BAR monitors 2 on-going...from page 7

was also done to educate coconut farmers on proper management and conservation of bees which now totaled to 115 bee trainings conducted. Bee colonies were dispersed to project cooperators and demo-apiaries were established. However, some of bee colonies dispersed, specifically imported bees, died due to pests and diseases and improper management. Contingency plan was done to solve those issues.

Mr. Froilan showed colonies of stingless bees located at the campus. The team also noticed some bee hives of *A. mellifera* colony which has been totally wiped out due to bee mites. Mr. Alex Fajardo, microbiologist from UPLB, collected brood sample from the bee colony for laboratory analysis and taught the bee cooperators proper cleaning of bee hives.

Production and management of multi-bee species for livelihood and pollination

The LGU Batac project generally aims to expand the existing project in the city and to explore the potential of native bees for mass propagation by: 1) establishing a model apiary of *Apis mellifera, A. cerana* and *trigona spp* for training, research, extension and venue for educational tour and tourism; 2) training of farmers on the production and management of multi-species for livelihood and pollination of HVCC; and 3) quantifying the increase of fruit and seed set of cross pollinated plants utilizing multi-species in pollination.

Ms. Gappi presented the accomplishments of their on-going project. The presentation was attended by several project beneficiaries of Colo and Sumader, Batac City. To date, a survey was done for the selection of apiary sites. A total of two demo apiaries were established. Trainings on bee production and management, processing of apiary products, product labeling and packaging, and queen rearing were done which benefited 30 beekeepers. Honey bee products made by cooperators were also presented to the team.

After the presentation, the team went to one of the project sites. The Colo and Sumader Beekeepers Association showed their demo-apiary mostly composed of imported bees. They are also practicing vermiculture by producing vermicast as fertilizers for their organic bee forage area. ### ***(Patrick Raymund A. Lesaca)***

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BAR initiatives featured...from page 9

partnership, the BIO-N, a microbial inoculant for rice, corn, and other crops that contains nitrogen-fixing bacteria. The Bureau of Agricultural Research (BAR) has provided funding support for this initiative together with other government agencies and private institutions, particularly for its commercialization. BIO-N has been adopted by the private sector and is now available in the market.

During the open forum, one of the issues raised was the insufficiency in number of agriculturists in the country. In response, CA Dean Dr. Domingo A. Angeles mentioned to the group, the partnership between the university and BAR to extend scholarship grants on students who will pursue agriculture majoring in entomology, plant pathology, and soil science, and agri-biotechnology. This serves as a venue to encourage more students and consider taking agriculture as a profession.

Other speakers invited were: Dr. David Robert Morpeth, general manager of ALLTECH Philippines who discussed the topic "Think Globally, Act Locally"; and Mr. Ricardo C. Alba, president and CEO of UNAHCO Inc. who shared his view on "*Bayanihan* through Private-Public Partnership". ### (***Diana Rose A. de Leon***)

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BAR joins Nat'l Women's Month

The Bureau of Agricultural Research (BAR) took part in the celebration of the National Women's Month. This year's theme "*Juana, ang Tatag Mo ay Tatag Natin sa Pagbangon at Pagsulong*!" reflects and honors the resiliency, strength, and contributions of women to progress.

As a kick-off activity, the human formation of gender's symbol which aimed to get the Guinness World Record for the highest number of participants forming the woman's symbol was organized. BAR staff joined more than 10,000 delegates representing government agencies, academic institutions, private sector and civil society groups, to assemble and gather at the Quirino Grandstand and make this historical undertaking possible.

Other activities lined up for this month-long commemoration included the awarding of the most outstanding gender-responsive government agency at the national level, a photo exhibit featuring Filipino women in different situations, among others.

Likewise, BAR prepared several activities in observance of the women's month. One of these was a photo exhibit at the BAR's lobby capturing the women in the field of research and development (R&D) underlining their significant contributions in the progress of agriculture and fisheries R&D.

BAR Director Nicomedes P. Eleazar, together with Asst. Director Teodoro S. Solsoloy, Southern Tagalog Integrated Agricultural Research Center (STIARC) Manager Digna Narvacan, and Eastern Visayas Integrated Agricultural Research Center (EVIARC) Manager Elvira Torres, led the ribbon-cutting ceremony and opening of the photo exhibit. Twenty three women in R&D were featured in the photo exhibit including the Regional Integrated Agriculture Research Centers (RIARCs) managers, and prominent scientists and researchers in the country.

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BAR Director Nicomedes Eleazar (5th from left) leads the ribbon-cutting ceremony and opening of the photo exhibit. He is joined by (L-R) Finance Unit Head Roberto Quing, Jr., Assistant Director Teodoro Solsoloy, STIARC Manager Digna Narvacan, and EVIARC Manager Elvira Torres. PHOTO:ABRION

As part of the celebration, BAR features women in research and development (R&D) through a photo exhibit at the lobby area.

BAR staff joins other delegates from different agencies and institutions in the human formation of gender's symbol at the Quirino Grandstand. PHOTO:DDELEON

IN THIS ISSUE...

BAR-NVSU fruitful partnership highlights Dr. Eleazar keynote address

BAR Director Nicomedes Eleazar cites the collaborative projects of the bureau and NVSU in furthering the agri-fishery research and development in the country. PHOTO:MEAQUINO

With the theme, *"A decade of fruitful partnership and bountiful harvest,"* the Nueva Vizcaya State University (NVSU) celebrated its 10th Charter Anniversary on 20 March 2014 at NVSU-Bayombong Campus. Bureau of Agricultural Research (BAR) Director Nicomedes P. Eleazar served as the event's guest of speaker.

"Bountiful harvest is a bottom up approach wherein farmers, university researchers, local and executive officials including BAR, business people and end-users themselves are brought together to work on new ideas resulting in improved agricultural practices. Furthermore, bountiful harvest is a depiction of agricultural abundance and in meeting the food requirement of the people in a secured and sustainable manner. It is also the end result of a shared vision of creating the right environment for innovation to thrive. In the future, we will be looking for even greater synergies based on forged partnership," said Dir. Eleazar.

In his message, he stressed the value of closely working together, partnership and the needed close coordination at the regional and university level. "The bureau and the university have a clear goal of helping the low-income communities and assisting farmers achieve the gains of the land they till. This also provides an opportunity in making a difference not only to farm workers, but more importantly to the younger generation who will eventually continue the legacy of progress," Dr. Eleazar added.

The bureau chief regarded the theme as timely considering the government's effort in strengthening the economy, "stemming significantly from maximizing the potential of the agriculture and fishery sector, empowering the farmers and fisherfolk and in engaging the active partnerships of the academe as collaborators of progress."

He likewise commended the top leadership of NVSU as it plays a crucial role in the formative years of its students, hence, inculcating the right values, nurturing a culture of excellence and cooperation.

Highlighted in his speech are three BAR-NVSU projects, which made the partnership more fruitful. Among these initiatives are on production of citrus disease-free planting materials, utilization of package of technology for pigeonpea, and organic production systems for lowland rice and eggplant-garden pea in Nueva Vizcaya.

Joining Dr. Eleazar were Mr. Anthony B. Obligado, head of BAR-Technology Commercialization Division; and Ms. Evelyn H. Juanillo, executive assistant from BAR-Office of the Director.

Dr. Loreta Vivian R. Galima, campus administrator, NVSU-Bayombong Campus, gave the opening remarks while Dr. Florentina S. Dumlao, NVSU president, conveyed her "State of the University Address" to the crowd. NVSU is coordinating 91 research projects on various fields including crops and cropping system, fisheries, socio-economics, product

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BUREAU OF AGRICULTURAL RESEARCH

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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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elevation areas like Linut-od," said Pat. Learning much about crop production through CPAR, she is into multicropping system. "I also grow cabbage, sweet potato, spring onion, but mainly, I plant carrots."

All her harvested carrots are being marketed in the city or the nearby localities. Those that she calls "reject carrots", they eat. "I market all my produce locally. Someone gets my harvests directly from my farm, I sell them and they were the ones who sell them in the market. The price from which my carrots are being bought is the same as those being sold in the Carbon Cebu City Market. My carrots then become instant cash," Pat said.

"After 3-4 months, I can harvest the carrots. On the average, I harvest around 100-150 kilos (one parcel/box) which costs around P20-25 a kilo. Sometimes the carrots can go as low as P10 per kilo or as high as P30 per kilo depending on the market demand. After carrots, cabbage, sweet pepper (for salad), chili pepper. We plant spring onions for family consumption," she happily reported.

When asked about her production cost, she proudly said, "I don't put chemical fertilizer in my carrots. So it's cheap to produce. I just plant and harvest."

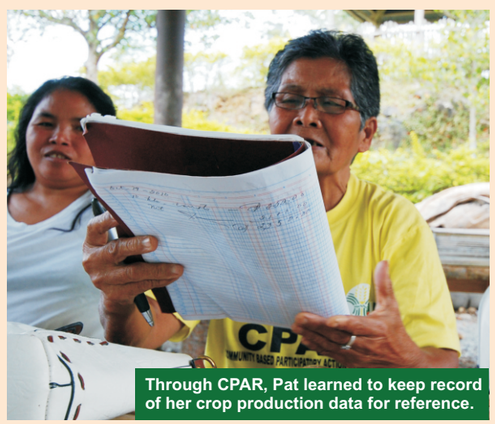
Before and after CPAR

One of the distinctive features of CPAR projects that are being implemented nationwide is that they transformed lives, both productivity- and profit-wise. Mr. Calinawan, CPAR project leader, could not agree more. "Before CPAR, farmers here in Argao have this wrong practice of replanting the hybrid seeds. They also have this impractical and inefficient method of applying fertilizer. Application is trial and error. They don't cover after they apply, they just treat it as toppings on the soil," he explained.

In terms of cropping production, Mr. Calinawan admitted that Argao farmers were mainly into rice. But when CPAR came, part of the intervention introduced required the farmers to adopt appropriate crop production on vegetables like multi-cropping and livestock integration. "Technological intervention required to adopt appropriate technologies on vegetables. Land areas are mostly sloped causing the soil to erode and uneven distribution of moisture in the soil due to the hydrology level in the upland. One component of the project is soil and water management," he added.

The most important intervention in CPAR is teaching the farmers on recordkeeping. "Before they do not keep records, they just wrote their data on the back of the calendar and then after a month go by, it's gone. It's not organized. In CPAR, farmers are taught to recordkeep everything for their reference."

On a personal level, Pat confessed how her life changed when she become a CPAR cooperator. "Before CPAR, I was just a plain housewife. Now, I have a steady source of income. Back then, we were just depending on coconuts. I harvested them every three months. Now, I alternate carrots with rice and then another vegetables so my income increased along with my production."



Through CPAR, Pat learned to keep record of her crop production data for reference.

In terms of lifestyle, Pat said "my life now is easy going. I have livelihood. Every time I need to go to the city, I can go because I now have money."

"I am so grateful about CPAR. I learned so many things about farming. I encourage my fellow farmers to do the same. Just look at my own vegetable garden and you know what I am talking about," she concluded. ###

Detecting levels of antibiotic...from page 10

aquaculture farmers will be able to use in controlling chemical residues in shrimps and milkfish production. "With the development of the capability to detect the levels of residues that is acceptable to the export market, our country can start to build up a national database on product contamination and, depending on the data that will be generated, we can institute control policies on the use of chemicals/drugs in aquaculture," added Dr. Santiago.

This three-year initiative which started in 2013 is being funded by the Bureau of Agricultural Research (BAR). Part of the project is validating analytical methods for chemical residues that are acceptable to the regulatory agencies of EU, Japan, and US; and conducting a national survey among aquaculture farms on the contamination of drug residues in aquaculture feeds of milkfish and shrimp. The information generated will be the basis for the content of the national database which can be used by the aquaculture stakeholders in making informed decisions and in crafting policies for the industry. ### ***(Rita T. dela Cruz)***

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Pat, the Carrot Queen:

From a plain housewife to a profit-earning farmer

Story and photos by Rita T. dela Cruz

Patria Zamora or simply "Pat" to her colleagues doesn't mind being called "The Carrot Queen". In fact, it makes sense because carrot, according to her, is her preferred vegetable crop. "It's the most marketable so I always plant them. They have fewer pests, they don't require too much fertilizer so they are easy to manage compared to other vegetables," explained Pat.

Pat is a farmer-cooperator in Brgy. Linut-od in Argao, Cebu, one of the sites for the project, "Community-based Participatory Action Research (CPAR) on Vegetable-based Integrated Farming Systems" which is being implemented by the Central Visayas Integrated Agricultural Research Center (CENVIARC) and the Office of the Provincial Agriculturist (OPA), Province of Cebu. Pat is also a member of the KAMALI (*Kabulugan ng mga Mag-uuma sa Linut-od*) which to date, has 40 active farmer-members.

Mr. Florentino T. Calinawan, Jr., project leader and R&D coordinator, OPA, Province of Cebu, explained that the project hopes to improve farm productivity resulting to increased income of farmers. "To do this, we must capacitate the community members with practical vegetable-based farming systems and introduce to them specific interventions not only on crop production, but also on the application of appropriate soil and water management technologies.

Pat was one of the 15 farmer-cooperators who underwent training and capacity-building on crop production management, livestock integration, integrated nutrient management, integrated pest management, and soil/water conservation and soil fertility management. They were also taught proper recordkeeping. The knowledge she gained from these technical know-how enabled Pat to capacitate herself on farming which she is now applying in her half hectare land.

The 75-year old Carrot Queen, although not a farmer by profession, has grown to like tilling the land and growing crops as time went by. Prior to being a farmer, Pat worked in an insurance company as an underwriter. After being a widow and meeting his second husband, their family settled in Argao. Farming has then become their main source of livelihood. Together with her husband, she's into farming for 32 years now.

A carrot-terrific life as a farmer

Pat did not immediately start as a farmer when she settled in Linut-od. "I was then a plain housewife. It was my husband who was into farming. Although I helped him a bit, it was not a full time job, until I learned the potential and benefits of growing crops," she revealed.

"Aside from being a low input crop, carrot grows best in high

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BAR-supported R&D facilities at CLSU inaugurated

(L-R) CLSU Pres. Ruben Sevilleja, BAR-IDD Head Digna Sandoval, Former CLSU Pres. Fortunato Battad, RM-CARES Dir. Fe Porciuncula, and Vice Pres. for Research Extension and Training Teotimo Aganon lead the ribbon-cutting ceremonies of the R&D facilities.

RM-CARES Organic Farming Center

Science & Technology Centrum

BAR Director Nicomedes Eleazar (3rd from left) visits the S&T Centrum. He is joined by BAR staff: (left) Ms. Ma. Eloisa Aquino from Technology Commercialization Division (TCD); (2nd from left) TCD Head Anthony Obligado, and (right) Ms. Evelyn Juanillo from Office of the Director.

PHOTOS:JSANCHEZ&MEAQUINO

The Bureau of Agricultural Research (BAR) graced the blessing and ribbon-cutting ceremonies for the inauguration of the Central Luzon State University's (CLSU) two newly-established facilities, namely: Science and Technology Centrum, and Ramon Magsaysay-Center for Agricultural Resources and Environmental Studies (RM-CARES) Organic Farming Training Center at CLSU, Science City of Muñoz, Nueva Ecija.

Representing BAR Director Nicomedes P. Eleazar was Ms. Digna L. Sandoval, head of the BAR Institutional Development Division. In her speech, she described CLSU as a premier university and home to a circle of alumni who hold chief roles in piloting both regional and national Agri-Fisheries R&D. "Through strengthening partnerships with key agencies, you have gained numerous achievements," said Ms. Sandoval. "The S&T Centrum and RM-CARES are some of the fruits of our partnership," she added.

Found in a picturesque and strategic location, the S&T Centrum is a techno hub of R&D outputs presented in diorama, aquaria, replica, info-graphics, and interactive kiosks. It is an ideal lecture-demo facility that can accommodate at least 25 persons who want to gain firsthand experience of the new technologies on crops, animals, aquaculture, agritech, and environment.

On the other hand, the RM-CARES Organic Farming Training Center sits at the border of an organic farm. It was established to enhance the competencies of organic practitioners and re-invigorate organic farming in Central Luzon. This facility serves as a training ground for enthusiasts who want to learn the right mix in preparing bio-fertilizers and bio-pesticides, including organic rice and vegetable production.

The two R&D facilities were made possible through BAR's Research and Facilities Development Program.

By 2016, it is envisioned that most R&D facilities in the country will be modernized through the Institutional Development Grant (IDG) to accelerate the responsive delivery of services and technological interventions.

CLSU President Ruben C. Sevilleja and Vice President for Research Extension and Training Teotimo M. Aganon extended their appreciation to BAR for being supportive of their R&D initiatives.

Other dignitaries who witnessed the inauguration were former CLSU President Fortunato A. Battad, ex-CLSU-Foundation Inc. (CLSU-FI) Director Marcelo M. Roguel, CLSU-FI Director Honorato L. Angeles, and RM-CARES Director Fe L. Porciuncula.

The blessing of the buildings concluded with the traditional tossing of coins to the participants, which symbolized abundance and greater success. ### ***(Jacob Anderson C. Sanchez)***

Eleazar keynotes UPLB's EXSCITE

Speaking in behalf of Agriculture Secretary Proceso J. Alcala, BAR Director Nicomedes P. Eleazar delivered a message during "EXSCITE, UPLB's Science Forum and Technology Exhibit" held on 4 March 2014 at the SMX Convention Center, Mall of Asia Complex, Pasay City.

In his speech, Director Eleazar said that the constant issues on poverty, insecurity, and resource depletion are being aggravated by the adverse effects of climate change. Given that, he expressed the Department's solution to the issues by increasing food production coupled with effective mechanisms for sustainable growth. "This will ensure equal opportunities for the farmers and fisherfolk in improving their standards of living through increasing their income and prospering their livelihoods and improving their resiliency against natural hazards," the bureau chief explained.

The BAR director emphasized the bureau's serious commitment in coordinating agriculture and fisheries R&D through close collaboration with its partners including UPLB. "Since the bureau was institutionalized in 1987, UPLB has been one of our pioneering R&D partners in the academe. It continuously lends us their expertise and in return, we support their endeavors in forwarding the cause of the University especially in the field of agriculture in which in the end, the results are delivered to the stakeholders and their communities." Director Eleazar added that the collaboration with UPLB is anchored with the main programs of BAR and the core programs of UPLB, among of which include initiatives on organic agriculture, climate change, biotechnology, biofuels, rainfed agriculture, indigenous plants, soybean, rubber, and apiculture.

Significant initiatives and breakthroughs were also cited by Director Eleazar as a result of R&D partnership with UPLB. "In climate change, aside from looking for new crop varieties that are adaptable to the changing climate, we have this ongoing initiative on documenting and adopting feasible indigenous knowledge for climate change adaptation," he said. Further, the BAR director mentioned that there are ongoing organic agriculture projects that aim to establish protocols on breeding native livestock and formulation of viable organic inputs. The successful bioethanol production using sweet sorghum feedstock was highlighted by the director. "Through this initiative, we were able to make a breakthrough and produce the first-ever sweet sorghum anhydrous ethanol in Southeast Asia." The bureau chief featured the R&D progress in apiculture and mentioned that "cultivation of stingless bees is now being promoted throughout the country and bee products are penetrating the market. We have also vertically integrated into postharvest processing of the high-value crops."

Director Eleazar concluded his speech by encouraging the academe to act as catalysts of change. "I am encouraging all of you here to be more proactive members of the society and help discover the paths we need to traverse to truly achieve true development." ### ***(Liza Angelica D. Barral)***

In his message, Dr. Nicomedes Eleazar, director of BAR, mentions how the bureau coordinates agri-fisheries R&D in close collaboration with its partner institutions including UPLB. PHOTO:MVALDEABELLA

EXSCITE is an exhibit that showcases R&D innovations and S&T breakthroughs from various interdisciplinary studies center and programs of UPLB. PHOTO:LBARRAL

BAR-NVSU fruitful partnership...from page 2

development, forestry, environment and natural sciences, higher education and social sciences. "The University is proud to mention that the faculty researchers work for quality outputs…. that bagged prestigious international award, in national and regional levels," she said.

In her speech, Dr. Dumlao acknowledged the trust accorded by BAR with the granted research supports in various projects like the upscaling of the Regional Vermicomposting and Vermimeal Center that supported the training and facility center in the region. "All research projects are extended to the farmers and our clients through MFO 4 known as Technical Advisory Extension Services." The BAR-NVSU pigeonpea project benefited 24 growers.

Another highlight of the event was the handing over of the cheque for the project titled "Validation and Documentation of Organic Production Systems for Lowland Rice and Eggplant-garden pea in Nueva Vizcaya". The project aimed to document local farmer's current organic and conventional practices, likewise, compare the agronomic and economic performance between the said practices.

To date, NVSU has 10,159 students reflecting a 10.90 percent increase from last year's enrollment. Out of this, 548 students are enrolled at the College of Agriculture during the second semester of SY 2013-2014. ### ***(Ma. Eloisa H. Aquino)***

NVSU to produce disease-free planting materials for citrus

PHOTO:MEAQUINO

Citrus is one of the fruit crops commercially grown in the province of Nueva Vizcaya, particularly concentrated in the highlands of Kasibu. Contributing to the province's economic development, citrus production and marketing is considered to be one of the fastest growing industries in the region.

However, the province is facing gradually declining productivity of citrus trees. While hectarage of production continues to increase, not all orchards remain to be productive due to poor management particularly of insect pests and diseases. Citrus greening and citrus tristeza virus (CTV) are major diseases aggravated by vector transmission and continuing production and use of infected planting materials.

To address the problem, NVSU through its Citrus Resources Research and Development Center is implementing the project titled "Technology on Citrus Disease-Free Planting Materials Production in Nueva Vizcaya." The project aimed to produce disease-free planting materials of various citrus species and cultivars that are commercially grown in Nueva Vizcaya. The strategy is considered to be one of the most viable solutions in managing incidence and spread of greening and virus diseases.

Through funding support from the Bureau of Agricultural Research (BAR), under its National Technology Commercialization Program (NTCP), NVSU was able to purchase the equipment for disease indexing and established the foundation block (FB), budwood increase block, and nursery in NVSU.

During the celebration of NVSU's 10th Charter Anniversary, BAR Director Nicomedes P. Eleazar, together with Mr. Anthony B. Obligado, head of BAR-Technology Commercialization Division and Ms. Evelyn H. Juanillo, executive assistant, BAR-Office of the Director, visited the PCR-based Disease Indexing Laboratory. The facility provides services to nurseries and citrus orchards and is capable of both serology and DNA-based disease detection.

"We have adapted programs designed to improve the farming conditions of our farmers and meet the needs of the citrus growers, and if taken as a whole, this will add up to the inventory of healthy planting materials. At the onset, we can now accommodate the demand for quality and premium seeds, not only for citrus, but other high-value fruits and vegetables," Dr. Eleazar said.

"The establishment of a disease indexing laboratory at NVSU will be a great resource for the growing citrus industry in Nueva Vizcaya and through the established linkage of NVSU with citrus growers association in the province, the value of disease indexing and the strategies used in disease-free citrus planting materials were advocated to clients," Dr. Elbert Sana, project leader, added.

To date, 200 citrus mother trees of various citrus cultivars are grown and maintained at the NVSU facility. A total of 5,873 budded seedlings have been produced and 1,475 were sold to clients. The mother trees are indexed for tristeza virus at least twice a year. The FB serves as sources of budwood for multiplication of planting materials. Among the cultivars are: Mandarins (Gayunan, Satsuma, Poncan, Okitsu), Orange (Washington Navel, Navelate, Navelina, Hamlin, Trovita), Lemon (Meyer), and Pummelo (Magallanes, Siamese).

Citrus growers from the municipalities of Belance, Bayombong, Villaverde, Sta. Fe in Nueva Vizcaya and Tabuk, Kalinga established new citrus orchards utilizing NVSU seedlings that sum up to 14 hectares of farm land.

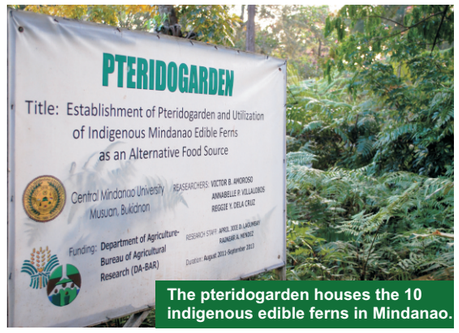
Mr. Jonathan P. Pugong, secretary of the Kasibu Citrus Growers Association, shared his gratitude to the project. "Napakalaking tulong ng proyekto sa aming mga citrus growers," [The project is a big help to us citrus growers,] he said. He hoped that through the project, infected citrus trees will be replaced with disease-free seedlings, hence, expand production.

Other BAR-NVSU projects include:1) Enhancing Agricultural Productivity and Environmental Stability of Dryland Areas in the Provinces of Nueva Vizcaya through the Utilization of Pigeon Pea Package of Technology; 2) Validation and Documentation of Organic Production Systems for Lowland Rice and Eggplant-Garden Pea in Nueva Vizcaya; and 3) Upscaling Nueva Vizcaya State University Vermicomposting and Vermimeal Production Center. ### ***(Ma. Eloisa H. Aquino)***

PHOTO:MEAQUINO

BAR Director Nicomedes Eleazar, together with Mr. Anthony Obligado and Ms. Evelyn Juanillo of BAR, visit the citrus foundation block.

Center for Biodiversity Research and Extension in Mindanao (CEBREM)



The pteridogarden houses the 10 indigenous edible ferns in Mindanao.


(L-R) Mr. Rainear Mendez of Central Mindanao University, Ms. Lorena Duna of Northern Mindanao Integrated Agricultural Research Center, Ms. Marnelie Gadong of BAR-Project Monitoring and Evaluation Division, CEBREM Director Victor Amoroso, and BAR-Applied Communication Division Head Julia Lapitan during a visit at CMU. PHOTOS:NDELROSARIO&ABRION

CMU projects visited

Located in Musuan, Bukidnon, the Central Mindanao University (CMU) is one of the active partners of the Bureau of Agricultural Research (BAR) that continuously undertakes research and development efforts towards furthering the agriculture sector. To monitor and document the accomplishments of their projects, a team from BAR and PTV 4's *Mag-Agri Tayo* visited the institution on 12 March 2014.

Protecting and conserving the remaining biodiversity in Mindanao through research, training, education and community involvement–these are the main reasons why the Center for Biodiversity Research and Extension in Mindanao (CEBREM) was established. This was made possible with funding support from BAR through its Institutional Development Grant (IDG) in 2012. The R&D facilities development program is one of the priorities of BAR that supports the acquisition of equipment, construction, and renovation of R&D facilities towards upgrading and modernization for the agriculture and fishery communities.

The CEBREM houses various equipment used for biodiversity research and extension activities including projects on Philippine *pteridophytes*, indigenous edible ferns, rainforest, vascular, and Philippine Biodiversity Information System. It has six units, namely: Biodiversity Research Unit, Biodiversity Extension and Public Awareness Unit, Biodiversity Education Training Unit, Biodiversity Laboratories and Facilities Unit, University Museum, and Mt. Musuan Zoological and Botanical Garden.

Dr. Victor Amoroso, director of CEBREM, expressed his gratitude to BAR for being an instrument in the establishment of the facility that generally aims to disseminate information on biodiversity. "We are very thankful to BAR because as you can see, the funds given to us for this facility is very well utilized. Aside from the Office of the Director, it also serves as additional office space for our personnel and as function rooms for conferences, trainings, seminars, and other related activities that will cater to our different stakeholders," Dr. Amoroso said.

The CEBREM Director also showed the team the pteridogarden located inside the university fernery which is part of the BAR-CMU collaborative project titled "Establishment of Pteridogarden and Utilization of Indigenous Mindanao Edible Ferns as an Alternative Food Source". The project is aimed at utilizing the 10 edible ferns that are indigenous in Mindanao and promoting their health and wellness benefits to the public. The garden contains the 10 edible ferns: *apat-apat, pakong-parang, lagolo* (mangrove fern), *hagnaya, pako*, *pakong kalabaw* (giant fern), *sigpang* (bracken fern), *anonotong* (tree fern), *pugad lawin* (bird's nest), and *pakong-sungay*.

A component of the project is the publication of a recipe book which provides useful information about the 10 edible fern species and the 27 unique gourmet recipes which can be made out of them. The publication is being supported by BAR through its Scientific Publication Grant. ### ***(Anne Camille B. Brion)***

Successful R&D breakthroughs featured in UPLB's EXSCITE

PHOTO COURTESY OF LBARRAL
UPLB vice chancellors visit BAR's booth exhibit. (L-R) BAR staff, Gian Carlo Espiritu of the Technology Commercialization Division (TCD), Liza Angelica Barral of the Applied Communication Division, Mara Shyn Valdeabella of the Office of the Director; BAR Director Nicomedes Eleazar, Vice Chancellor for Administration Crisanto Dorado, Vice Chancellor for Research and Extension Victoria Espaldon, and Ethcel Princess Patulot, also from BAR-TCD.

In an effort to showcase the latest science and technology breakthroughs produced by the academe, the University of the Philippines Los Baños (UPLB) held an Exhibit on Science and Technology (EXSCITE) on 4-5 March 2014 at SMX Convention Center, Mall of Asia Complex, Pasay City.

Ms. Ariella Arida, Ms. Universe 2013 3rd Runner-up and also a proud alumna of UPLB, led the ribbon-cutting ceremony and opening of exhibit together with UPLB Vice Chancellor for Research and Extension Maria Victoria Espaldon, Department of Science and Technology (DOST) Secretary Mario Montejo, UP President Alfredo Pascual, and UPLB Chancellor Rex Victor Cruz.

As one of the sponsors for the event, the Bureau of Agricultural Research (BAR) participated as exhibitor showcasing various R&D products supported through its two banner programs, Community-based Participatory Action Research (CPAR) and National Technology Commercialization Program (NTCP). Selected seeds and its different varieties like *adlai*, coffee, soybean, pigeonpea, and peanut were also displayed in the booth exhibit to promote awareness among the visitors, mostly students, on the importance of these crops. Information Education and Communication (IEC) materials including technology flyers and brochures were also distributed to serve as visitors' reference materials.

Part of the program was the presentation of R&D innovations produced by various interdisciplinary studies center and programs of UPLB on biofuels, rice, climate change and disaster risk reduction, food security, integrated natural resources and environment management, apiculture, organic agriculture, nanotechnology, natural products, industrial tree plantation, computational interdisciplinary research, instrumentation research and development, tropical forest science, agricultural mechanization development and agricultural machinery testing and evaluation.

Highlights of the closing program included the keynote address of multi-awarded broadcast journalist, Ms. Jessica Soho, wherein she encouraged the academicians to start making proactive stance instead of being passive to the needs of the sector.

The awarding of UPLB's Outstanding Personnel was also held wherein two of BAR's R&D partners, Dr. Rex Demafelis, professor from the College of Engineering and Agro-Industrial Technology; and Dr. Agnes Rola, former Dean of the College of Public Affairs and Development, were awarded as outstanding personnel in research and extension, senior researcher category, respectively. Dr. Demafelis is the research pioneer in producing the first-ever sweet sorghum anhydrous ethanol in Southeast Asia while Dr. Rola initiated a program on Collaborative Research, Development and Extension Services (CRDES) for food security. ### ***(Liza Angelica D. Barral)***

BAR joins Nat'l Women's Month...from page 1

Several documentaries and film showing activities were also shown for the viewing of BAR staff depicting relevant gender-related issues such as misrepresentation of women in media, abortion, among others. Ms. Aireen Andal, instructor from the Department of Sociology, University of the Philippines Diliman, gave a thorough analysis of what have been shown.

The bureau also invited speakers to talk about some relevant gender-biased issues. Among these issues included women and migration as presented by Ms. Janette B. Ramos, attaché II on Commission on Filipino Overseas; cervical and breast cancer awareness as discussed by Dr. Marie Michelle A. Dado, OB-Gynecologist from Quezon City Medical Society; and violence against women as shared by Isabelita P. Gravides, barangay captain from UP Diliman, Quezon City.

The observance of the National Women's Month is led by the Philippine Commission on Women (PCW), the lead agency in the country that forwards the causes for gender equality and empowerment. ### (***Diana Rose A. de Leon***)


PHOTO:DDELEON
BAR staff participate in film showing activities that depict relevant gender-related issues.

New product lines from garbanzos developed

PHOTO:MEAQUINO

As summer is here, *halo-halo* is becoming a favorite thirst-quencher among Filipinos. One important ingredient of this cold dessert is the chickpea locally known as *garbanzos*. A good source of minerals, protein and trace elements, its beans are commonly preserved in syrup, and served as sweets and ingredients to dishes and desserts.

Putting a twist of taste for *garbanzos*, the Benguet State University (BSU) is currently exploring the product development aspect of this crop through the project titled *"*Development and Commercialization of Chickpea-based Food Products*"*. The project aims to explore alternative utilization techniques for chickpea, thereby increasing its product potential in the market. Product development of chickpea includes promotion, production, utilization, and marketing.

Funded by the Bureau of Agricultural Research (BAR), under its National Technology Commercialization Program (NTCP), chickpea is now being processed into different product lines including chickpea cookies, tart, waffles, crackers, *lenguas*, fingerfood, eggdrop, *pulvoron*, oatmeal bar, and chickpea in brine/in syrup. Chickpea seeds were also tested as a beverage like a hot coffee drink. These products are being marketed at the BSU marketing center, trade fairs, and elementary school canteens. Walk-in visitors showed positive acceptance for the products.

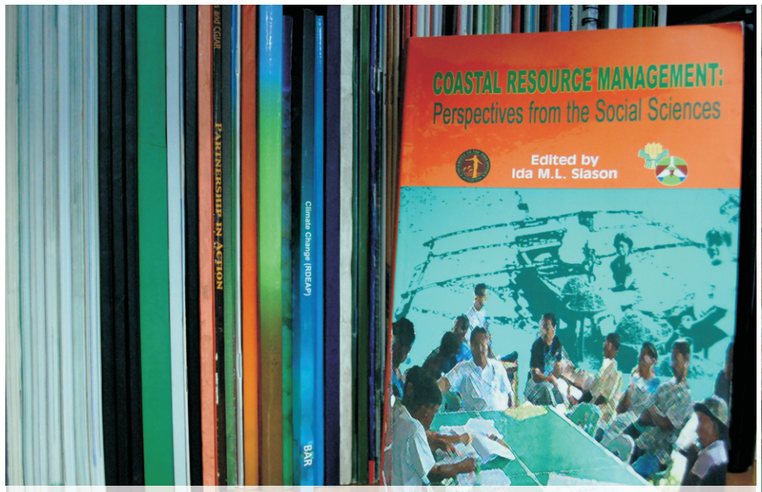
Based on the report submitted to BAR, the nutritional analysis showed that the dough that was incorporated with 35 percent of legume flours in pasta making contains high levels of fiber, vitamin B1, magnesium, phosphorous, protein, and good balance of essential amino acids. "Its glycemic index is also lower than that of *durum* wheat dough. Lowered glycemic index as a result of adding legume flour is a positive characteristic of a wheat-legume food product," said Dr. Ines Gonzales, project leader.

Technology demonstrations on the package of technology (POT) for chickpea production were established in La Trinidad, Sagada, Loo, Buguias, Bokod, and Sablan planted with the following chickpea varieties: ICCV 92311, ICCV 93512, ICCV 95332 ICCV 94954, ICCV 2, and ICCV 95334. Aimed at enhancing chickpea production and developing acceptable chickpea-based food products, 200 farmer beneficiaries from Ifugao, Benguet, and Sagada, Mt. Province were trained under the project.

"At present, the supply of chickpea depends mainly on importation from India, Pakistan, Iran, Mexico, Australia, and Canada. To help reduce importation, chickpea production is being introduced in the Philippines. Initial results showed that a yield potential of 800-1,200 kg/ha is higher than the average global production of 700-800 kg/ha," Dr. Gonzales reported.

Dr. Gonzales added that the findings showed that chickpea can be grown under Philippine conditions, and can therefore serve as an alternative high value crop for farmers that offer nutritious and healthy food for the family. Production and processing can also provide alternative livelihood opportunities to farming households**.** ### ***(Ma. Eloisa H. Aquino)***

Key officials and staff members of BAR visit the techno-demo site of chickpea production in Benguet State University. PHOTO:MEAQUINO



Professor Pepito Fernandez of the University of the Philippines Visayas hands over the book to Ms. Ligaya Santos, assistant head of the BAR-Project Monitoring and Evaluation Division (PMED) during the launching at the Ateneo de Manila University .PHOTOS:PLESACA

Book on coastal resource management launched

While many books on Coastal Resource Management (CRM) have been published, none if not very few are presented on a social sciences point of view. Understanding the need for this kind of publication to be cascaded to the concerned sector and stakeholders, the Bureau of Agricultural Research (BAR) supported the publication of the book, "Coastal Resource Management: Perspective from the Socials Sciences" by the University of the Philippines Visayas (UPV). The book was relaunched on 12 March 2014 at the Institute of Social Order (ISO), Ateneo de Manila University (ADMU). The book was initially launched at UPV in August 2013.

Attending the book launch in behalf of BAR Director Nicomedes P. Eleazar was Ms. Ligaya Santos, assistant head of the BAR-Project Monitoring and Evaluation Division (PMED) .

In a message read by Ms. Santos, Dr. Eleazar congratulated the College of Social Work and Community Development (CSWCD) of UPV and the ISO of ADMU in cooperation with the NGOs for Fisheries Reforms for spearheading the book launch. He extended his appreciation to all the people who made the book possible, in particular to UPV Chancellor Rommel Espinosa; Dr. Ida Siazon, project leader and editor; and all contributors in the book.

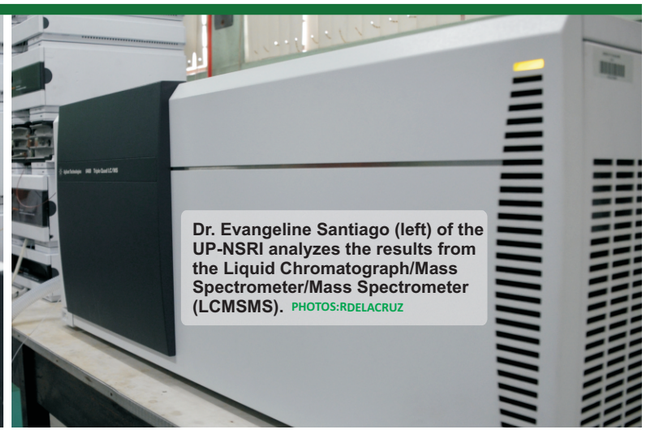
Dr. Eleazar stressed that constant challenges like the growing population, environmental degradation, exploitation, over fishing and coastal mismanagement will serve as direct threats to human survival particularly in the farming and fishing communities. For this, "we must be proactive in maximizing human resources in the context of program implementation; fishery production; management and protection; participatory processes in local governance as well as in research and development ." He added the need to be vigilant in the crusade to protect the environment, instigate corrective measures by recommending developmental policies to policymakers, and engaging other stakeholders in the judicious implementation of the law through consultation and networking.

In August 2006, an ecological disaster happened in the Panay Gulf when an oil tanker sank off the coast of Guimaras and Negros Island causing oil spill in the Philippines. The spill adversely affected marine sanctuaries and mangrove reserves in three of its five municipalities. The oil spill damaged the Taklong Island National Marine Reserve, a marine sanctuary for feeding and breeding ground for fish and other species displacing majority of the fishferfolk and thus affecting their means of livelihood. In response, Dr. Eleazar cited how the bureau implemented the CPAR Seaweed Project in Barangay Ponobalon, Nueva Valencia in Guimaras in 2009 to provide additional income to the fisherfolk. "This can be categorized as a response to the social and economic needs of the people providing them decent jobs and means of livelihood. Empowering the marginalized fisherfolk is our social cause and responsibility," reiterated Dr. Eleazar.

The publication consists of six imperatives of social concerns: governance, community organizing, livelihood, fish marketing, women in fisheries ,and economic valuation. It is rich in its essence and a worthy endeavor to benefit the coastal resources in the Philippines.

Also present during the book launch were Professor Elmer M. Ferrer of the UPV-CSWCD, who thanked and acknowledged BAR as co-publisher, and Prof. Pepito Fernandez also from UPV who led the "Symbolic Offering" of the manuscript to BAR.

The publication of book is made possible through the bureau's Scientific Publication Grant (SPG). SPG is a window that provides financial grant for the publication of books, journals, pamphlets, technical papers and proceedings in the field of agriculture and fisheries R&D. Since 2007, BAR has funded and produced 180 publications, which serve as reference materials for knowledge seekers. ### ***(Patrick Raymund A. Lesaca)***



Dr. Evangeline Santiago (left) of the UP-NSRI analyzes the results from the Liquid Chromatograph/Mass Spectrometer/Mass Spectrometer (LCMSMS). PHOTOS:RDELACRUZ

Detecting levels of chemical residues for export quality AQUACULTURE PRODUCTS on the way

Aquaculture is an important industry in the Philippines. And given the country's vast coastline and rich marine resources, the country can be the largest exporter of fish and aquaculture products in the global market. But in order to be competitive, the Philippines must comply with the requirement of the global market on certification of the quality of the products, something that the country must improve on. The Food and Agriculture Organization (2008) reported that among the Asian countries, the Philippines has one of the lowest shrimp exports to the European Union (EU) and United States (US) markets.

According to Dr. Evangeline C. Santiago, head of the Research and Analytical Services Laboratory (RASL) of the University of the Philippines Natural Sciences Research Institute (UP-NSRI), "one of the reasons cited for the low aquaculture exports to EU is the country's difficulty in complying with the requirements of the foreign market on acceptable test certificates for the harmful antibiotics," said Dr. Santiago.

One of the growing concerns about aquaculture products is the use of prohibited antibiotics and unsafe chemicals for the reduction of microbial contamination or other purposes that are potentially harmful to human consumption. Among these are *chloramphenicol*, *nitrofuran*, and *malachite green* which, according to US Food and Drug Administration (2005), when used during various stages of aquaculture production can result in the presence of residues of the parent compound or its metabolites in the edible portion of the aquacultured seafood.

Chloramphenicol is an antibiotic that is not approved for use in food-producing animals and has been prohibited from extra-label uses in food-producing animals by the US and EU countries. It is suspected to be a carcinogen and may potentially affect the reproductive system in humans as cited by the US Department of Agriculture (2013).

In aquaculture, *nitrofurans*, as cited in the study of Hassana, et al., (2013), are commonly used as growth promoter and in the prophylactic and therapeutic treatments of bacterial and protozoan infections such as gastrointestinal enteritis, fowl cholera, and *coccidiosis* black heads. The use of *nitrofurans* for livestock production was completely prohibited in the EU due to concerns about the carcinogenicity of the drug residues and their potential harmful effects on human health.

Meanwhile, *malachite green* (MG) is a synthetic dye used to color fabric and paper. It has been used around the world in treating external fungal and parasitic infections on fish eggs, fish and shellfish. MG is an effective fungicide, especially as a general hatchery disinfectant. It is not registered for use in aquaculture and is prohibited for use in aquaculture products intended for human consumption.

The potential presence of these antibiotics and chemicals in major aquaculture products of the Philippines, particularly milkfish and shrimp, is one of the reasons that might be holding back the country from reaching its full potential in supplying the international market. "The country should be able to produce acceptable test certificates for antibiotic residues. This can be done now because we have the available Liquid Chromatograph/Mass Spectrometer/Mass Spectrometer (LCMSMS), the instrument required to produce the acceptable analysis," explained Dr. Santiago. LCMSMS is used in analytical chemistry as a powerful technique that has very high sensitivity and selectivity and so is useful in many applications. Its application is oriented towards the separation, identification, and quantification of chemicals of particular masses in the presence of other chemicals.

Given this, a project titled, "Monitoring of *Chloramphenicol*, *Nitrofuran Metabolites* and *Malachite Green* in Aquaculture Feeds, Bangus and Shrimps for Regulatory and Trade Purposes" is being implemented by RASL under the leadership of Dr. Santiago. RASL is the first laboratory in the entire UP System that is ISO-17025 accredited, the international standard for competence of laboratories.

The general objective of the project is to generate a national database that regulatory agencies and

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BAR monitors 2 on-going apiculture projects

The monitoring team from UPLB and BAR together with the members of the Colo and Sumader Beekeepers Association

Colonies of stingless bees are reared inside coconut shells as part of the BAR-CSU project that aims to integrate beekeeping to coconut farming systems. PHOTOS:PLESACA

The development of the bee industry in the Philippines which can be traced back as early as the 60s, can be observed in an upward trend. Modern beekeeping is now gaining the needed attention from the government, acadame, private sector, and beekeeping enthusiasts, resulting to about 434 beekeepers across the country. While it can be deduced that honey is the primary product of bees, other by-products from the bee hives can now be developed, promoted and even marketed. Among the popular products include pollen, beeswax, propolis, royal jelly, as well as nutraceutical and cosmeceutical products.

The apiculture (beekeeping) industry is also intensifying its effort in the campaign to increase agricultural production through bee pollination activities during their (bee) nectar gathering. Literature on bee as effective pollinators have been documented and this is being practiced in selected regions and provinces in the country.

Adhering to the needs of the industry in terms of boosting agricultural production and marketability of bee products, the Bureau of Agricultural Research (BAR) in collaboration with the High Value Crops Development Program (HVCDP) and in partnership with the University of the Philippines (UPLB) Bee Program, crafted the 'Philippine Apiculture: Status and RD&E Agenda 2012-2016" also known as the Bee Roadmap. The roadmap is focused on the review of the industry, identification of R&D gaps and opportunities for livelihood. The specific objectives are to: 1) establish and create regional center and to upgrade one National Service Laboratory; 2) support enterprise development; 3) strengthen multi-disciplinary RDE program; 4) training and capacity development; 5) regulate and establish product standards and consumer safety; 6) integrate apiculture in the farming system; and 7) conserve and manage indigenous bee species.

To document the progress of BAR-assisted projects on apiculture, a team composed of Dr. Cleofas Cervancia and Mr. Alex Fajardo from UPLB Bee Program together with staff from BAR, namely: Mr. Alvin Fontanil and Ms. Elena Garces from Technology Commercialization Division (TCD), Mr. John Carlo Eugerio from Office of the Director (OD), and Mr. Patrick Raymund Lesaca from Applied Communication Division (ACD), assessed and monitored the progress of bee projects being implemented on 18-21 March 2014. The projects monitored were: 1) "Integration of Beekeeping to Coconut Farming System" by the Cagayan State University (CSU); and 2) "Production and Management of Multi-Bee Species for Livelihood and Pollination of HVCC" spearheaded by the Local Government Unit (LGU) of Batac.

The team went to CSU to meet the proponent of the bee project, Mr. Froilan Pacris and paid courtesy visit to Dr. Lina M. Garan, campus executive officer. In Batac, the group also met with Merryline Gappi, city agriculturist of LGU-Batac and bee raisers/project proponent from Barangay Colo and Sumader, Batac, Ilocos Norte.

Integration of beekeeping to coconut farming system

The CSU project generally aims to enhance the income of coconut farmers by integrating beekeeping in their farming system by: 1) establishing a demo-apiary in the province; 2) conducting socio-economic profiling of coconut farmers; 3) training of coconut farmers on *Apis mellifera*, *Apis cerana* and *trigona spp.* management and conservation and harvesting of *Apis dorsata* for honey and pollen production and pollination; and 4) dispersing colonies of *Apis mellifera, Apis cerana,* and *trigona* to identified farmer cooperators.

Mr. Pacris presented the status and other remaining activities of the bee project. To date, the socio-economic profiling of coconut farmers was conducted to gather relevant information regarding their income, age, and education, among others. It was found out that 83 percent of the total population of coconut farmers in Cagayan is earning less than Php 2,000. Mr. Pacris said that the information gathered in the survey will be used as a baseline data in determining the impact of the project to farmers. Series of trainings

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Adlai
is a tall grain-bearing tropical plant found to be adapting well in some regions of the country.

PHOTOS:NDELROSARIO&ABRION

Farmers in Impasug-ong harvest adlai during the festival and farmers' field day.

LGU in Bukidnon holds adlai festival

Impasug-ong is a highland municipality in the province of Bukidnon where one can see Mt. Kitanglad, a symbolic mountain wherein Bukidnon is known for.

On 13 March 2014, an *adlai* harvest festival and farmers' field day was held in Impasug-ong. The activity served as a venue for the farmers to learn on the technology demonstration and seed production of the promising variety "Kibuwa" (Kiboa) that has an average yield of 4.3 t/ha. It also aimed to increase the awareness of the public on what *adlai* is and the health benefits associated with it.

An opening program was held in the morning where key officials from the Department of Agriculture-Northern Mindanao Integrated Agricultural Research Center (DA-NOMIARC), DA-Bureau of Agricultural Research (BAR), and local governnment unit (LGU) gave messages in support of the *adlai* activities undertaken in Bukidnon.

Dr. Constancio Maghanoy, Jr., regional technical director for regulatory and research of the DA-Regional Field Unit 10, explained the importance of conducting the activity. "This is one of the activities being prioritized by the department because *adlai* is one of the best sources of alternative food in Region 10 especially that we have a lot of indigenous peoples (IPs) here in the province whose main source of food is *adlai*," he said.

Dr. Maghanoy also enumerated the crop's health benefits–*adlai* being low in carbohydrates, rich in fiber, and containing vitamins and minerals. "We are showing to the farmers the good potentials of *adlai*, as an additional source of income especially that many products have already been developed out of *adlai* through NOMIARC," he added.

On the other hand, Hon. Mario Okinlay, mayor of Impasug-ong, expressed his support to *adlai* undertakings. He said that with the introduction of *adlai*, the farmers will benefit more since it involves lesser cost of production, can be organically grown, and is nutritious. "I will encourage our municipality for these *adlai* activities to be part of the program we have in our Municipal Agriculturist Office (MAO). I will make sure that the farmers who will plant *adlai* here in our municipality will be given financial support," he said.

Ms. Salvacion Ritual, head of the Project Monitoring and Evaluation Division of BAR, commended the efforts of the region in promoting *adlai* as an alternative food staple. She also acknowledged the fruitful partnership among the DA, BAR, NOMIARC, and the LGU of Impasug-ong in further strengthening *adlai* initiatives.

Meanwhile, the afternoon was dedicated for demonstration on *adlai* product processing, value-adding technologies and utilization. Among the products showcased were: *adlai* wine, *adlai* soybean soap, and *adlai* breakfast cereal which won as the "Best Product" during the 9th National Technology Forum held in August 2013. Also part of the activity was the distribution of *adlai* seeds to the farmers.

The LGU of Impasug-ong has a 44-hectare Agro-Industrial Trade Center where the festival was held wherein 10 hectares of this is dedicated for agricultural activities including some piece of land dedicated for *adlai* planting. ###
(Anne Camille B. Brion)

BAR initiatives featured in UPLB Sympo

PHOTO:DDELEON

A group photo opportunity with the speakers, guests, and participants of the symposium on industry partnership.

As part of the week-long celebration of the foundation day of the University of the Philippines- Los Baños-College of Agriculture (UPLB-CA), a symposium on industry partnership was organized on 7 March 2014 at SEARCA Drilon Hall. This is in line with the celebration's theme "Strengthening University and Industry Partnership towards a Globally Competitive Agriculture".

"Strengthening partnership to better address the needs of the Philippine agriculture sector," reiterated UPLB Vice Chancellor for Administration Dr. Crisanto Dorado in his welcome address. He mentioned how powerful a partnership can be in impacting changes in the society. It is for this reason that the University is looking for avenues to establish harmonious collaborations and be responsive to the needs and demands of the industries.

One of the topics featured in the symposium was "Technology Transfer and Commercialization through BIOTECH-UPLB-Industry Partnership" as presented by Dr. Reynaldo V. Ebora, director of BIOTECH-UPLB. He mentioned one of the products that was borne from the successful industry

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BAR participates in 105th UPLBCA Foundation Week

In celebration of the 105th Foundation of the University of the Philippines Los Baños-College of Agriculture (UPLB-CA), an Agri Trade Fair and Exhibit was held at the Agro-Soils-Horti (ASH) Grounds, UPLB-CA on 4-8 March 2014. Different agriculture-related activities showcasing various technologies and products were prepared for participants and visitors, mostly composed of students and faculties in the field of agriculture.

Among the activities highlighted were: lectures and technology demonstrations on hydroponics, coffee, meat and dairy recipes, pest clinic and plant propagation; symposium on industry partnership; and farmers' forum discussing new crop varieties, soybean processing, and edible landscaping, among others.

As one of the sponsors of the event, the Bureau of Agricultural Research (BAR) participated as one of the exhibitors. BAR featured its two banner programs, Community-based Participatory Action Research (CPAR) and National Technology Commercialization Program (NTCP), along with its other R&D programs. Technology brochures and flyers on *sapinit*, wine making, *ubi* powder processing, *adlai*, soybean, edible landscaping, and beekeeping were also disseminated.

PHOTO:ABRION

Dr. Christian Joseph Cumagun (2nd from left), dean associate of the College of Agriculture; Ms. Sherille Andres (middle), general manager of the Mega Manila Pest Management Specialists, Inc. and guest of honor; and staff members from the CA, visit the BAR booth.

The bureau also gave away publications through raffle which enticed more attendees to visit the booth. Some of the publications featured included Channels of Progress, Package of Technology of Different Vegetable Crops, BAR Technology Calendar, Asian Food and Agriculture Cooperation Initiative (AFACI) Crop Calendar, Integrated Pest Management in Vegetables, Handbook in Philippine Medicinal Plants, and many others.

With the theme, "Strengthening University and Industry Partnership towards Globally Competitive Agriculture," the event centered on the collaboration between the college and its industry partners in making the country's agriculture competitive in the international scene. ### ***(Anne Camille B. Brion)***