement of strong and workable partnership among the stakeholders are some of the impacts recounted in the compendium.

The coffee table book was conceptualized during the 25th BAR Anniversary celebration in 2012 and was made possible through the help and cooperation of the DA regional field units, academe, local government units, non-government organization, and other partner institutions, and individuals. ### ***(Diana Rose A. de Leon)***

Unveiling the coffee table book are (L-R): BAR Dir. Nicomedes P. Eleazar, ACIAR Country Manager to the Philippines Cecilia O. Honrado, DA Usec Segfredo R. Serrano, Hon. Evelina G. Escudero, ICRISAT Dir. Gen. William D. Dar, and BAR Asst. Dir. Teodoro S. Solsoloy.
PHOTO: ACONSTANTINO

Adlai cereal, jackfruit products and rimas ice cream win *"Best New Products"*

Adlai breakfast cereal

Jackfruit products

Rimas ice cream

Product development in agriculture and fisheries has always been a challenge.Coming up with something innovative is not an easy feat especially in this time and age wherein almost all kinds of products are already out and available in the market.

This is why the Bureau of Agricultural Research (BAR) finds a way to recognize the efforts of research institutions that were able to face this challenge head on. Awarded during the closing and awarding ceremonies of the 9th National Agriculture and Fisheries Technology Forum and Product Exhibition were the "Best Products" developed by the participating research institutions. These are: adlai breakfast cereal of Region 10, vacuum fried and dehydrated jackfruit of Region 8, and Rimas ice cream of Region5.

Adlai breakfast cereal

Developed by the Department of Agriculture-Northern Mindanao Integrated Agricultural Research Center (DA-NOMIARC), the adlai breakfast cereal bagged the grand prize as the "Best New Product."

Adlai is widely promoted by the DA as an alternative staple food to rice. It is highly nutritious compared to its family such as wheat, corn, and rice. In a 100-gram serving, adlai has the highest food energy content (356 kcal) compared to white corn (135 kcal), brown rice (129 kcal), and white rice (110 kcal). It also posted high levels of carbohydrates and protein. Adding to its appeal as having a rice-like taste, it is a good choice for raw material in a cereal.

"Our product may have similar features with those existing in the market, however our adlai breakfast cereal is carefully blended with choice ingredients to come up with a perfect blend of product," explained NOMIARC Manager Juanita B. Salvani.

NOMIARC is prepping the adlai breakfast cereal to make its way in the local market. The team is on the stage of developing the product label and getting the nutrition facts and FDA certification.

Other products developed by NOMIARC include adlai wine, adlai pop, adlai blend (coffee), cookies, adlai soya, beauty soap, *adlaicaldo*, and *adlaikakanin*.

Vacuum fried and dehydrated jackfruit

As the banner crop of Eastern Visayas, there is no question why jackfruit products are the chosen contender for the best new product by the Eastern Visayas Integrated Agriculture Research Center (EVIARC). Under the brand Name Baybay Delights, the vacuum fried and dehydrated jackfruit won the second prize.

The jackfruit products were born out of the need to revive and promote the jackfruit industry in Eastern Visayas. Through the expertise of Visayas State University-Department of Food Science and Technology (VSU-DFST), they had refined the process of producing a vacuum fried and dehydrated jackfruit. As a result, it is said that the taste of Baybay Delights are comparable to that of products of Vietnam and Thailand.

Using the EVIARC sweet, a jackfruit variety developed by the DA-Regional Field Unit VIII which is known for its superior quality and sweetness, the jackfruit products promise natural sweetness without an added sugar. Jackfruit is rich in dietary fiber, vitamin C, B-complex and good source of calories but with no cholesterol and saturated fats.

For the commercialization of the jackfruit products and other mature technologies on jackfruit developed by the Visayas Consortium for Agriculture and Resources Program (ViCARP) and Regional RDE Network (RRDEN), they have conceptualized the Jackfruit TechnoMart Project which aims to establish formal linkages with interested entrepreneurs from Baybay City and Mahaplag, Leyte.

Currently, two Memorandum of Agreement (MOA) had been signed with two private entrepreneurs and marketing agreements between the entrepreneurs and jackfruit growers. Also, as a value adding on the jackfruit, they are planning to make rehydration procedure of vacuum fried and dehydrated jackfruit, and extending the shelf life of dehydrated jackfruit.

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BAR visits adlai thriving sites in Zamboanga

In a recent visit to the Mindanao region in Zamboanga del Sur, a team from the Bureau of Agricutural Research (BAR) composed of consultants and technical staff, experienced the scope of the *adlai* (*Coix lacryma-jobi* L.) campaign, reaching from the main city to the farthest outskirts of the province.

Initially popular only with the Subanen tribe of the region as another food source apart from corn and rice, *adlai* is now grown by city dwellers as a source of good quality carbohydrates and provides income-generating opportunities. Patches of *adlai* now line the main roads from Pagadian City to Zamboanga City, easily visible to the sight-seeing passersby. Spread in between towering coconut trees and other food crops, *adlai* grows tall but bends and bows with the wind, indicative of its adaptable characteristic.

The team from BAR, headed by Ms. Apolonia A. Mendoza, *adlai* coordinator for the agency, visited Zamboanga City in Mindanao on 27-30 August 2013 to conduct field visits in thriving sites of *adlai* around the region. Farmer cooperators and adoptors together with representatives from the DA-Regional Field Unit 10 and local government unit (LGU) participated in the expedition, discovering the ingenious ways of planting *adlai*.

In a farm in Brgy. Gunosan, Molave, Zamboanga del Sur, six-feet high *adlai* stood amidst coconut trees, interspersed with cassava plants, and other food crops. White-beige-brown *adlai* was prominent, although another violet-colored *adlai* variety, which they called "*Tigbi**" can also be found.

In the municipality of Josefina in Brgy. Limino, the locals have far more advanced postharvest processes for *adlai*. Standing inside a warehouse-type structure is a developed *adlai* milling machine that produces *adlai* grains for direct consumption (as rice or made into *kakanin*), flour, and *darak* (feed for pig and chicken). Most farmers in this barangay use *adlai* on a daily basis (as rice), and have spare to sell for additional income. It is in this municipality that a three-hectare farm is planted with *adlai*, standing on a top mountain, 360º view of *adlai*-filled hills.

In the municipality of Midsalip, planting areas for *adlai* did not take the place of rice and corn. However, planting areas in Brgy. Cabaloran was 30 ha. with 45 farmers, Brgy. Sigapod 48 ha. with 53 farmers, Brgy. Matalang 48 ha. with 50 farmers, Brgy. Duelic 28 ha. with 31 farmers, and Brgy. Tuluan 12 ha. with 22 farmers.

In the municipality of San Miguel, roads leading to Brgy. Betinan are decked with *adlai* on both sides of the highway. Intercropped with coconut and banana trees, other vegetables, and even asha peanut, rows and columns of *adlai* fill the long stretch of the road.

Adlai is an indigenous crop that grows in tropical countries like the Philippines. It is currently being promoted as a food staple as per the Philippine Food Staples Self-Sufficiency Roadmap 2011-2016 and is believed to be one of the instruments in achieving food security for the country. ### ***(Zuellen B. Reynoso)***

**Local names of adlai vary depending on location. In this particular barangay, Tigbi is referred to another variety of adlai that is of a different color.*

A variety of adlai that is found abundantly in Midsalip (left). Processed adlai grains (middle). Adlai milling machine (right). PHOTOS: ZREYNOSO

BAR joins int'l conference...from page 10

600 participants including staff members from the Ministers of Agriculture, policymakers, researchers, extension workers, industries, and students from 15 participating countries. The event served as a venue for the participants to talk and to form an alliance and come up with an understanding, conceptualize collaboration works against climate change. ### ***(Amavel Velasco)***

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BAR joins int'l conference on biodiversity, climate change and food security

Key officials and staff of BAR with Indonesia Agency for Agriculture Research and Development Dir. Gen.Dr. Haryono.

PHOTO COURTESY OF AVELASCO

According to the Maplecroft's Climate Change Vulnerability Index (CCVI), Manila ranked second to the cities that will be facing the most risk from the onset of climate change, next to Dhaka. Other cities identified were Bangkok (Thailand), Yangon (Myanmar), Jakarta (Indonesia), Ho Chi Minh City (Vietnam), and Kalkota (India). The report also stated that 'extreme risk cities' may experience an increase in frequency and severity of key hydrological and meteorological events.

The CCVI was developed to evaluate the exposure of cities to climate-related natural hazards; the sensitivity of populations; development; natural resources; agricultural dependency; research and development; government effectiveness and education levels.

This global phenomenon that goes by the name of climate change, although can be felt locally, can only be solved through global actions. Southeast Asian countries had their fair share of actions and efforts to mitigate and to adapt to the effects of climate change. Collaboration between countries is needed.

One of the answers to this call for collaboration was heeded by Indonesia, a country that is also vulnerable to extreme risks like the Philippines. Indonesia conducted "The International Conference on Biodiversity, Climate Change and Food Security" with the theme "Global Food: From Diversity to Security in Changing World". The event was held in parallel with the "3rd High Level Roundtable on the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) held in Bandung, Indonesia.

Officials and technical staff from the Bureau of Agricultural Research (BAR) participated in the event. Dr. Teodoro Solsoloy, BAR assistant director, led the delagates and were joined in by Ms. Julia Lapitan, OIC-head of the Applied Communications Division, Ms. Cynthia Remedios de Guia of the Planning and Project Development Division, and Ms. Amavel Velasco of the Project Monitoring and Evaluation Division.

The event aimed to stress the importance of an in-depth understanding of the impact of climate change in agriculture and the necessity to consider plant genetic resource dimensions to formulate an effective and appropriate adaptation and mitigation strategies to achieve food security.

In his welcome speech, Dr. Haryono, director general of the Indonesian Agency for Agriculture Research and Development (IAARD), said that agriculture is an ecosystem-based industry and responding to todays' needs and preserving the agroecosystem for the future generation lies the very challenge of the time. He stressed that "we need to put our acts together" and added that many developments have already been taken place and now is the right time to review all these undertakings.

Climate change is a major constraint in attaining target yields, particularly, in attaining food sufficiency. Climate change will lessen the lands appropriate to crop cultivation. There are those areas which are being intruded by salt water and agricultural lands that are being flooded every now and then due to increase in precipitation during the rainy season. Crop suitability in different places will also be a problem, leading to a shift in crop cultivation and cropping patterns. Thus, the food base should be broadened. This is where biodiversity comes in and the importance of exploring the underutilized species in the country, especially the indigenous species which has developed/evolved through time. This was particularly stressed by Dr. Teodoro Solsoloy in his speech during the 3rd High Level Roundtable on ITPGRFA wherein he represented the country. He underscored the importance of indigenous species and the role of the Philippine R&D in their preservation. He also mentioned the different initiatives and various researches being done related to PGR and indigenous species that are being coordinated by BAR.

The stand of Dr. Solsoloy in promoting indigenous species is supported by Dr. Haryono. "The so-called 'modern agriculture' tends to develop towards simplified genetic resources and neglects local varieties adaptable to extreme climate conditions. As such, not only do we lose opportunity to increase food production and adaptable to local condition, but we also lose the rich genetic resources which will be useful for future germplasm development. Therefore we must join efforts to collect, conserve, and develop those locally adaptable species," said Dr. Haryono.

The conference was attended by

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Batanes' Arius wine is cited as a promising product

PHOTO: RDELACRUZ

A new product, Arius fruit wine, developed by the Batanes State College (BaSCO), received a special citation for being one of the promising products exhibited during the 9th Agriculture and Fisheries Technology Forum (NTF) and Product Exhibition organized by the Bureau of Agricultural Research (BAR) on 8-11 August 2013 at SM Megatrade Hall, SM Megamall, Mandaluyong City.

"*Ano yung Arius?*" was the usual question asked by the participants and visitors when they came across the booth of BaSCO which displayed various products developed from the Arius fruits including wine, jam, yema, and pastillas.

Arius (*Podocarpus costalis*), a pine bearing sweet and sultry reddish purple berries, is indigenous to Batanes and is found thriving in the province for a long time. Before, it was famously utilized for aesthetics especially during the holiday season when it is decorated as a Christmas tree. Exploited for its landscaping appeal, the Arius pines are also grown in other parts of Luzon, especially in Metro Manila to give a touch of nature to urban areas such as plazas, parks, roadsides, and schools. However, Arius pines in Metro Manila do not bear berries unlike those grown in Batanes. Moreover, the berries were originally underutilized by the people and were left to be eaten by the birds, which are responsible for dispersing its seeds throughout the province.

Today, with the realization of how appealing the sweet taste and succulent texture of Arius berries, BaSCO has conducted projects focusing on developing various food products using Arius berries.

Two projects titled "Processing Technology Development and Utilization for Organically Grown Arius Fruits in Batanes" and "Arius Fruits Product Development" were led by Dr. Roger G. Baltazar, director for research and extension of BaSCO, and were supported by BAR through its banner program National Technology Commercialization Program (NTCP).

The projects aimed to develop various product technologies from Arius berries to create value-adding strategies that will improve livelihood and profit. The products developed through these projects were Arius candies (e.g., pastillas, yema), jelly, jam, juice, pastries (e.g., tart), preserve, prunes, tea, and wine.

The "Arius Fruits Product Development" project also paved way for the development of Arius as feed additives to animal feeds and as fertilizer when fermented.

The special citation during the 9th NTF showed the promising potentials of Arius not only as a wine but also as an indigenous commodity beginning to be known by the mass consumers as a versatile and delicious fruit.

The continuous collaboration of BaSCO and BAR aims to intensify the production and commercialization of Arius products to improve the income of farming communities in Batanes and to encourage investments that will help trigger economic rise in the province. ### ***(Leila Denisse E. Padilla)***

Rimas ice cream

Banking on the economic potentials of rimas (breadfruit), the DA-Bicol Integrated Agricultural Research Center (DA-BIARC) developed various value-adding products on rimas such as pastillas, cheese cupcake, chips, rimas caramel, *ginataang* rimas and the third-prized winner for the best new product–the rimas ice cream.

Studies showed that rimas has high carbohydrate and energy content. It is also a good source of dietary fiber, potassium, calcium, and magnesium with small amounts of thiamin, riboflavin, niacin, and iron.

According to report, rimas is cheaper compared to other fruits used in making ice cream and based on the product acceptability survey done during the tech forum and product exhibit, 100 percent of the evaluators accepted the product in terms of taste, aroma, texture, and appearance.

The breadfruit ice cream that BIARC developed comes in three variants: rimas with sweet potato, rimas with cheese and chocolate, and rimas with langka. The meat of rimas makes up 80 percent of the ice cream mixture.

The product was made possible through the collaboration with the local government of Tigaon, Camarines Sur, Irosin, Sorsogon where they are sourcing out the rimas fruits. BIARC has been introducing the rimas ice cream to the local cooperatives and associations for market expansion. ### ***(Diana Rose A. de Leon)***

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More market potential for native pigs explored through improved processing technologies

Sausages and hotdogs made from native pig meat

Projections made by the Food and Agriculture Organization (FAO) of the United Nations reveal that the average annual per capita meat consumption especially in the developing countries will reach 37 kg in 2030, from merely 10 kg only during the 1960s. In order to meet this growing demand, one of the ways that is being looked upon is maximizing the use of meat resources and reducing wastage of edible meat parts through meat processing.

In a seminar held during the 9th Agriculture and Fisheries Technology Commercialization Forum and Product Exhibition on 9 August 2013 at SM Megamall, Ms. Nenita R. Estante, senior agriculturist from the Bureau of Animal Industry (BAI), discussed about the significance of meat processing technologies in diversifying meat products. "Native pig raisers need improved technologies on value adding for the meat that they produce for longer shelf life." She furthered that processing the meat will add value to the native pig and will provide more income opportunities for the raisers, as well as open up doors for the establishment of business enterprises.

In most rural areas, especially far-flung villages and barangays, native pigs are commonly grown and raised for household consumption. Slaughtered pigs are usually sold as fresh meat or cooked as food for the family. However, as a highly perishable commodity and with limited cold storage facilities, such meat will not last long.

With funding support from the Bureau of Agricultural Research (BAR), BAI embarked on a project that will help improve processing technologies for meat and skins from selected strains of native pigs (BAI-Tiaong Black Pigs) that can easily be adopted by pig raisers. One of its components is aimed at developing meat products from native pigs and to look for alternative ways to prolong their shelf life. Through the project, standardization of recipes has been made for different identified meat products which include *lechon de leche*, dried tapa, smoked bacon, fresh native sausage, and pork hotdog. The parameters being standardized were the amount and type of ingredients, and the detailed procedure for each recipe. Standardized and optimized processing methods are used to guarantee the product's safety, to ensure its consistent quality, and to preserve its unique flavor. The recipes made were based on the standardized formulation of the Animal Products Development Center (APDC) of BAI. The meat products were subjected to sensory evaluation by trained panelists at APDC where the native lechon was perceived to be favorable in terms of color, flavor, general acceptability, crispness, juiciness, and tenderness. Likewise, the other meat products were also perceived to be favorable in terms of color, flavor, and general acceptability.

Currently, the project is in the process of prolonging the shelf life of the standardized meat products and formulating a procedure that will utilize pig skin as a raw material for leather. Pig skins are seen to have a potential as pliable leather and in the shoemaking industry with its ability to provide natural ventilation for sweaty feet. Moreover, it seeks to explore the possibility of replacing the traditional harmful chemical degreasing agent that is used in leather manufacturing to lessen and eradicate the negative effects it can cause to humans and the environment. If it continues to bear positive results, this can contribute in addressing the requirements of the local leather industry and foreign manufacturers.

BAI ensures that these initiatives will be disseminated among native pig raisers and food processors through the continuous conduct of seminars with demonstrations of the processing technologies for native pig meat and skin. ### ***(Anne Camille B. Brion)***

The article is based on the project titled "Improvement of processing technologies for meat and skins from selected strains of native pigs" implemented by the Bureau of Animal Industry. For more information, please contact Project Leader Nenita R. Estante at (02) 293-8401/8402 or email: apdc@manila-online.net

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Ms. Nenita R. Estante explains that the BAI is currently developing value adding products for native pigs. PHOTOS: ABRION

BHOOCHETANA PROGRAM kicks-off before the year ends

Participants of PRA workshop pose with BAR Director Nicomedes P. Eleazar. PHOTO: LPADILLA

The nationwide program, "Adoption of the Bhoochetana Principles and Approach in Boosting Agricultural Productivity in the Philippines" will be implemented before the year ends as concluded during the "National Strategic Planning cum Participatory Rural Appraisal (PRA) Workshop for the Pre-implementation Phase" which was spearheaded by the Bureau of Agricultural Research (BAR) on 12-14 August 2013 at Southern Luzon State University (SLSU) in Lucban, Quezon.

Partners from the Agricultural Training Institute (ATI), Bureau of Soils and Water Management (BSWM), and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and program implementers from the University of the Philippines Los Baños (UPLB), DA-RFU IVA, SLSU, DA-RFU VIII, Visayas State University (VSU), DA-RFU IX, and Western Mindanao State University (WMSU) participated in the event.

During the opening program, Dr. Cecilia N. Gascon, SLSU president, gave an insightful welcome remarks. "The Bhoochetana program has a good potential of increasing the agricultural productivity of Quezon province," said Dr. Gascon.

The highlights of the pre-implementation meeting held on 5 July 2013 was briefly recounted and discussed by Ms. Maureen G. Mangaring, project development officer and BAR focal person for the Bhoochetana program. "As part of the capacity building component of the program, representatives will be selected to immerse with the Bhoochetana community in India," said Ms. Mangaring.

Mr. Joseph B. Rojales, agriculturist II of BSWM, presented the "Soil Conservation on Guided Farms" followed by Engr. Renato B. dela Cruz, chief of ATI-Extension Programs and Partnerships Division with a presentation titled, "Relevant Capacity Building on Sustainable Land and Water Management (SLM)". "Capacity building should integrate or introduce science built on existing knowledge, should be participatory and comprehensive, and should provide support mechanisms afterwards," said Engr. dela Cruz.

Boosting agricultural productivity through Bhoochetana

The Bhoochetana program revolves around five principles: 1) a mission mode program to improve livelihoods of smallholder farmers, 2) a process driven mission strategy, not a target-based approach, 3) a strategy to rejuvenate soils to improve crop productivity through rejuvenation of the mindset of all actors, and 4) an evolutionary and holistic strategy to empower stakeholders, and 5) an approach to improve productivity through utilizing improved technologies.

These were further heightened by Dr. Junel B. Soriano, ICRISAT scientist, during his presentation about the implementation of India's Bhoochetana in the Philippine setting. Since the Philippines has vast rainfed areas producing 50 percent of the total food supply and 28 percent of the population below the poverty line, the Bhoochetana principles are found to be needed and applicable in the Philippines.

With the primary focus of increasing productivity in the first phase of the program, the involvement of local government is highly encouraged to ensure support and mobilization in the community. For a more efficient implementation, the program should be grounded on its five pillars: consortium, convergence, capacity building, collective action, and cooperation (5Cs). "Intervention should be an action that will increase productivity," said Dr. Soriano.

Operational framework and future directions

"Start with the end in mind". This was articulated by Dr. Luis Rey I. Velasco, UPLB professor and the national program coordinator of Bhoochetana. Since the program will later on inject the marketing aspect in the following phases, Dr. Velasco stressed the importance of envisioning an effective and sustainable production-to-market continuum.

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