



Adion is lone recipient of 2018 Gawad Saka for researcher



PHOTO: NCORONADO

Dr. Irene M. Adion, 2018 Gawad Saka Outstanding Agricultural Researcher, receives a trophy, certificate, and cash prize. Joining her are Martin M. Andanar, Presidential Communications Operations secretary, and Dr. William D. Dar, acting agriculture secretary.

THE prestigious 2018 Gawad Saka Outstanding Agricultural Researcher award was given to Dr. Irene M. Adion, research division chief of the Department of Agriculture (DA) Regional Field Office (RFO)-Central Luzon on 22 October 2019 at the Philippine International Convention Center, Pasay City.

Present to give the award were DA Assistant Secretary for Special Affairs and Bureau of Agricultural Research (BAR) Director Nicomedes P. Eleazar, Gawad Saka - National Technical Committee (GS-NTC) chairperson; and BAR Assistant Director and Institutional Development Division Head Digna L. Sandoval, GS-NTC co-chair.

Dr. Adion's primary contribution *turn to page 2*

12 entries bag gold in 31st NRS

TWELVE entries were named AFMA Best R&D Paper and Poster gold winners during the awarding ceremony of the 31st National Research Symposium (NRS) held on 17 October 2019 at The Suló Riviera

Hotel, Diliman, Quezon City.

Present to grace the event and recognize the winners were Department of Agriculture (DA) Undersecretary for Policy and Planning Rodolfo Vicerra representing Acting Agriculture Secretary William Dar; DA Undersecretary for Consumer Affairs Ernesto Gonzales; DA Assistant Secretary for Livestock Program William Medrano; DA Assistant Secretary for Special Affairs and Bureau of Agricultural Research (BAR) Director Nicomedes Eleazar; and BAR OIC-Assistant Director and Institutional Development Division (IDD) Head Digna Sandoval.

Prior to the initial screening conducted by BAR this year, a record-high of 199 research papers were submitted to the bureau.

With the theme, "Gearing up the Agri-Fishery Sector through Holistic R&D towards Regenerative Development," this year's event looked beyond sustainability by highlighting the importance of being able to replenish resources. Incidentally, organic agriculture was introduced as an addition to the roster of categories.

The other categories that the papers competed in were as follows: 1) Applied Research (Technology Generation/Information *turn to page 4*

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Adion is lone...from page 2



Dr. Irene M. Adion (2nd from right) in a photo opportunity with Acting Agriculture Secretary William D. Dar (2nd from left), Dr. Nicomedes P. Eleazar (left), DA assistant secretary for special affairs and BAR director, and Digna L. Sandoval (right), BAR OIC-assistant director PHOTO: NCORONADO

is the sweetpotato value chain projects in Central Luzon. Starting from production, she worked on generating information about different sweetpotato varieties grown in the region to identify those that will meet the specific preferences of farmers and consumers in an area. She helped improve the supply chain of planting materials by providing quality cuttings grown through tissue culture which in turn improved both the quantity and quality of yield. Dr. Adion was also instrumental in linking Tarlac

producers of sweetpotato and other root crops to the private sector. Being a veterinarian, her research on the formulation of a beef cattle ration using mainly sweetpotato roots and vines eventually led to the first Farmer Field School manual on sweetpotato-based backyard cattle fattening.

The award was presented by the Representative of the President, Presidential Communications Operations Office Secretary Jose Ruperto Martin M. Andanar and by Acting Agriculture Secretary William

D. Dar.

Annually, BAR facilitates the selection of awardees for the Outstanding Agriculture Scientist and Outstanding Agricultural Researcher categories. The search for the Gawad Saka Awards is conducted by the Department of Agriculture every year to recognize outstanding scientists and researchers who have contributed to the overall growth of the agriculture and fisheries sector in the country. ###
(Nadine B. Coronado)



BARChronicle

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Farmers and fishers share success stories in 4th CPAR Congress

MORE than 300 participants composed of farmers, fishers, and partner implementers from across country convened to share their experiences, best practices, and success stories achieved through the Community-based Participatory Action Research (CPAR) program during the 4th National CPAR Farmers and Fisherfolk Congress in Diliman, Quezon City on 28-29 October 2019.

Farmer- and fisher-cooperators and beneficiaries shared their testimonies and insights on how the technologies and interventions generated through the program improved their yield and increased their profit.

They recounted how CPAR was instrumental in forging better opportunities for the agriculture and fisheries sector.

Joining them were the agriculturists, aquaculturists, researchers, research managers, regional technical directors, regional executive directors from the field offices of the Department of Agriculture (DA), and representatives from local government units.

This year's theme, "*Ibayong Pakikilahok ng Masa sa Pananaliksik at Pagpapalaganap ng Makabagong Teknolohiya para Paunlarin at Pasiglahin ang Ekonomiya sa Kanayunan*," was anchored to Acting Agriculture Secretary William Dar's twin vision "*Masaganang Ani at Mataas na Kita*."

"*Kasabay ng pagbibigay ng ibayong halaga sa partisipasyon ng masa sa gawain ng pananaliksik, nilalayan din ng ikaapat na CPAR Congress na bigyang-diin ang naging kontribusyon ng CPAR projects sa pagpapaangat ng kalagayang pang-ekonomiya ng komunidad*," said Dr. Nicomedes Eleazar, DA assistant secretary for special affairs and BAR director, in

his opening message.

Asec. Eleazar continued, "*Ilan sa mga ito ay ang pagpapalakas ng agribusiness industry, agripreneurship, at agriculture and fisheries modernization na kabilang sa mga layunin natin sa CPAR.*"

Meanwhile, Secretary Dar emphasized the importance of utilization of technologies in improving the country's farming and fishing situation.

"Utilization is important. I know the limits, for example, of upscaling. But there should be means and ways with which we can really commercialize the results, the lessons we have learned from CPAR," Dar said.

He then challenged BAR as well as partner research institutions to upscale and commercialize the technologies and interventions generated through CPAR.

"*Para hindi lang iilang farmers ang nakikinabang doon sa resulta ng ating pananaliksik at mas makikinabang ang mga nasa kanayunan*," he concluded.

Other activities during the two-day congress were plenary presentations on successful CPAR projects and special topics relevant to the improvement of the program's implementation; exhibit of products developed by CPAR proponents and cooperators; and display of CPAR posters containing its processes, implementation, significant results, and project impact.

Also present to grace the event were Rodolfo Vicerra, DA undersecretary for policy and planning; Dr. Rico Ancog, technical consultant of the Project Development and Technical Services of the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) representing Dr. Glenn Gregorio, SEARCA director; Digna Sandoval, BAR OIC-assistant director and

turn to page 10



"*Noong nagsimula akong magsaka, pinili kong magpatubo ng cacao. Ngunit noon wala po akong know-how kung paano ito itanim. Dahil sa CPAR, nagkaroon kami ng pormal na training para rito*," says Fermin Anog, farmer cooperator from Davao Region. PHOTOS: EJGESTUPA



"Through CPAR, our farmers have witnessed strong support from the LGU in further realizing *masaganang ani at mataas na kita*," says Marilyn Martin, farmer cooperator from Ilocos Region.

12 entries bag...from page 1

Generation)-Crop Science and Crop Protection; 2) Applied Research (Technology Adaptation/Technology Verification)-Crop Science and Crop Protection; 3) Applied Research (Technology Generation/Information Generation and Technology Adaptation/Technology Verification)-Animal Science; 4) Applied Research (Technology Generation/Information Generation and Technology Adaptation/Technology Verification)-Engineering and Postharvest; 5) Applied Research (Technology Generation/Information Generation)-Soils and Water Science; 6) Applied Research (Technology Adaptation/Technology Verification)-Soils and Water Science; 7) Applied Research (Technology Generation/Information Generation)-Fisheries; 8) Applied Research (Technology Adaptation/Technology Verification)- Fisheries; 9) Socio-economic Research; 10) Organic Agriculture Research; and 11) Development Research.

For the Applied Research (TG/IG) Crop Science and Crop Protection Category, the research titled “From Functional Genomics to Functional Agriculture: Cacao Functional Genomics to Functional Cacao Production and Varietal Improvement” of the University of Southern Mindanao received the gold award.

In the Applied Research (TA/TV) Crop Science and Crop Protection Category, the study titled “Piloting of Village-type Cacao By-products Processing Enterprise in Major Cacao Producing Area” of the Philippine Center for Postharvest Development and Mechanization (PhilMech) was awarded gold.

Claiming the top spot for the Applied Research (TG/IG and TA/TV) Animal Science Category was the research titled “Newcastle Disease Dry RT-LAMP Test Kit with Competence to Differentiate Infected from Vaccinated Animals” of the Central State Luzon University.

The paper titled “Pectin from Mango Peels as Biodegradable/



PHOTO: NRS DOCUMENTATION COMMITTEE

Benguet State University with their research on heirloom rice wins gold award for the Organic Agriculture (OA) category, this year's new category.

Edible Coating to Extend Shelf Life of Mango” of PhilMech was hailed best entry for the Applied Research (TG/IG and TA/TV) Engineering and Postharvest Category.

The study titled “Soil Health Approach of Boosting Rainfed Agriculture in Sariaya, Quezon” of the South Luzon State University also emerged at the top, besting other papers in the Applied Research (TA/TV) Soils and Water Science Category.

For the Applied Research (TG/IG) Fisheries Category, the research titled “Acute Salinity Tolerance (96-h LC50) and Growth Performance of Brackish Water Silver Therapon (*Leiopotherapon plumbeus*, KNER 1864) under Varying Salinity Conditions” of the Bataan Peninsula State University bagged gold.

Also emerging at the top for the Applied Research (TA/TV) Fisheries Category was the study titled “Seed Production and Grow-out Culture of the Sea Cucumber (*Holothuria scabra*) in Eastern Samar, Philippines” of the National Fisheries Research and Development Institute-Marine Fisheries Research and Development Center.

In the Socio-economic Research Category, the Benguet State University (BSU) secured the gold award with their research

titled “Economic Analysis of Using Biological Control and Biofertilizer in Philippine Highland Farming: Case of *Trichoderma koningii*.”

BSU also bagged the gold award for the Organic Agriculture Category with their study titled “Increasing Productivity and Value Heirloom Rice Landraces in the Cordillera Highlands through Variety Evaluation and Organic Production Technologies.”

Lastly, for the Development Research Category, DA-Cagayan Valley secured the gold award with their paper titled “Community-based Participatory Action Research on Sustainable Corn Production in Sloping Areas in Barangays Divisoria Sur and Norte, Maddela, Quirino.”

Meanwhile, the poster entry titled “Development of Computer Vision System for Mango Sorting and Grading” of PhilMech got the gold award for the Best AFMA R&D Poster competition.

Held annually, the NRS is one of the major activities of BAR that recognizes researchers that made significant contributions in the agriculture and fisheries sector. The event was spearheaded by the bureau's IDD. ### (**Jhon Marvin R. Surio**)

AgriTalk features agribusiness opportunities in Cavite leg

AFTER its regional roll out in selected cities this year, AgriTalk continues to inform Filipinos on investment opportunities in farming on 29 October 2019 in Cavite.

Spearheaded by the Agricultural Training Institute (ATI) and the Bureau of Agricultural Research (BAR) of the Department of Agriculture (DA), in partnership with Agriculture Magazine of the Manila Bulletin Publishing Corporation, the activity featured different farming technologies and success stories in agribusiness. This is to inspire more people to engage in agriculture as a sustainable venture.

In the last leg of its series this year, 668 urban farmers and agriculture enthusiasts in Cavite were educated on different farming practices including basic beekeeping, square foot organic gardening, and mushroom production and processing.

Dr. PJ de Castro discussed basic

beekeeping practices. Dr. de Castro, a beekeeper and consultant for native honeybees, explained that honey is the least valuable product one can get from bees and that beekeepers can make a lot of money if they concentrated on other products such as propolis and bee pollen, which have medicinal properties. He also discussed the different types of native honeybees as well as the different food and cosmetic products that can be derived from honey and pollen.

Honorio Cervantes of ATI talked about square foot urban organic gardening, a practical and doable method of planting for starters who want to build their organic farm at the comforts of their backyards. He further described square foot farming as an improvised form of vertical farming that maximizes planting space and reaps more organic produce. Cervantes is an experienced farmer in growing vegetables using square foot

gardening system in Cagayan de Oro City.

Meanwhile, Marilyn Gonzales, an agriculturist of the Regional Soils Laboratory of the Southern Tagalog Integrated Agricultural Research Center talked about mushroom production. Gonzales enumerated the different types of mushrooms grown in the Philippines which include straw mushroom, banana mushroom, milky mushroom, grey oyster, pink oyster, abalone mushroom, *tainga ng daga*, reishi, and white oyster mushroom—the most popular in the world. *Shiitake* and button mushrooms, on the other hand, can only be grown in a cooler climate such as in Tagatay and Baguio.

The AgriTalk seminar intends to further strengthen the promotion and information dissemination of various agricultural practices and package of technologies for urban farming. ###
(Leoveliza C. Fontanil)



Dr. PJ de Castro, Honorio Cervantes, and Marilyn Gonzales (top to bottom) serve as resource speakers during the AgriTalk in Cavite which was participated by 668 farmers and agriculture enthusiasts. AgriTalk in Cavite is the last leg of the seminar series for this year. PHOTOS: LFONTANIL

Value-adding tech capacitates sardine fishers in Iloilo



PHOTO: CFRANCISCO

Ernestina Peralta of the University of the Philippines Visayas demonstrates the steps in making sardine *patis*.

TO further promote the utilization and boost the economic potential of sardines, a training on value-adding technologies was held on 7-9 October 2019 in Nasidman Island, Ajuy, Iloilo.

The training-activity was spearheaded by the University of the Philippines Visayas and funded by the Bureau of Agricultural Research (BAR) through its Technology Commercialization Division (TCD).

Part of the project “Value Chain Analysis of the Sardine Fisheries in the Philippines,” it aimed to forward the production and consumption of sardines in the country, as well as expose the locals to different opportunities and value-adding technologies that can turn their yield

into more profitable products. Part of the event is a lecture and an on-site demonstration led by Ernestina Peralta, of the University of the Philippines Visayas.

Present during the event were Dr. Encarnacion Emilia Santos-Yap, project leader and Dean of the University of the Philippines Visayas – College of Fisheries and Ocean Science; and Ma. Elena Garces, BAR-TCD assistant head.

The topics discussed include the processes of making Sardine *Lamayo*, Sardine *Hamonado*, Sardine *Patis*, and bottled sardines. According to Peralta, the activity is one way to utilize the fish catch of the locals and increase their income aside from their usual

dried fish products. Aside from the said topics, misconceptions about sardine products, sardine spoilage, good manufacturing processes, and fish cleaning and sorting were also tackled in the activity.

According to John Balleza, barangay captain of Nasidman, the workshop can help boost the tourism in their barangay as this opportunity enhances their knowledge more about the sardine fishing industry.

BAR, under the National Technology Commercialization Program, continuously supports projects that can help increase and improve the product utilization of stakeholders in the agriculture and fisheries sector. ### (Chantale T. Francisco)

BAR conducts ACEF proposal writeshop

THE Bureau of Agricultural Research (BAR), through its Technology Commercialization Division (TCD), conducted a proposal writeshop for the Agricultural Competitiveness Enhancement Fund (ACEF) program on 22-25 October 2019 in Clark, Pampanga.

The writeshop was conducted to fine tune proposals and validate the technical and financial viability of the package of technologies generated by partner state universities and colleges (SUCs).

The ACEF program supports R&D activities that are focused on increasing the productivity, profitability, and competitiveness of various priority agricultural and fishery ventures through commercialization of appropriate technologies and upgrading of research and development facilities.

Six partner SUCs such as the Bataan Peninsula State University, Benguet State University, Central Bicol State University of Agriculture, Isabela State University, Mindanao State University-Maguindao, and Tarlac

Agricultural University presented their proposals.

Serving as panel of evaluators were Dr. Erlinda Serrano, Dr. Edna Aguilar, and Elmer Enicola of the University of the Philippines Los Baños along with the technical staff of BAR-TCD.

Tasked by the Department of Agriculture, BAR facilitates the screening and evaluation of proposals for the implementation of the ACEF R&D Grant. ###
(Glacelle Alyne C. Malinao)



NAT'L FOOD SECURITY SUMMIT HELD. Dr. William Dar, acting agriculture secretary, highlights the plans for each of the Eight Paradigms towards food-secure Philippines with prosperous farmers and fishers during the National Food Security Summit on 29-30 October 2019 in Malate, Manila. Key officials from the local government units, Department of Agriculture (DA) staff bureaus, and attached agencies convened to discuss possible partnerships and future initiatives in realizing the "New Thinking" directive of Secretary Dar. Gracing the activity are Senator Cynthia Villar, Committee on Agriculture chair; Cecilia Borromeo, Land Bank of the Philippines president and CEO, and Rallen Verdadero, Development Bank of the Philippines-Program Development and Management head. PHOTO AND TEXT: CMABAO

L-R: Dr. William Medrano, DA assistant secretary for livestock; Dr. Nicomedes Eleazar, DA assistant secretary for special affairs and BAR director; Dr. William Dar, acting agriculture secretary; Jocelyn Alma Badiola, Agricultural Credit Policy Council executive director; and Engr. Ariel Cayanan, DA undersecretary for operations



BAR participates in nat'l conference on food, envi, eng'g and tech



INSET: Joell Lales, BAR-Program Development Division head, discusses the bureau's programs and initiatives on sustainable organic agriculture and agricultural competitiveness. PHOTOS: EJGESTUPA

WITH the theme, “Enabling Scientific Platforms for Sustainable Agro-Industrial Development in ASEAN Integration,” the Bureau of Agricultural Research (BAR) participated in the 2nd National Conference on Food, Environment, Engineering, and Technology in Balanga City, Bataan on 23-25 October 2019.

Joell Lales, BAR-Program Development Division head, attended the national conference in behalf of Dr. Nicomedes Eleazar, Department of Agriculture assistant secretary for special affairs and BAR director.

Lales began his plenary session by discussing BAR's vision for the agricultural sector in line with the Department of Agriculture's *masagang ani at mataas na kita* accomplished through a value chain

approach to support services from input, production, postharvest, marketing, and waste management.

He discussed the research projects on specific agricultural commodities under the National Organic Agriculture Program such as the production and marketing support to *pinakbet* vegetables, poultry, and native livestock.

Gracing the activity were Bataan Governor Albert Garcia; Dr. Renato Solidum, Jr., Department of Science and Technology undersecretary for disaster risk reduction and climate change; Dr. Gregorio Rodis, Bataan Peninsula State University (BPSU) president; Dr. Hermogenes Paguia, BPSU vice president for research, extension, and training services; Atty. Antonio Roman, chief legal adviser of the Office of Bataan First

District Representative Geraldine Roman; Dr. Ernesto Del Rosario, National Academy of Science and Technology scientist and University of the Philippines (UP) Los Baños professor emeritus; Dr. Roberto Rañola Jr., Philippine Association of Agriculturists, Inc. (PAA) chair; and Dr. Jessica Rey, PAA treasurer and UP Diliman professor.

Organized by BPSU in partnership with PAA-Central Luzon Chapter Bataan, the national conference aimed to facilitate discussions on the emerging issues and gaps on food security.

Further, it focused on addressing these challenges through resource management and production systems using specialized model from engineering and technology protocol. ### (Ephraim John J. Gestupa)

Financial viability, profitability analysis training conducted

IN partnership with the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), the Bureau of Agricultural Research (BAR) conducted the third batch of “Financial Viability and Profitability Analysis of Agricultural Technologies and Enterprises for Livestock and Fisheries” training-workshop on 21-26 October 2019 in Los Baños, Laguna.

Aimed to ensure that technologies generated from various R&D initiatives will be sustainable and profitable, participants were imparted with skills and knowledge in conducting financial viability and profitability analysis through a series of lectures and exercises.

Representatives from the Department of Agriculture’s (DA) regional field offices and research stations participated in the said training-workshop. Dr. Corazon Aragon, Dr. Cesar Quicoy, Prof. Bates Bathan, and Dr. Antonio Jesus Quillooy of the University of the Philippines Los Baños served as trainers and lecturers of the event.

Evelyn Juanillo, BAR-Administrative Division head; and Dr. Ma. Cristeta Cuaresma, SEARCA Graduate Education and Institutional Development Department program head, graced the training-workshop.

On behalf of Dr. Nicomedes Eleazar, DA assistant secretary for special affairs and BAR director, Juanillo discussed how the output of the training-workshop would be beneficial to BAR as a funding agency as well as on the target end-user of generated technologies.

“It will allow the funding agency to see a broader perspective and projections on how a proposed project will go, and will also provide potential technology adopters an assurance that their investment will not go to waste.”

Meanwhile, Dr. Cuaresma represented Dr. Glenn Gregorio, SEARCA director. In her message, she stressed the importance of conducting financial viability and profitability analysis of new technologies, as this will serve as a useful guide for a more informed investment strategy for both our

farmers and agricultural enterprises.

As part of the training-workshop, participants were required to provide financial viability and profitability analyses of their chosen commodity using data set of their current project. On a one-on-one discussion with Dr. Aragon, everyone discussed the results of their project and their interpretations based on the lectures on cost and return analysis, financial cash flow analysis, discounted measures of project worth (net present value, benefit-cost ratio, and internal rate of return), partial budget analysis, and breakeven analysis.

Through this series of training-workshops, researchers and proponents will be able to determine the profitability of different technologies and practices. With an estimate of potential profit, outputs of R&D can now be easily showcased to farmers and possible adopters.

Since the start of the program in 2017, BAR and SEARCA have already capacitated more than 180 participants from the R&D community. ### (Ryan Joseph M. Abrigo)



PHOTO COURTESY OF RJABRIGO

Participants working on their final output using their own data sets.

Individuals flock for free seminar on mango

INDIVIDUALS gathered to participate in the monthly free seminar series of the Bureau of Agricultural Research (BAR) which featured value-adding technologies on mango on 25 October 2019 in Diliman, Quezon City.

Because mangoes are endemic and well regarded in the country, the abundant fruit supply accounts for greater revenues for the country. According to the Philippine Statistics Authority, the volume of production of mango in the country averages 737 thousand metric tons per year, enabling the country to export spare produce and rank as seventh top mango producer in the world.

However, production is not the **turn to page 12**



Mango growers and agriculture enthusiasts attend the free in-house seminar of the Bureau of Agricultural Research on 25 October 2019. PHOTO: LBARTINA

Farmers and fishers...from page 3



Delegates of the 4th CPAR Congress with the Dr. William Dar, acting agriculture secretary; Dr. Nicomedes Eleazar, Department of Agriculture assistant secretary for special affairs and Bureau of Agricultural Research (BAR) director; Digna Sandoval, BAR assistant director; and Salvacion Ritual, BAR-Program Monitoring and Evaluation Division head PHOTO: RHERMOSO

Institutional Development Division head; and Salvacion Ritual, BAR-Program Monitoring and Evaluation Division (PMED) head.

CPAR is one of the banner programs of BAR that merges

research initiatives and the active involvement of farmer- and fisher-cooperators.

Established in 1998, the program has helped uplift the lives of more than 13,000 farmers and

fishers through technologies and interventions suited to their needs and locations.

BAR-PMED spearheaded the conduct of the said activity. ###
(Rena S. Hermoso)

BAR presents climate change initiatives in Ateneo forum



Cathy Estavillo, Bantay Bigas spokesperson and member of Amihan National Federation of Peasant, shares her experience as a farmer. PHOTOS COURTESY OF DLBARON



Cynthia Remedios De Guia of BAR presents the climate change projects funded by the bureau.

TO help students fully understand and encourage them to actively engage on pressing issues in the country, the Ateneo Environmental Science Society invited the Bureau of Agricultural Research (BAR) in this year's conduct of Talakayang Alay sa Bayan (TALAB) on 12 October 2019 in Diliman, Quezon City.

TALAB is an annual, interdisciplinary event involving different school organizations showcasing a wide-range of different topics with renowned speakers across the country.

With the thrust #OneHome, this year's food security forum carried the theme, "What's on Your Plate?" Cynthia Remedios de Guia, BAR-Program Development Division assistant head, represented the bureau on behalf of Dr. Nicomedes Eleazar, Department of Agriculture (DA) assistant secretary for special affairs and BAR director.

Also part of the panel of speakers were Melody Melo-Rijk, Sustainable Consumption and Production in the Philippines program manager; Donna Miranda and Mark Sanchez, Sama-samang

Artista para sa Kilusang Agraryo co-convenors; Cherrys Abrigo, owner of Sierreza; and Lanie Francisco, organizer of Rustico Farm's Bokashi Composting Seminar Tour. They provided insights on the underlying issue of Philippine food resource management in the context of climate change.

In her presentation, de Guia introduced BAR as a national funding and coordinating agency for agriculture and fisheries research and development activities of DA, and its catalytic role in responding to the challenges that threaten the availability and affordability of food and the agriculture and fishery sector as a whole.

She also highlighted that BAR's mandate is to ensure that all agricultural research is coordinated and undertaken for maximum utility in agriculture. Further, she emphasized DA's twin objectives, "Ani at Kita" and advocacy, "A food secure Philippines with prosperous farmers and fisherfolk."

She also introduced the banner programs of the bureau such as the Community-based Participatory

Action Research, the National Technology Commercialization Program, and other applied research initiatives that package technologies and innovations directed to its stakeholders, particularly farmers and fishers.

Lastly, de Guia mentioned the efforts of BAR with regards to climate change and food security by presenting the goals of the climate change program of the bureau, aimed at ensuring food security by minimizing the effects of climate change on the productivity and income of farmers and fisherfolk while maintaining the long-term sustainability of the agriculture and fishery resource base.

This program supported various projects like the Philippine Rice Information System, Rice Crop Manager, Site Specific Nutrient Management, and Adaptation and Mitigation Initiatives in Agriculture which are successful in aiding farmers cope with climate risks and vulnerabilities during crucial activities on the farm. ### (Diocce Lovely B. Baron and Ella Marie Y. Pangilinan)



APICULTURE PROJECTS STRENGTHENED. Evelyn Juanillo, Bureau of Agricultural Research (BAR)-Administrative Division head and apiculture focal, discusses the update on the ongoing apiculture projects with Lanao del Norte Second District Representative Abdullah Dimaporo. On 10 October 2019, BAR hold a meeting with Rep. Dimaporo to provide the ongoing apiculture projects funded by the bureau and implemented by the Provincial Government of Lanao del Norte. Part of the agenda are the possible ways to forward ongoing projects such as modernizing beekeeping practices in Lanao del Norte to match international standards and value chain analysis on processing and packaging of bee products. PHOTO AND TEXT: CMABAO

Individuals flock for...from page 10

only concern of the country's mango industry. With only 10 percent of the total mango production being exported, 90 percent remains in the country for local consumption. Forty-one percent of the mango supply left in the country is used to produce value-added mango products. This means that the mango industry in the country is considerably profitable.

Recognizing the potentials of by-products from mango, BAR featured two topics in its seminar series emphasizing mango utilization and its value-added technologies.

Dr. Maria Christina Gragasín, supervising science research specialist of the Philippine Center for Postharvest Development and Mechanization, served as one of the resource speakers on the topic "Development of a Processing System for the Production of Pectin from Mango Peels." The project aimed to evaluate the pectin quality harvested from our native carabao mango for pharmaceutical-grade pectin.

According to Dr. Gragasín, pectin is derived from the Greek word meaning "congealed or curdled." It is used mainly as a

gelling or thickening agent in numerous food (jams and jellies), and pharmaceutical products as a source of dietary fiber. It is derived from fruits, chiefly from apples followed by citrus fruits.

In the Philippines, pectin is supplied through importation as raw materials from apple and citrus peels. Unfortunately, production technology is not yet available in the country.

Dr. Gragasín and her colleague were able to determine that carabao mango peels could be a source of standard pectin, but the focus of our resources would not solely be on developing Philippine-produced pectin from mango peels but also on creating income-generating jobs.

Pectin has many applications as a functional ingredient in food science, nutrition, cosmetics, and pharmacy. It is used in pastry glazes and as a stabilizer in drinkable yogurts and blends of milk and fruit juices. Pectin is also being used as a texturizing fat replacer to mimic the mouth-feel of lipids in low-calorie foods. Pectin has also been investigated for its usefulness in the pharmaceutical industry. It has been considered in the class of dietary fiber known to have a positive effect on digestive processes and it helps

lower cholesterol. It is also utilized to stabilize liquid pharmaceutical emulsions and suspensions and increases the viscosity of certain drug preparations.

"From mango peels, we can now extract pectin; thus, we are in a position to be self-sufficient in the product. This study also promotes income opportunities for mango farmers as they will now be able to earn more from their products which will not be limited to the fruits," Dr. Gragasín concluded.

Meanwhile, another topic discussed during the seminar series was the "Pilot Production of *Mangifera* Liqueur towards Commercialization," presented by Geraldine Gantioque, project leader of the Central Luzon State University. Her discussion focused on the processing and product-development of mango-infused liqueur which intended to address the problem of large postharvest losses of farmers engaged in mango farming in Region 3.

The seminar is led by the bureau's Applied Communication Division aimed at fast tracking information dissemination to the public. ### (Leoveliza C. Fontanil)

Coco sauce: Oroquieta's liquid gold

by Rena S. Hermoso

“AS we know, coconut is the tree of life. So, *walang parte ng* coconut *na hindi nagagamit*. But, coconut water of a matured nut is considered the (most) useless,” shared Sagrada P. Alvarez, city agriculturist of Oroquieta City, Misamis Occidental.

Despite its stagnant production, the coconut industry remains as one of the most important crops in the Philippines next to rice and corn.

For an instance, in Misamis Occidental, coconut product area uses more than 85 percent of its total agricultural land.

However, most coconut farmers rely on copra as their main source of income. But with the low buying price of copra, coconut farmers still live below the poverty line.

This led to the project “Community-based Participatory Action Research (CPAR) for Coconut-based Farming Systems in Oroquieta City, Misamis Occidental,” funded by the Bureau of Agricultural Research and implemented by the Department of Agriculture (DA)-Northern Mindanao which introduced crop diversification with livestock integration and value-adding technologies to augment the low income of coconut farmers.

The community's road to success

Through the project and with the help of DA-Northern Mindanao, the CPAR coconut farmers were organized and registered to the Department of Labor and Employment and Securities and Exchange Commission as CPAR Farmers Association Inc.

This empowered the community to actively seek engagements and agripreneurial activities to improve their livelihood. It inspired them to sustain the project even after its completion.

Juanita B. Salvani, chief of

DA-Northern Mindanao research division, attributed the success of this project to the active participation of Oroquieta's local government.

“The success of our CPAR projects in Region 10 also depends on the local government unit (LGU) that is handling [the project]. *Hindi kami makadiretso, nagbibigay lang kami ng* technical assistance *sa kanila*,” shared Salvani.

The making of coco sauce

In some parts of the country, coconut water is processed and canned. But the CPAR Farmers Association Inc. does not have the capacity to do the same said Alvarez.

Coconut sauce is the brainchild of the CPAR Farmers Association Inc. The LGU of Oroquieta looked for other value-adding technology to boost the income of coconut farmers. Through research, they were able to identify that coconut water is better off as sauce.

“We are targeting rural folks to have complete needs in the kitchen from oil, sauce, vinegar, coffee, and tea or even milk out of coconut,” said Alvarez.

Awards and recognitions received

Made from 100 percent matured coconut water, the coconut sauce of DA-Northern Mindanao bagged the best product award during this year's 15th Agriculture and Fisheries Technology Forum and Product Exhibition.

In 2018, the coconut sauce also won the best CPAR product award during the 1st Mindanao Community-based Participatory Action Research cum TechnoCom Forum and Product Exhibition.

Moving forward

With the five-million-peso research grant they have won, the



CPAR Farmers Association Inc. plans: 1) to have their product analyzed to determine its shelf life and nutritional facts; 2) to register its process to Intellectual Property Office of the Philippines; 3) to establish a central processing facility and *pasalubong* center not just for coconut but also for their other crops like banana, cassava, and cacao; and 4) to enhance their capacity through trainings.

“We aim to compete globally to uplift the coconut industry,” ended Alvarez. ###

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Capitalizing on the corn silage of Cagayan Valley

Text and photos by Jhon Marvin R. Surio



ISABELA is hailed as the top corn-producing province in the Philippines due to its immense contribution to the overall production in the country.

In a special release published by the Philippine Statistics Authority on the corn situation and outlook of the country for January 2019, production was higher during the last quarter of 2018 compared to that of 2017.

Corn crop estimate significantly increased by 10.8 percent, and was attributed to the hefty increment in production contributed by Cagayan Valley. Positive growth resulted from the increase in harvest areas, reaching 163 thousand metric tons.

Meanwhile, the enormous crop residues found in the province has sparked opportunities for farmers, leading to the project “Adoption and Commercialization of Green Corn-based Silage, Haylage, and UMMB Production for Dairy Cattle in Cagayan Valley.”

Because of the availability of raw materials from corn crop residues, the Isabela State University (ISU) looked into improving dairy production in the region through the utilization of silage, haylage, and urea molasses mineral block.

The use of such was seen to contribute to the overall nutrition of dairy cattle and buffaloes in the area, and answer the emerging problem of scarcity of quality feeds especially during the dry season.

The production of green corn and ensiling it to make green corn-based silage provides access to prolonged supply of nutrient-rich forages available throughout the year.

Funded by the Bureau of Agricultural Research, the project also aimed to increase the farmers’ profitability by boosting the livestock sector which serves as one of the top sources of livelihood in the region.

Members of the two

cooperatives, namely the Malaya Development Cooperative and the San Agustin Dairy Cooperative, were the cooperators for the said project.

According to Dr. Nilo Padilla of ISU, dairy farmers in the region typically use Napier grass as feeds to cattle. This was later confirmed by Teodoro Lactao, a member of Malaya Development Cooperative.

Back in 2013, Lactao recounted that he started his cattle farm with a few heads entrusted to him by their cooperative. There were just three heads of cattle fed with grass, but were rather thin. This made it difficult and almost impossible for the cattle to bear calves.

When he got an invitation from Dr. Padilla to join as a cooperator for the project in 2018, he did not have second thoughts because he was really eager to learn new things. Things turned out well and he started to plant green corn and produced

Corn

corn silage for his cattle.

From the ten heads of cattle from their cooperative fed with corn silage, all gained considerable amount of weight and were able to finally bear calves.

An increase in milk production was also observed, according to Lactao. From the usual 6-7 liters of milk per head per day, he was able to get 11 liters of milk per head every day.

He also proudly shared that from 22-25 pesos per liter, he now produces good quality of milk which can be sold at 35-40 pesos per liter.

Cooperatives involved in the project also started processing milk into dairy products like processed milk, flavored milk, yogurt, and *pastillas* to name a few. These were possible through their processing centers which enabled them to channel their agribusiness potentials productively.

Lactao also boasted that switching to corn silage as cattle feed did not only help boost their income, but also benefitted other people in their community as well.

He said that compared to planting Napier grass which can be done by an individual once, planting corn for ensiling also created job



Dr. Nilo Padilla (left) of ISU and Teodoro Lactao (right) of Malaya Development Cooperative show the corn silage produced in Lactao's farm.

opportunities in their community. Because one man cannot do the planting, harvesting, and hauling alone, he pays people to help him. This then opened opportunities for others to earn more income as well.

Currently, Lactao now provides corn silage to other provinces from Ilocos Region to CALABARZON.

Aside from the empowering the farmers, another milestone reached by the project is the emergence of integrators who took interest with the production of corn silage in

Cagayan Valley. This paved way for more income source in the province, further helping farmers through the production of corn silage.

The project is now looking at introducing the product in the international market. ###

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BAR joins World...from page 16



PHOTO: EJGESTUPA

BAR, along with DA staff bureaus and attached agencies, recite the WFD pledge during the candle lighting ceremony.

by the UN in its effort towards #ZeroHunger. Duran underscored DA's mandate of making accessible healthy nutritious food to its clientele and expressed that FAO is dedicated to partnering with the agency and

its attached bureaus in making this possible.

Other activities conducted during the culminating program include the launching of DA's new theme song, "Ani at Kita" composed by Noel

Cabangon; the awarding of poster artworks depicting this year's WFD theme; and the recognition of the semi-finalists for the annual search for Outstanding Rural Women. ###
(Ephraim John J. Gestupa)

BAR joins World Food Day 2019

THE Bureau of Agricultural Research (BAR) joined the Department of Agriculture (DA) and its other staff bureaus and attached agencies in celebrating the annual World Food Day (WFD) on 16 October 2019 at the Liwasang Aurora Amphitheater, Quezon City Memorial Circle.

Led by the Food and Agriculture Organization (FAO) of the United Nations, this year's theme was, "Our actions are our future. Healthy diets for a #ZeroHunger world" aimed at realizing the UN's sustainable development goal #2 which is to "End hunger, achieve food security

and improved nutrition, and promote sustainable agriculture."

The activity served as a reminder for the participants' responsibility to provide younger generation with sufficient amounts of affordable and nutritious food.

Key officials who attended the event were DA Undersecretary Ariel Cayanan; DA Undersecretary Waldo Carpio, chairperson of the National Steering Committee; Mats Person, World Food Program country director; Tamara Duran, assistant secretary for the Food and Agriculture Organization program;

Emmanuel Velasco, sustainable development officer of the Office of Quezon City Mayor Joy Belmonte; and Noel Cabangon, OPM recording artist.

In his welcome remarks, Velasco talked about the city's current initiatives of promoting urban agriculture to eliminate malnutrition in the city. Asec. Duran, on the other hand, explained how obesity, malnutrition, and stunted growth among children are becoming apparent signs of the slowing down of significant progress made

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Children receiving goods and assistance as part of this year's World Food Day Program. PHOTO: EJGESTUPA



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