Cont...

Knowledge Management..from page 11

Approaches; KM Security and Privacy Aspects; and Organizational Intelligence, Tacit Knowledge; KM Consumers, Suppliers and Prosumers; Applying KM: From Theory to Practice; and Global and Cross-Cultural Aspects of Knowledge Sharing.

After the paper presentations, there were poster sessions on cloud-based technology; information flow and telecommunications; and e-Governance wherein participants were given a chance to engage with the study leaders and question them on how they have implemented their KM studies.

A panel workshop was also held on the "Essential Elements of a Sound Research Paper: Publishing in Refereed Journals" and sharing of experiences of the participants who came from various sectors and backgrounds.

During the course of the conference, the participants were able to derive at least three benefits of KM and how its practices are properly implemented within the organization. Among the organizational benefits of KM include: 1) improving the organization's performance through increased efficiency, productivity, quality, and innovation; 2) managing knowledge could reduce the cost of operations and improves customer service; and 3) increasing the financial value of the organization by treating people's knowledge as an asset similar traditional assets like inventory and capital facilities. ###

DA-RFO 5 strengthens..from page 10

BIARC Manager Luz Marcelino (2nd from left) and BAR-ACD Head Julia Lapitan (right) visit the poultry production site of the 565 Engineer Construction Battalion (ECB) under the 51st Engineer Brigade of the Philippine Army. PHOTO:ABRION

biomass recycling/recovery; urban agriculture; and native chicken, goat, and swine production. This ensured the Army's daily supply of quality fresh vegetables; equipped them on livestock and poultry production to help them manage and start on their own; and paved for the establishment of nursery of fruit bearing trees. "These initiatives become an additional source of food for us, as well as income if we retire," the commanding officer said.

DA-RFO 5 through BIARC is one of the active partners of the Bureau of Agricultural Research (BAR) in undertaking research and development initiatives in the Bicol Region, specifically CPAR projects. The Army has been instrumental in rehabilitation efforts after calamities and on the onset of disasters. Aside from clearing activities, restoration of fence lines, and livestock and poultry housing, the Army likewise assisted in the evacuation of livestock and ruminants to safer grounds, hauling of feeds and other animals, and clearing operations of roads leading to the CPAR project sites. The conduct of Participatory Rural Appraisal (PRA), a component of CPAR, was also taught to them by the PRA team in the region. This enhanced the Army's capability on site diagnosis and reconnaissance activities through the use of PRA tools which was more advantageous as they utilized it in their own recon of the proposed sites. ### ***(Anne Camille B. Brion)***

BARChronicle
BUREAU OF AGRICULTURAL RESEARCH
RDMIC Bldg., Visayas Ave., cor. Elliptical Rd.
Diliman, Quezon City 1104
PHILIPPINES

Entered as second class mail at the Quezon City Central Post Office under permit no. 2C-14-01-148 NCR

2015 International Year of Soils

BAR Chronicle

BUREAU OF AGRICULTURAL RESEARCH

ISSN 1655-3942

Visit our official website at http://www.bar.gov.ph

2014 Binhi Awardee Agricultural Newsletter of the Year

Volume 16 Issue No. 7 | A monthly publication of the Bureau of Agricultural Research | July 2015

BAR Director Nicomedes P. Eleazar (2nd from left) and BAR-Institutional Development Division Head Digna L. Sandoval (right), together with UPLB and PSAU key officials, lead the inauguration of R&D facilities funded through its Institutional Development Grant. PHOTOS:JSANCHEZ

UPLB, PSAU R&D facilities inaugurated

Representing Agriculture Secretary Proceso J. Alcala as guest of honor and speaker, Bureau of Agricultural Research (BAR) Director Nicomedes P. Eleazar led the inauguration of the "Plant Tissue Culture Facility (PTCF)" at the University of the Philippines Los Baños (UPLB). The facility, funded by the Department of Agriculture-High Value Crops Development Program (DA-HVCDP), is composed of molecular- and micro-biological laboratories, training and meeting rooms, and production area for priority crops such as banana, abaca, and macapuno.

In his keynote, Dir. Eleazar said "for the country to attain food security and sustainability, investment on matured R&D technologies such as tissue culture is needed to produce quality and disease-free planting materials." In attaining these goals, he underscored the roles of DA in enhancing the R&D facilities of government academic institutions and UPLB as source of technologies and experts in agriculture.

Present in the activity were key officials from DA and the academe including DA-HVCDP Director Jennifer E. Remoquillo; Philippine Fiber Industry Development Authority OIC Executive Director Clarito M. Barron; UPLB Chancellor Fernando C. Sanchez Jr.; UPLB College of Agriculture Dean Domingo E. Angeles; Chairman Feliciano B. Calora Sr. of the Board of Trustees, Philippine Agriculture and Resource Research Foundation, Inc.; PTCF Project Leader Rene Rafael C. Espino; and other stakeholders.

Following the PTCF inauguration, Dir. Eleazar and his delegation composed of Ms. Digna L. Sandoval, OIC head of the BAR-Institutional Development Division; and BAR staff, Ms. Marjorie M. Mosende, Ms. Elvira S. Rapada, and Mr. Jacob Anderson C. Sanchez attended the inauguration of two more R&D facilities at UPLB. These were the: "Post Harvest Horticulture Training and Research Center (PHTRC)" and "Biofuels Research Laboratory (BRL)". The PHTRC was

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BAR sets directions for second half of the year

Key officials and staff members participate in the conduct of BAR's "Midyear Review and Planning Workshop". PHOTO:PLESACA

To ensure that programs and activities are synchronized with its mandates and priorities, the Bureau of Agricultural Research (BAR) conducted its 2015 Mid-Year Review and Planning Workshop on 29 June-2 July 2015 at the Taal Vista Hotel in Tagaytay City.

BAR Director Dr. Nicomedes P. Eleazar, in his welcome and opening remarks, highlighted the first semester accomplishments and recognized the dedication and commitment of officers and staff for the successful results of the agency's R&D programs and endeavors. He mentioned the importance of conducting review and planning activities as strategic tools to ensure that the bureau delivers the expected outputs. He also stressed the need to intensify the call for project proposals and make certain that technology sourcing is in place to effectively mainstream R&D-generated products to the market.

Setting the directions for the second half of the year, Dir. Eleazar laid down his marching orders, namely: 1) intensify the call for project proposals; 2) strengthen project monitoring and evaluation; 3) involve the staff in the quarterly physical and financial assessment; 4) coordinate the speedy preparations for BAR's forthcoming events; and 5) assure the continuity of logistics, infrastructure support, and other communication needs.

The bureau chief stressed that BAR is the most appropriate institution to provide the standardized R&D information that would represent the Department of Agriculture as a whole.

To keep abreast on the various accomplishments of the divisions and units involved, BAR officers and technical staff presented their salient achievements and plans for the year.

Ms. Judith Maghanoy, budget officer and assistant head of the Administrative and Finance Division, presented updates on FY 2015 BAR Budget; DA and BAR Operations Level Indicators; and status of the bureau's fund utilization.

Mr. Joell Lales, head of the Planning and Project Development Division (PPDD), reported on the strategies and execution of the different DA programs including rice, corn, high value crops, livestock, fisheries, organic agriculture, climate change, and rainfed agriculture.

Mr. Anthony Obligado, head of the Technology Commercialization Division (TCD), presented TCD's accomplishments and highlighted the preparations for the 11th National Technology Forum and Production Exhibition scheduled on 7-9 August 2015. Ms. Ellen Garces, TCD assistant head, shared other completed tasks of their division.

Ms. Amavel Velasco, assistant head of the Project Monitoring and Evaluation Division (PMED), presented the highlights of on-going and completed projects under the Community-based Participatory Action Research (CPAR) program. She also updated the

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BARChronicle
BUREAU OF AGRICULTURAL RESEARCH

BAR CHRONICLE is published monthly by the Applied Communication Division of the Department of Agriculture - Bureau of Agricultural Research, RDMIC Building, Visayas Avenue, cor. Elliptical Road, Diliman, Quezon City 1104 Philippines.

This publication provides regular updates on DA-BAR's activities as the country's national coordinator for agriculture and fisheries R&D. It also highlights features and news articles concerning NaRDSAF-member institutions.

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ISSN 1655-3942

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and culture but it is not yet widely disseminated and used," she added.

Ms. Resubal reported that before the World War II, *kapis* was a lucrative industry in Bataan. In fact, these seashells were abundant in Samal and were widely distributed in nearby municipalities of Abucay, Balanga, Pilar, Orion, and as far as Limay. In the early 70s, the number of *kapis* started to decline.

In 2006, the OPA of Bataan, through the Provincial Fishery Office, initiated a project to replenish the natural stocks of *kapis* in the area by reviving its natural grounds and enhance their multiplication of stocks. The project found that one of the leading causes of *kapis* depletion in the area was illegal fishing and other destructive methods of fishing that disturb the breeding habitat of *kapis*.

To prevent further depletion and to ensure the sustainability of availability of stocks of *kapis* in the wild and generate scientific data and information on its growth performance, BFAR Region 3, in close coordination with OPA-Bataan, implemented the project, "Technology Adaptation/Verification Trial on the Pen Culture of Windowpane Oyster". The research initiative, funded by the Bureau of Agricultural Research (BAR), is being implemented in the coastal area of Brgy. Tabing-Ilog, Samal in Bataan.

"We proposed this project based on the simple premise that the declining stocks of *kapis* in the wild can greatly affect the other segments of the industry including the sash factories, shellcrafts and those who produce *parol* and decorative items from *kapis*. This will eventually redound to the decrease in income and job generation," said Dr. Garcia. She added that, increasing the stocks of *kapis* will revive the once thriving industry in Bataan and develop more opportunities including product development not only from its *kapis* shells but also from its meat.

The main component of the project is breeding the *kapis* through pen culture. It is hoped that this research will be able to adapt/verify the culture technologies which was earlier generated and developed by SEAFDEC with some modification to suit local condition.

Pen, or "enclosure culture", is one of the most recent developments in breeding *kapis*. As defined by SEAFDEC, pen is a "fixed enclosure in which the bottom is the bed of the water body". It is different from the "cage culture" which as defined is "an enclosure with bottom and sides of netting or bamboo etc., whether floating at the surface or totally submerged."

For this project, the 1,000 sq. meter breeding area was established inside a 1.5 hectare sanctuary which is conducive for *kapis* breeding since it is a "no fishing" zone. "The breeding pen measured 20m x 50m and the *kapis* breeders were stocked at 150 pcs. for every sq. meter with average individual size of 80 mm (marketable size). A kilo of *kapis* is equivalent to 10-12 pieces. Each breeder *kapis* equates to the size of our palm," described Ms. Resubal.

Also, part of the project intervention was to conduct grid sampling, assessment of primary productivity, and density of spats to generate data and information to enhance the stocks of *kapis*.

To get the data and evaluation on the breeding performance of *kapis*, Dr. Garcia explained that their monthly monitoring process was based on three water parameters: salinity, temperature, and dissolved oxygen. "Salinity is an important parameter. If the salinity decreases, there is a possibility of an increase mortality of the *kapis* breeders so they need to be regularly monitored to check that the breeders are in good condition," she added.

"Results obtained from this research will serve as reference in coming up with the national program on *Placuna placenta* in the Philippines which will boost more production and income for local and export markets," concluded Dr. Garcia. ###

> "***Increasing the stocks*** of *kapis* will revive the once thriving industry in Bataan and develop more ***opportunities*** including ***product development*** not only from its kapis shells but also from its meat."

Dr. Lilian Garcia of BFAR-Region 3 (left) and Ms. Gladys Resubal (right) from LGU-Bataan are the proponents of the *kapis* projects in the region that are aimed at ensuring the sustainability of the *kapis*' natural stocks in its natural habitat and helping in the utilization and promotion of its products.

Reviving the diminishing kapis through R&D

Story and photos by Rita T. dela Cruz

In the Philippines, *kapis* is mostly referred to as "window pane shells". It is also being used in making lampshades, chandeliers, decorations, handicrafts, and *parol*. Although greatly valued for its translucent shells, its meat is also consumed as food turning them into delicious dishes including omelette, *adobo*, fish paste, and chips. The meat is also being converted into animal feeds. According to the Southeast Asian Fisheries Development Center (SEAFDEC), the meat of *kapis* has higher protein content (23.2 grams per 100 g fresh meat) than mussel and oyster.

In a report prepared by Ms. Gladys Resubal, aquaculturist at the Office of the Provincial Agriculturist (OPA) of Bataan, *kapis* (*Placuna placenta*) is commonly found in bays, coves, and estuaries. They feed on plankton and organic detritus and so they thrive well in muddy and sandy-muddy substratum and shallow areas (around 100 meters deep). They are highly prolific and spawn periodically. Male and female *kapis* are differentiated through the external colors of their gonad. A mature *kapis* measures between 70-100 mm. Juveniles and adult *kapis* are benthic (found at the bottom of a body of water) and sedentary (inactive).

"*Walang tapon sa kapis, lahat ay ginagamit* [There is no waste in kapis, everything is being used]," said Dr. Lilian Garcia, assistant regional director of the Bureau of Fisheries and Aquatic Resources (BFAR) in Region 3.

With the high demand for *kapis*, excessive and uncontrolled gathering has been observed over the past years causing its natural grounds to slowly diminish, thereby affecting their population in the wild. The possible depletion of the declining stocks of *kapis* became a wide concern especially among major producing areas in the country including Bataan.

Ms. Resubal mentioned that there are at least 21 natural beds of *kapis* scattered all over the country, most of them are situated in Bataan, Bulacan, Pampanga, Sorsogon, Masbate, and Negros. Due to mechanized *bancas* ("barilya") used by fishermen in collecting small shellfish ("gasang"), the natural habitat of *kapis* is being destroyed making it difficult for them to multiply. "Sila ay nawawala na. Kaunti na lang ang population ng kapis kaya dapat padamihin natin sila [They are slowly diminishing. Their population is few so there is a need to reproduce them]," she added.

Dr. Garcia shared that, commonly, *kapis* is not being cultured; gatherers just get them from the wild. "Currently, we have no assessments on the state of stocks of *kapis* in Bataan. Therefore, we have no data on their population. There are technologies on breeding

BAR prepares for the "BIG ONE"

BAR Director Nicomedes P. Eleazar (left photo) joins the rest of the BAR employees during the actual earthquake drill. PHOTOS:PLESACA&AAMURAO

In compliance with Memorandum Circular No. 79 series of 2015, the Bureau of Agricultural Research (BAR) participated in the synchronized Metro Manila-wide earthquake drill led by the Metropolitan Manila Development Authority (MMDA) and the National Disaster Risk Reduction and Management Council (NDRRMC) on 30 July 2015. The activity aimed to prepare the general public for the "Big One" - a major earthquake that may possibly occur but with no definite time when the West Valley Fault moves and could generate a 7.2 magnitude earthquake.

BAR employees carried out what they learned during a two-hour orientation that equipped them on earthquake preparedness, specifically tips and counter measures on what to do before, during, and after an earthquake. A team from BAR composed a Disaster Management Committee led by overall coordinator Mr. Roberto S. Quing, Jr., head of the Administrative and Finance Division. The committee was responsible in instructing the employees to do the *Duck, Cover, and Hold* position and in guiding them to the exit routes leading to the evacuation area.

Prior to the conduct of the drill, an orientation was held on 27 July 2015 at BAR. Mr. Ronnie G. Lazana, training officer from the Marikina City Disaster Risk Reduction and Management Office (DRRMO), presented on the components of the four stages of an earthquake drill. These include: 1) planning which is key to effective disaster mitigation; 2) developing an evacuation plan to identify and test the exit routes; 3) orientation prior to the conduct of an earthquake drill; and 4) actual conduct of an earthquake drill. Mr. Lazana described the earthquake as a natural phenomenon that cannot be prevented. "It can strike quickly without warning, and can damage lives and properties. Since there is no available technology yet that can give an accurate earthquake prediction, it is very important that we prepare," he said.

Meanwhile, Ms. Jerika Lyn S. Orgil, registered nurse and training assistant from Marikina City DRRMO, discussed on "Earthquake Hazard West Valley Fault System". She mentioned the areas that are likely to be affected particularly those which are located along and within the vicinity of the West Valley Fault. Aside from ensuring structural integrity of offices and buildings, Ms. Orgil also reminded the employees to be prepared, alert, responsive, and to be of help to others. "Always remember the *Duck, Cover, and Hold* movement and do not panic," she added.

Experts say that Metro Manila and its nearby provinces will be severely affected when the "Big One" strikes. Based from the Philippine Institute of Volcanology and Seismology (PhilVOCS) Earthquake Intensity Scale, a 7.2 magnitude is considered as destructive which may cause people to find difficulty to stand in upper floors, heavy objects and furniture to overturn or topple, and old or poorly-built structures to suffer considerably damage, among others. ### ***(Anne Camille B. Brion)***

Mr. Ronnie Lazana (left) and Ms. Jerika Lyn Orgil (right) from the Marikina City Disaster Risk Reduction and Management Office serve as the resource persons for the earthquake drill orientation. PHOTOS:ABRION

It's Soy Time! showcases innovative recipes from soybean

PHOTOS:RDELACRUZ

Soya Nuggets Con Salsa of QSU

Soybean Enchiladas of CLSU

Highland Veggie Soya Roll with Squarot Creamy Sauce of NVSU

The Bureau of Agricultural Research (BAR) staged the elimination round of the first-ever soybean cooking contest dubbed as "It's Soy Time!" which will be part of the lined up activities for the 11th Agriculture and Fisheries Technology Forum and Product Exhibition (NTF). The elimination round was held on 23 July 2015 at the BAR Lobby.

BAR-Technology Commercialization Division (TCD) Head Anthony B. Obligado opened the activity with a message. "BAR takes pride in hosting this event. This is a clear visualization of how far the soybean program has reached. As part of the continuing efforts to further promote the production, processing, and utilization of soybean in the country, hence, building a competitive industry, BAR, together with the High Value Crops Development Program (HVCDP), regularly conducts activities to further strengthen the implementation of the programs and projects in line with its initiatives," he said.

He further encouraged the participating state universities and colleges (SUCs) in their involvement in the soybean program. "To all our partner-SUCs present today, may our partnership and commitment to soybean not end in this cooking contest but furthermore, we look forward to your active involvement in the production, utilization, processing and marketing aspect of the soybean program, as well as to other programs and initiatives of the Department of Agriculture," he added.

Ms. Rose Mary G. Aquino, chairperson of the Soybean Technical Working Group, presented a briefer of the Soybean Program for the information of everybody.

Emerging as finalists for the cooking contest were: 1) *Soybean Enchiladas* of the Central Luzon State University, 2) *Highland Veggie Soya Roll with Squarot Creamy Sauce* of the Nueva Vizcaya State University, and 3) *Soya Nuggets Con Salsa* by Quirino State University. The winning soybean recipes will join the final round during the 11th NTF on 8 August 2015 at SM Megamall.

The panel of judges were composed of Ms. Virginia L. Agcopra, BAR technical adviser; Dr. Andrea Agillon, BAR IP expert; Mr. Obligado; Mr. Johnrein A. Morata, assistant manager of Chef Paul's Restaurant; and Ms. Karla Crisle L. Dumandal, manager of Chef Paul's Restaurant.

Other participating SUCs were the Bulacan Agricultural State College (*Mr. Bean Balls with Sauteed Veggies*); Pampanga State Agricultural University (*Soybean Stuffed Chicken Legs with Side Dish Soybean Flavored Pasta*); Tarlac College of Agriculture (*Soya Nuggets Ala Curry*); and University of Rizal System (*Soya De Lomi*). Students were joined in by their respective coaches and fellow students during the elimination round.

BAR Technical Adviser Virginia L. Agcopra officially closed the activity. Serving as masters of ceremonies were Mr. Wilbert Newton T. Pollisco and Ms. Jennilyn J. Castañeto of TCD who also discussed the mechanics and provided an orientation for the competition.

Since 2011, BAR and DA-HVCDP have been supporting more than 90 soybean projects implemented by various R&D implementing agencies including DA staff bureaus and attached agencies, Regional Integrated Agricultural Research Centers (RIARCs), SUCs, and the private sector.

In 2013, BAR launched the *"Healthy Cooking with Soybeans"*– a soybean recipe book featuring soybean-based food products, appetizers, main dishes, pastries, and desserts using soybean as the main ingredient. *It's Soy Time!* soybean cooking challenge aims to promote the locally-produced organic soybean for food. The activity is designed to develop new recipes from soybean that are original, healthy, affordable, and delicious. ###

(Ma. Eloisa H. Aquino)

(L-R) Bath soap, body lotion, and facial cream are among the products developed using *G. multiflorum* as an ingredient.
PHOTOS COURTESY OF EMARFORI/UPLB

The project seeks to increase the recognition of **orchids** as an alternative source of **antimicrobials** and **antioxidants.**

and *Listeria innocua*, among others. *Gastrodia elata* is used to relieve headache and fatigue and to treat allergies. Several *Dendrobium* species become the primary ingredients of a Chinese product called 'Shihu' which is used as remedy for indigestion, rehydration, anti-pyretic, stomach and lung cancer, among others. There are plenty of orchid species which have been proven to have medicinal properties. Dr. Marfori mentioned that it is time for the country's endemic orchids to be explored for their other uses especially on health and wellness.

In the study of Dr. Marfori, he collected 46 Philippine indigenous orchid species in the Laguna province and subjected them to antimicrobial and antioxidant screening.

Based on the antimicrobial bioassays, all orchids showed differing activity against microbial strains that include *E. coli*, *R. solanacearum*, *S. aureus*, *B. subtilis*, *C. tropicalis*, and *S. cerevisiae* but no species reacted against *F. oxysporum* and *A. niger*. The leaves of *Grammatophyllum multiflorum* have the strongest activity against *B. subtilis* and its roots have the highest activity against *S. aureus*, *C. tropicalis*, and *S. cerevisiae*. The roots of *Dendrobium fernandii* have the highest activity against *S. aureus*. Three species of *Phalaenopsis* have the highest activity against *R. solanacearum* while *Dendrobium ladda* has the highest activity against *E. coli*.

On the other hand, the result of antioxidant assay showed that most orchid extracts have remarkable antioxidant activity. The flowers of *G. multiflorum* have the most remarkable free-radical scavenging activity. The study noted that the flowers of most orchids showed highest antioxidant activity as compared to their leaves and roots. Higher antioxidant activity was also observed on colored flower-bearing orchids than the white flowered orchids.

Out of these collected and screened orchids, three species were chosen and identified by the researcher to have the highest potential sources of antimicrobial and antioxidant compounds. These orchid species were: *Dendrobium ladda*, *Phalaenopsis amabilis*, and *Grammatophyllum multiflorum*.

As *G. multiflorum* exhibited an impressive result on the antimicrobial and antioxidant screening, it was chosen to be tested as an ingredient in product formulation that includes bath soap, body lotion, and facial cream. These products are still undergoing further refinement and testing. ### ***(Diana Rose A. de Leon)***

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ENDEMIC ORCHIDS
tapped for their medicinal properties

by Diana Rose A. de Leon

PHOTO COURTESY OF EMARFORI/UPLB

"Many of our indigenous orchids have been documented having medicinal properties but ironically until now, in our country, it is not utilized for its phytochemical properties but more on its aesthetical value," Dr. Eufrocinio C. Marfori said during the review of on-going and completed projects funded by the Bureau of Agricultural Research (BAR) under the Department of Agriculture-High Value Crops Development Program (DA-HVCDP) held on 20 July 2015 at BAR.

Dr. Marfori presented the results of a completed project titled, "Sustainable Utilization of Indigenous Philippine Orchids as Source of Antimicrobials and Antioxidants for Health and Wellness," which focuses on the development of package of technologies to harness the health-benefitting potentials of Philippine endemic orchids.

In over 1,000 orchids species found in the country, 90 percent are endemic. However, these species are facing extinction due to unsound conservation practices. This deters the exploration of other uses of orchids aside from ornamental plants as it is hard to propagate and multiply them in nature. With the tissue culture technology now being used to mass propagate orchids, Dr. Marfori is optimistic on this opportunity to increase the recognition of orchids as an alternative source of antimicrobials and antioxidants.

"In Japan, China, and India, orchids are utilized to treat ailments," said Dr. Marfori. The *Vanilla planifolia*, a variety of orchid which is the primary source of vanilla flavor, is also being used as medicine to treat nausea, improving food intake in patients receiving chemotherapy, antimicrobial against *Eschericha coli*,

Strengthening capacities for MOBILE SOIL CLINIC

BSWM staff demonstrates how to use the enhanced soil testing kit. PHOTO COURTESY OF BSWM

The Bureau of Soils and Water Management (BSWM) organized the conduct of the "Training on the Use of Enhanced Testing Kits for Soil, Water and Compost; and Soil Information Management Systems (SIMS)" on 27-29 July 2015 at BSWM Office. The training is in line with the need to capacitate those who are involved in the project titled, "The Mobile Soil Clinic: Increasing Productivity through Sustainable Soil and Water Health Management in Regions 2 and 10," which is funded by the Bureau of Agricultural Research (BAR).

In the message of BAR Director Nicomedes P. Eleazar, as delivered by Ms. Melissa A. Resma, head of the BAR-Information Management Unit, he mentioned that farmers will benefit the most from the project as they will have better access on an ICT-enabled mobile soil health clinic that can provide them soil testing services, soil health advisories, and site-specific nutrient management (SSNM) recommendations. "With this kind of information at hand, not only are they ensured that their agricultural investment would yield profit through science-based recommendations, but also of a productive soil and agriculture for the future generations," he furthered.

As the project aims to bring in and to optimize the use of new technologies in soil health management, the project will also introduce the use of ICT-enabled mobile soil health clinic which has ready-to-use test kits, and web-based application software for offsite data processing.

The BSWM has already acquired enhanced soil test kits (eSTK) which have the capability to screen pH range, organic carbon, nitrate nitrogen, ammoniocal nitrogen, available phosphorous, available potassium, magnesium, and available sulphur. The water test kit can screen the pH range, total hardness, total chlorides, and total alkalinity. On the other hand, the compost test kit has testing parameters like carbon dioxide evolution, ammonia evolution, and volatile organic acids and electrical conductivity. The data gathered from the testing kits will be linked and consolidated using a data management system called "Soil Information Management System" (SIMS) which will be the repository of data analysis and will provide soil health records for the farmers.

The participants were given hands-on training on the use of the test kits and SIMS. A workshop was also included in the training as the participants were asked to develop programs and mechanisms for field implementation, as well as to develop protocols on application of eSTK. The test kits are scheduled to be turned over to Regions 2 and 10 in August. ### ***(Diana Rose A. de Leon)***

BAR sets directions...from page 2

group on the merits of the concluded CPAR Assessment held in May 2015.

Ms. Marjorie Mosende, assistant head of the Institutional Development Division (IDD), shared the highlights of the 4th Scholar's Fellowship Night. The activity was a tribute for the success of the bureau's Degree Scholarship Program.

Mr. Patrick Raymund A. Lesaca of the Applied Communication Division (ACD) shared the updates on the R&D Compendium, while Mr. Ryan Abrigo also from ACD, presented the social media campaign aspect of the bureau.

Ms. Melissa Resma, head of the Information Management Unit (IMU), shared its initiative on the installation of a "help desk", a queuing system that will immediately address all IT-related concerns.

Mr. Robeto Quing, Jr., head of the Administrative and Finance Division, tackled on finance and administrative concerns and highlighted on earthquake and fire preventive measures. Mr. Quing said such measures will be undertaken to ensure the emergency readiness of the bureau.

Ms. Cynthia Remedios de Guia, assistant head of PPDD, served as facilitator and moderator for the activity.

Assistant Director Teodoro S. Solsoloy, in his closing remarks, mentioned that "effective planning is the key to success of the organization". He concluded that as long as the staff members continue to plan and work together, there will be a harmonious relationship among the group. ### ***(Patrick Raymund A. Lesaca)***

BAR joins 3rd Farm Tourism Conference

(L-R) Ms. Eliza Aquino (UPLB-EL Team), Ms. Evelyn Juanillo (BAR-Office of the Director), President Mina Gabor (International School of Sustainable Tourism), and Ms. Charito Balladares (UPLB-EL Team)

PHOTOS: NDELROSARIO&LBARRAL

BAR booth features different R&D products and technologies generated from its supported researches such as Arius, Queen Pineapple, soybean, and edible landscaping, among others.

Realizing the advantages and potentials of community-based and sustainable farm tourism in the Philippines, and as part of the 2015 International Year of Soils (IYS) celebration, the 3rd Farm Tourism Conference was held on 1-3 July 2015 at Batis Aramin Hotel and Resort, Lucban, Quezon. Organized by the International School of Sustainable Tourism (ISST), in cooperation with the Municipality of Lucban, Province of Quezon, Department of Tourism (DOT), and the Department of Interior and Local Government (DILG), the activity carried the theme, "Healthy Soils for a Healthy Life".

In attendance were farmers, entrepreneurs, government workers, and other stakeholders mostly coming from the agriculture, business, and government sectors particularly from the Local Government Units (LGUs) and tourism offices.

As one of the sponsors of the event, the Bureau of Agricultural Research (BAR) joined in the event by exhibiting R&D products from its funded initiatives. Among the featured products and commodities included *Arius*, an endemic fruit in the Batanes Province; soybean products from Nueva Vizcaya; Queen Pineapple from the Bicol Region; *kapis* products from Bataan; and fruit wines from Laguna, Isabela, Batanes, Bukidnon, and Pampanga.

Also exhibited in the BAR booth was the Edible Landscaping (EL), a technology developed by the University of the Philippines Los Baños (UPLB). It is also linked to agritourism as it encourages home-based organic vegetable planting, raises food security, and aesthetically enhances the environment.

Information, Education, and Communication (IEC) materials were also distributed to the participants for their references. Special publications such as soybean and tilapia recipe books; EL Starter Kit; and coffee

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UPLB, PSAU R&D facilities...from page 1

established to promote the postharvest technologies developed by UPLB while the BRL focuses on conducting researches that make use of biomass as an alternative energy source.

Dr. Josephine U. Agravante, head of the PHTRC, expressed her gratitude to BAR for supporting the project which was a brainchild of Professor Emeritus and Project Leader Edralina P. Serrano and their team 18 years ago. On the other hand, Prof. Rex B. Demafelis, head of BRL, said that with the new facility, their researchers have gained additional confidence in producing biofuels R&D outputs.

Meanwhile, Mr. Anthony B. Obligado, OIC head of the Technology Commercialization Division (TCD) of BAR visited the Pampanga State Agricultural University (PSAU) for the inauguration of the Nutraceutical Research Laboratory (NRL).

Dir. Eleazar gave relevance to the NRL as an R&D facility that is needed to advance BAR's Indigenous Plants for Health and Wellness Program. Meanwhile, Dr. Honorio M. Soriano, Jr., president of PSAU, shared his words of gratitude to BAR for supporting their initiative. He added that the building was completed ahead of schedule and is now fully operational.

"We are happy to inform you that the establishment of the building and acquisition of equipment were completed in only 90 days," said Dr. Emelita C. Kempis, vice president for Research, Extension and Training of PSAU. "The laboratory, headed by Dr. Geraldine C. Sanchez, project leader of NRL, has been permitted to operate as an animal model research facility from the Bureau of Animal Industry. Recently, the Philippine Rice Research Institute initiated collaboration with us on elucidating the health benefits of germinated brown rice among animal models," she added.

The R&D facilities were funded through BAR's Institutional Development Grant (IDG). It is a fund support awarded to R&D institutions in the form of a grant to efficiently and effectively implement and manage R&D programs/activities in agriculture and fisheries. The IDG aims to improve the quality of research outputs through state-of-the-art facilities and laboratory equipment.

(Jacob Anderson C. Sanchez)

KNOWLEDGE MANAGEMENT:

Harnessing an organization's most valuable asset

by Rita T. dela Cruz

Knowledge is an important resource and an organization's most valuable asset. But knowledge is futile without its source and ultimate manager—the people.

Knowledge Management (KM) is based on the premise that an organization's most valuable resource is the knowledge of its people. Therefore, how well an organization performs depends on how effectively knowledge is being developed, captured, and shared proficiently by its people to achieve the agency's objectives. It involves managerial activities that focus on developing and controlling knowledge within the organization to achieve its objectives.

Research and Development (R&D) is a knowledge-intensive sector that requires an effective KM program that will not only manage knowledge generated from its research, but mostly to convert knowledge into high-valued asset that can be used by its intended beneficiaries to improve both production and profitability.

As the R&D arm of the Department of Agriculture (DA) that is tasked to coordinate all agriculture and fisheries R&D initiatives, it is crucial for the Bureau of Agricultural Research (BAR) that information and knowledge generated from its funded R&D activities are being effectively managed in such a way that capturing, sharing, and reusing become easy both for the organization and the stakeholders. Effectively managing knowledge from R&D creates value by reducing the time and expense of trial and error or reinventing the wheel.

Although KM started among private organizations, its benefits are far reaching in the public sector, particularly those in the arena of policymaking and service delivery. But the benefits of KM is hardly being reaped, and in most cases, not fully optimized. Either people lack the awareness of KM as a practice or they are aware of the practice but do not know that what they are doing is already within the turf of KM.

Philippine participants of the conference, "Knowledge Management, Learning, Information Technology," are (L-R) Ms. Rita T. dela Cruz (DA-BAR), Ms. Julia A. Lapitan (DA-BAR), and Dr. Lope B. Santos III (SEARCA). PHOTO COURTESY OF RDELACRUZ

Supportive to the need for KM to be better understood on various perspectives and across various sectors, an international conference on KM was held at the University of Katowice, Poland. Now on its third year, the conference titled, "Knowledge Management, Learning, Information Technology," explored on why KM is a crucial resource for the development of the economy, business, society, and even on a personal development. More specifically, it addressed a sectoral and multi-disciplined approach to achieving organizational objectives as a result of learning process, learning in schools, learning by doing, self-learning life, and life learning. It also discussed how KM can be used in business, enterprises, public administration, and individuals to achieve economic, social, culture, and political and personal goals and success.

The conference was attended by around 70 participants from 12 countries including Canada, Georgia, Bulgaria, Serbia, Slovenia, South Africa, Philippines, Poland, Russia, Israel, and USA. Participants from the Philippines were staff members of the Department of Agriculture - Bureau of Agricultural Research (DA-BAR) and Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA). They were: Ms. Julia A. Lapitan and Ms. Rita dela Cruz, head and assistant head, respectively, of the Applied Communication Division of DA-BAR; and Dr. Lope B. Santos III, program specialist and officer in charge of SEARCA's Project Development and Technical Services (PDTS).

Highlighting the conference were keynote lectures on specific, relavant topics as well as series of simultaneous study presentations on KM.

Among the topics presented were on Women's Empowerment and Social Technologies; User and Usability Aspects of KM; Organizational and Interorganizational KM; Innovative KM Educational

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PHOTO:ABRION

DA-RFO 5 strengthens partnership with the Philippine Army

Armies and soldiers are often associated with defense. In the Bicol Region, the Philippine Army is also found in the agriculture scene.

On 13 July 2015, the 565 Engineer Construction Battalion (ECB) under the 51st Engineer Brigade of the Philippine Army recognized the valuable contributions and unwavering support of the Department of Agriculture–Regional Field Office (DA-RFO) 5 through the Bicol Integrated Agricultural Research Center (BIARC) in the conduct of its activities.

BIARC Manager Luz Marcelino, received the "Civilian Partner Award" in recognition of the research station's assistance in the Army's National Greening Development Program in the region through the provision of technical assistance, conduct of capacity building activities, and distribution of initial seedlings. Recently, the Army also appointed Ms. Marcelino as a Multi Sectoral Advisory Board Member for agriculture to strengthen its partnership with the DA-RFO 5 headed by Executive Director Abelardo Bragas. This was due to the unique approach exemplified by Ms. Marcelino in pursuit of partnership building in agriculture and collaborating with different stakeholders.

Since 2003, BIARC has been tapping the Army in mobilization and clearing efforts concerning agricultural activities. Physical developments in the research station were done through the provision of skilled enlisted personnel and equipment that generated about 35-40 percent savings in labor and rental activities. In addition, BIARC also sought the help of the Army in reaching far-flung communities and barangays in the distribution of farm inputs.

According to Lieutenant Colonel Roel Donato Payabyab, commanding officer of the 565 ECB, the partnership and collaboration of the Army with the DA strengthened when they were introduced to the Palayamanan Program and Community-based Participatory Action Research (CPAR) projects. "It has benefitted our farmers and fisherfolk especially those in the remote areas. We provided construction assistance to the DA in such projects. Until now, we continue to strengthen our linkage with them by assisting in the construction of seed banks for the community and lending them with heavy equipment for mobilization activities," Lt. Col. Payabyab shared.

In return, BIARC shared farming technologies and provided agricultural inputs for the Army's livelihood programs. Retiring and active personnel in the Army were capacitated through seminars and trainings on organic fertilizer production; vegetable gardening;

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Innovative products from BAR's R&D featured in 2015 NSTW

As the research arm of the Department of Agriculture (DA), the Bureau of Agricultural Research (BAR) participated in the National Science and Technology Week (NSTW), a major event of the Department of Science and Technology (DOST), held on 24-28 July 2015 at the SMX Convention Center in Pasay City.

With this year's theme, "Philippines: A Science Nation Innovating for Global Competitiveness," NSTW aimed to feature world class innovation technologies from the science and technology (S&T) sector in support to the ASEAN Economic Integration.

This year's NSTW highlighted the eight S&T-based outcomes for agriculture, enterprise development, industry competitiveness, IT-Business Process Management (IT-BPM), e-Government, quality healthcare, education, and disaster preparedness that will lead the country towards national development and global competitiveness.

In line with this year's theme, BAR highlighted products and technologies from successful R&D projects developed by the University of the Philippines Los Baños-College of Veterinary Medicine's first local study on the therapeutic application of local bee propolis as rapid and effective wound healing agent; the National Institute of Molecular Biology and Biotechnology's (BIOTECH) study on Philippine *Actinobacteria* for natural organic insecticide through utilization of coconut waste, and utilization of banana peduncle fiber and juice as useful value-adding products; Central Luzon State University's (CLSU) Nile Tilapia strains for Aquaculture; and Department of Agriculture-Cagayan Valley Research Center's GOURMix, which was hailed as the Best Innovative Product during the 2014 Agriculture and Fisheries Technology Forum and Product Exhibition.

Sample products of propolis alginate dressing, GOURmix packs, banana peduncle fiber boards and paper were displayed at the BAR booth area. For effective information dissemination, Information, Education, and Communication (IEC) materials such as brochures, flyers, BAR Chronicle, and BAR R&D Digest were also distributed to the visitors who were mostly students, academicians, researchers, professionals, and the general public. To attract more visitors, BAR staff members provided freebies including the distribution of tilapia and soybean recipe books as raffle prizes.

PHOTOS:NDELROSARIO/RBERNARDO/LBARRAL

Aside from booth exhibits, other activities included technology fora and demonstrations, interactive learning activities, and other special events. ### ***(Liza Angelica D. Barral)***

BAR joins 3rd Farm...from page 6

table books, including *Channels of Progress: Bringing Innovations Closer to People* were also provided as raffle prizes. Other activities in the event included plenary sessions and farm visit to Costales Nature Farm in Majayjay, Laguna.

The opening program was attended by Lucban Mayor Celso Olivier Dator who welcomed the guests and participants. Meanwhile, Dr. Mina Gabor, president of ISST, delivered her opening remarks by thanking the Municipality of Lucban for hosting the event and by providing the salient accomplishments of the previous farm tourism conferences held in Negros Occidental and Camarines Sur.

Other guests of honor were: Food and Agriculture Organization Representative in the Philippines Aristeo Portugal and Dr. Andrew Gazmen of the Department of Agriculture-Agricultural Training Institute (DA-ATI) who represented DA Secretary Proceso Alcala.

Senate Committee on Agriculture and Food Chairperson Senator Cynthia Villar delivered her keynote message expressing her continuous support to farm tourism by pursuing the Farm Tourism Act. With conviction, she mentioned that farm tourism will be the major contributor in bringing back the glorious days of agriculture. ### ***(Liza Angelica D. Barral)***

PHOTO:LBARRAL

BAR's regional seminar series goes to Romblon

Also known as Marble Island, the province of Romblon is located in the MIMAROPA Region with its three main islands, namely: Tablas, Romblon, and Sibuyan. Aside from marble-making, the people of Romblon also engage in agriculture and fisheries as their main source of livelihood. Various agricultural crops including coconut, rice, corn, bananas, root crops, and fruit trees make up majority of the farming system in the island.

On 28-29 July 2015, the Applied Communication Division (ACD) of the Bureau of Agricultural Research (BAR) and a team from the University of the Philippines Los Baños (UPLB) went to Romblon State University (RSU) in Odiongan to conduct its Regional Seminar Series on Edible Landscaping (EL) and SNAP Hydroponics. The participants were mostly students and faculty members from RSU; agriculturists and agricultural technologists from the Local Government Units (LGUs), Municipal Agriculturist Office (MAO), and Office of the Provincial Agriculturist of the Government (OPAG); teachers from the Department of Education (DepEd)-Odiongan South District; and jail officers from Odiongan District Jail.

Dr. Arthur R. Ylagan, RSU vice president for Research, Development and Extension (RET), welcomed the participants, resource speakers, and BAR staff members. Dr. Elvin Gaac, RSU vice president for Academic Affairs, gave his opening remarks by emphasizing the importance of EL and SNAP Hydroponics technologies. To fully orient the participants on the roles and mandates of the bureau, Ms. Julia A. Lapitan, OIC-head of ACD, presented the BAR Primer.

Presenting the brief history and definition of EL was Ms. Maria Charito E. Balladares from the UPLB-EL Team. Meanwhile, Mr. Bryan V. Apacionado and Ms. Eliza C. Aquino also from UPLB-EL Team, discussed on the principles, elements of design, and the implementation phase of EL.

Series of group activities were conducted in order for the participants to be familiarized with the three phases in EL, namely: design, implementation, and maintenance. As their final output, two groups composed of DepEd Odiongan South District and LGU, OPAG, MAO, and Odiongan District Jail implemented small EL gardens located in front of the Chemistry Building.

Meanwhile, Mr. Ricardo Bernardo of ACD presented the SNAP Hydroponics through a video presentation. He demonstrated how to create proper medium using PET bottles, coffee cups, and Styrofoam boxes. The participants were able to prepare their own medium through hands-on training.

During the closing ceremony, 10 EL kits were given as raffle prizes and reproduced kits were also distributed per institution.

RSU officials are now very eager to revive the RET services of the academe through the conduct of R&D projects as well as extension and training activities in collaboration with BAR, LGU, and DepEd. After watching the BAR Primer, some of the RSU officials at RET were already aware of the respective researches that can be funded by the bureau in the near future.

As per the implementation of EL in Romblon Island, Mr. Juniel Lucidos, RSU director for Extension Services, explained that they are going to collaborate with LGU and DepEd for the full implementation of EL through the establishment of technology demonstration areas per municipality. ### ***(Liza Angelica D. Barral)***

UP scientists find weed as potential source of antioxidants

PHOTO COURTESY OF IPUZON/UPDILIMAN

Slender carpet weed *Glinus oppositifolius* (L.) or locally known as *Sarsalida* or *Malagoso*, a common weed that grows at low and medium altitudes throughout the country, has been found to have plenty of therapeutic value, according to a study conducted by Dr. Juliana Janet R. Martin-Puzon and Dr. Windell L. Rivera of the Institute of Biology, College of Science, University of the Philippines (UP) Diliman. The plant, belonging to the family *Molluginaceae*, is a slender or ascending, smooth, branched, annual herb with branches 10-40 centimeters long.

The study titled, "Free-Radical Scavenging Activity and Bioactive Secondary Metabolites from Various Extracts of *Glinus oppositifolius* (L.) Aug. DC. (*Molluginaceae*) Roots, Stems and Leaves," which was published in the *Asian Pacific Journal of Tropical Disease*, a well-renowned academic communication platform for the rest of the world on tropical medicine and other related fields, reported that *G. oppositifolius* has therapeutic benefits in traditional medicine. Among them include its analgesic, antidiabetic, anti-hyperlipidemic, antihelminthic, antidiarrhoeal, diuretic, antimalarial, antiviral, antimicrobial, and antioxidant properties.

The shoot of *G. oppositifolius* is eaten occasionally as a vegetable even though it is bitter on account of its stomachic, aperient, and antiseptic properties. The whole plant, without the roots, is used as a cooked cataplasm in dyspepsia in children and as an infusion to promote the menstrual discharge in women. It is used as a blood purifier and liver stimulant. It can also improve digestion and can cure burning sensation, itchiness, and other skin ailments.

The experts from UP reported that the antioxidant activity of various solvent (ethanol, methanol, chloroform) extracts come from different parts of *G. oppositifolius*, including its roots, stems, and leaves. The results of the antioxidant assay showed that all the plant extracts exhibited free-radical scavenging activity. Phytochemical screening revealed the presence of bioactive metabolites namely alkaloids, flavonoids, glycosides, saponins, sterols, tannins, and terpenes in ethanol, methanol, and chloroform extracts from the roots, stems, and leaves of *Glinus oppositifolius.*

The findings demonstrated the great potential of this weed as a new source of food supplements, drug components, and other materials or ingredients for health and wellness. The study, according to Drs. Martin-Puzon and Rivera, is the first report on the antioxidant activity and phytochemical constituents of crude extracts from different segregated parts of *G. oppositifolius,* i.e., roots, stems, and leaves obtained using ethanol, methanol, and chloroform as solvents.

These findings were parts of a postdoctoral research titled, "Antimicrobial and Antioxidant Properties of *Glinus oppositifolius* (L.) Aug. DC. (synonym: *Mollugo oppositifolia* L.), a Promising Source of Bioactive Metabolites," with Dr. Rivera as the program manager and host scientist. This research was funded under the Postdoctoral Research Fellowship Grant for Basic Research in Agriculture and Fisheries of the Bureau of Agricultural Research (BAR) and was hosted by the Natural Sciences Research Institute of UP Diliman.

Antioxidants are compounds which have the ability to scavenge or trap free radicals. Studies on finding antioxidant phytochemicals are significant because they can inhibit the propagation of free-radical reactions and protect the human body from metabolic diseases due to oxidative stress such as DNA damage, carcinogenesis, and degenerative disorders such as cardiovascular diseases, aging and neuro-degenerative diseases, atherosclerosis, and rheumatoid arthritis.

Many studies revealed vast number of plants with antioxidant capabilities. However, the antioxidant potential of the different parts of *Glinus oppositifolius* plant remains unexploited. Plants are rich sources of bioactive substances such as alkaloids, flavonoids, glycosides, saponins, sterols, tannins, terpenes, and other metabolites with antioxidant activity. Various reports have shown that many of these phytochemical compounds possess antibacterial, antifungal, antiviral, antiprotozoal, antihelminthic, antidiarrhoeal, anticarcinogenic, anti-inflammatory, antiartherosclerotic, and antidiabetic activities. ### ***(Patrick Raymund A. Lesaca)***

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