



A two-day meeting and planning workshop among the Adlay Technical Working Group was facilitated by BAR to discuss the future of the Adlay R&D program which is already in its sixth year of implementation. PHOTO: BAR

Adlay R&D Program eyes expansion

When initiatives on *adlay* research and development (R&D) were put in motion by the Bureau of Agricultural Research (BAR) in 2011, *adlay* has since taken the limelight as an alternative food staple commodity that is seen to contribute to the country's bid of achieving food security.

Six years later, *adlay* – through its R&D program under the High Value Crops Development Program (HVCDP) of the Department of Agriculture (DA) and BAR – continues to thrive as it undergoes various activities to enhance production, promote food utilization, establish market, strengthen commercialization, and conserve seeds for expansion.

To fast track these targets and set the direction for the *adlay* R&D program, BAR conducted a two-day technical working group (TWG) meeting and planning workshop on 12-14 July 2017 in Tagaytay City. The meeting called for the program to assess physical and financial accomplishments based on the *adlay* roadmap and value chain; review updates on *adlay* seed inventory

and expansion areas including new directives and priorities; identify project implementation issues and recommend solutions; and review *adlay* adaptability yield trial (AYT) data for the seed registration at the National Seed Industry Council (NSIC).

With the success of *adlay* in terms of production and development, the *Adlay* TWG, in partnership with the DA regional offices, targets to further expand *adlay* production, and to hasten product development and marketing.

Recent data on seed production inventory from October 2016 to May 2017 showed a total of 36,487 kilograms of *adlay* produced, in which 11,921 kgs were utilized for product development and promotion, and 24,566 kgs were made available for distribution.

BAR Director Nicomedes P. Eleazar, however, said that much work still needs to be done to fully respond to DA Secretary Emmanuel Piñol's directives on intensifying *adlay*. He indicated that an expansion of seed production in *adlay*-growing areas particularly in Regions 2, 4A, 9, and

10 must be carried out, and come up with a package of technology (POT) ready for dissemination to farmers and interested partners.

Dr. Eleazar added that products which are now ready for commercialization must be carefully identified, and must take on improving their packaging and marketing. "We can partner with the Agricultural Training Institute (ATI) and the Department of Trade and Industry (DTI) for the promotion and marketing of these *adlay* products," he said.

turn to page 3

IN THIS ISSUE...

Adlay R&D Program eyes	1
CGUARD program presented	2
BAR gears up for 2 nd half	3
Eleazar graces BPI's organic	4
Field validation for the 2017	5
BAR-supported products showcased	6
Biofertilizer production	6
Progress of 3-year Yamang Lupa	8
BAR programs and technologies	8
Adlay food products showcased	9
CGUARD: Safekeeping native seeds	10
Boosting upland rice production	11
From training attendee	13
Cacao R&D program opens	14
CVRC's soybean program	15
DA-RFO 11's research on native	16

The Bureau of Agricultural Research (BAR) conducted a program briefing on CGUARD (Corn Germplasm Utilization through Advanced Research and Development) to Department of Agriculture (DA) Undersecretary for Operations Ariel T. Cayanán on 26 July 2017 at the 4th Floor of DA Field Operations Main Building in Quezon City.

The activity presented the status of 24 CGUARD on-going projects supported by BAR and emphasized its significance in connection with Secretary Emmanuel Piñol's program on food security.

In attendance were BAR-Program Monitoring and Evaluation Division Head Salvacion Ritual; consultants of the National Corn Program and members of the Corn Technical Working Group (Corn-TWG) led by Dr. Candido Damo and

CGUARD program presented to DA Undersecretary Cayanán

Mr. Antonio Gerundio; Dr. Artemio Salazar, CGUARD overall project coordinator from the Institute of Plant Breeding-University of the Philippines Los Baños (IPB-UPLB); and BAR focal persons for corn, Ms. Apolonia Mendoza and Dr. Rhea Desalesa.

CGUARD is a program of the DA National Corn Program, in collaboration with BAR and other corn stakeholders and agencies, to conserve the existing native and traditional varieties, develop breeding materials using native germplasm, and determine genes responsible for different unique traits in native varieties. Ultimately, the program

aims to increase corn grain yield and improve the corn productivity in the country.

Dr. Salazar, CGUARD overall coordinator, presented to the group updates on the program. He highlighted that the program has already identified CGUARD varieties that offer early maturing (*CGUARD Cn N48 or the Abra Glutinous*), high lysine content (*CGUARD Cn N34 or San Jose White and CGUARD Cn10 or Calimpus*), potential resistance to downy mildew (*CGUARD Cn N33 or Manggahan White; CGUARD Cn15 or Tiniquib D*) and Asian corn borer (*CGUARD Cn N42 or Lawaan*

turn to page 4



Members of the Corn TWG, consultants of the National Corn Program, and selected BAR staff meet with DA Undersecretary for Operations Ariel Cayanán (left) to discuss the CGUARD program. PHOTOS: LFONTANIL



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

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

PRODUCTION TEAM

Editor:	Rita T. dela Cruz
Consulting Editor:	Julia A. Lapitan
Managing Editor/Layout:	Anne Camille B. Brion
Writers:	Ma. Eloisa H. Aquino, Daryl Lou A. Battad, Anne Camille B. Brion, Rita T. dela Cruz, Leoveliza C. Fontanil and Patrick Raymund A. Lesaca
Contributors:	Joy Montecalvo and Anecita Telabangco/DA-RFO 11, and DA-RFO 2-CVRC
Reproduction:	Ricardo G. Bernardo
Circulation:	Lyn D. Pardiola and Lino Norman D. Reyes
ACD Head:	Julia A. Lapitan
Advisers:	Dr. Nicomedes P. Eleazar, CESO IV and Dr. Teodoro S. Solsoloy

ISSN 1655-3942

Copyright. Bureau of Agricultural Research, Department of Agriculture 2017.

For subscription and inquiries, please contact us at: Tel. Nos.: +63 (2) 461-2800 or 461-2900

local nos. 1136, 1143, 1132, 1138 Fax No. +63 (2) 927-5691 Email: acd@bar.gov.ph

Articles are also available online, visit our official website: <http://www.bar.gov.ph/barchronicle>

Follow and like us on: [f](#) [i](#) [t](#) DABAROfficial

BAR gears up for 2nd half of 2017



BAR Director Nicomedes P. Eleazar, in his message for the BAR officials and staff, reminds the group to continuously find ways on how to be of better service to the stakeholders of the agri-fishery R&D community. PHOTOS: RDELACRUZ

The Bureau of Agricultural Research (BAR) held its 2017 Mid-Year Review and Planning Workshop on 4-7 July 2017 in Los Baños, Laguna. It aimed to review and assess the bureau's performance for the first half of the year and to gear up for the next half, realigning all R&D programs and initiatives within the directives and priorities of the Department of Agriculture (DA).

Led by BAR Director Nicomedes P. Eleazar, the activity was organized by the Program Development Division (PDD) and was attended by division and unit heads and selected staff of the bureau.

Director Eleazar delivered the major accomplishments and milestones of the bureau for the first half of the year, highlighting the need to "find ways on how we can improve our service toward the utmost goal to serve and provide a better life for our farmers and fishers

through the development of R&D technologies." He also laid down his marching orders for immediate action with emphasis on ensuring the full utilization of funds, soliciting quality proposals, intensifying CPAR on coconut-based farming systems, including priority commodities of the DA in the RDEAP, and instructions on the upcoming events of the bureau, among others.

Highlights of the event included plenary presentations on the DA's latest policies and pronouncements to inform and guide the participants. Mr. Joell Lales, head of PDD, presented "Ensuring Food Availability and Affordability for All" which discussed the plans and budget proposals of the agriculture and fisheries sectors for 2018. Meanwhile, Ms. Cynthia Remedios de Guia, PDD asst. head and budget officer, presented the status of fund utilization for 2017 and pipeline of projects for 2018 of the bureau.

Division and unit heads presented the first quarter accomplishments and second semester plans for the year. Among those who presented were: PDD Head Joell Lales, Program Monitoring and Evaluation Division Head Salvacion Ritual, Technology Commercialization Head Anthony Obligado, Institutional Development Division Head Digna Sandoval, Applied Communication Division Head Julia Lapitan, Information Management Unit Head Melissa Resma, Administrative Division Head Evelyn Juanillo, and Finance Division Head Judith Maghanoy.

BAR Asst. Director Teodoro Solsoloy officially closed the planning workshop. He reiterated the earlier pronouncements and marching orders of Director Eleazar, particularly in soliciting quality research proposals from the regions and other BAR partner institutions. ### (Rita T. dela Cruz)

Adlay R&D program...from page 1

Also, as part of *adlay*'s product development efforts, a professor from the Institute of Human Nutrition and Food, College of Human Ecology in the University of the Philippines Los Baños (UPLB) Dr. Wilma Hurtada was invited to explain the results of the analysis of the nutritional content and value of *adlay*. This is in agreement with the program's effort to harness the potentials of *adlay* for health and

wellness.

To intensify marketing and distribution, Bukidnon-based non-government organization, the Hineleban Foundation, is one of the partners of the bureau under the *Adlay* R&D program identified to coordinate with possible local and export markets. The Hineleban Foundation was able to contribute the biggest produce of *adlay* as of May 2017.

Further, BAR, with partners

from the DA regional field offices, targets to put up *adlay* processing facilities to be established in Southern Tagalog Integrated Agricultural Research Center (STIARC) in Lipa, Batangas; Dapitan City in Zamboanga del Norte; and Malaybalay City in Bukidnon. This initiative is set to take off under the Bureau's Institutional Development Grant (IDG) program. ### (Daryl Lou A. Battad)

CGUARD program...from page 2

Bukidnon and CGUARD Cn36 or Valencia Orange), and developed a local novel corn genetic resources through molecular marker analysis using the Simple Sequence Repeats (SSRs), a modern research and development (R&D) tool.

Dr. Salazar reported that, as of February 2017, a total of 2,116 native corn varieties has been collected by the DA-Regional Field Office (RFOs). He also informed the group on the contaminated corn varieties *sige-sige* that spreaded out in Mindanao. *Sige-sige* (RR corn) is a genetically modified organism (GMO) white corn variety in which the seed can be used again during successive planting seasons and has tolerant traits to herbicide. "Many people in Mindanao are eating *sige-sige* corn, believing that GMOs are confined only to the yellow corn varieties," he said. "Not knowing that *sige-sige* is a GMO white and when crossed with our native white, the corn farmers cannot easily distinguish white GMOs from our white native variety, this is the reason why we need to communicate to the Bureau of Plant Industry that there should be no GMOs that are white," he added. Aside from that, Dr. Salazar explained that farmers should be encouraged not to use this kind of corn variety for the reason that it is unwanted and untested which may creep the country's food systems.

Ms. Ritual affirmed to pursue the conduct of capability building and trainings to the CGUARD regional researchers to technically equip them in conserving and utilizing corn germplasm.

Usec. Cayanan showed continuous support to the bureau's effort on corn research and development to ensure that the country will have the available technologies essential for preventing shortages in corn supply enough for human consumption, feeds, and industrial uses, and ultimately increase the income of corn farmers. ### (Leoveliza C. Fontanil)

Eleazar graces BPI's Organic Field Day

Bureau of Plant Industry-Los Baños National Crop Research, Development and Production Support Center (BPI-LBNCRDPSC) held an Organic Field Day and Techno-Forum on 3 July 2017 at BPI-LBNCRDPSC, Timugan in Los Baños, Laguna.

With the theme, "*Halaman ay Yaman sa Organikong Pamamaraan*," the event was organized in support to the Organic Agriculture Program of the government. The activity served as a venue to showcase the generated technologies for dissemination to farmers.

Bureau of Agricultural Research (BAR) Director Nicomedes P. Eleazar served as guest speaker. He was joined in by BAR-Institutional Division Head Digna L. Sandoval. Majority of the participants were farmers from the municipalities of Sta. Cruz, Calauan, Pagsanjan, Magdalena, and Siniloan in Laguna.

Dr. Herminigilda A. Gabertan, chief of BPI-LBNCRDPSC officially welcomed the participants. In her message, she stressed her appreciation to everyone who served as "partners" and how everyone played an important role. She was also delighted to share her excitement of the proposed plan of Dr. Eleazar to put up a Technology Commercialization Center at BPI-LBNCRDPSC to provide a venue to showcase the technologies.

Director Eleazar informed the group of the recently inaugurated Technology Hub Center inside the



BAR Director Nicomedes P. Eleazar as the guest speaker of the Organic Field Day in Laguna PHOTO: MEAQUINO

University of the Philippines Los Baños which will serve as a one-stop shop facility for BAR and non-BAR supported products/technologies. For this, he asked the support of various stakeholders to encourage farmers to showcase their produce and developed products. This facility is an addition to the establishment of TechCom Centers funded under the BAR-Institutional Development Grant.

He mentioned that BAR supported projects for organic agriculture related to applied research, production, and post-production, and the establishment of organic agriculture research centers in the country, citing the Organic Agriculture R&D Center established by the DA-Regional Field Office 4A-Southern Tagalog Integrated Agricultural Research Center as an example. He also encouraged area expansion of planted quality planting materials. ### (Ma. Eloisa H. Aquino)



BAR Director Eleazar visits the sites with organic agriculture-related technologies and initiatives. PHOTO: MEAQUINO

Field validation for the 2017 Gawad Saka outstanding agri researcher, scientist conducted

Following the desk evaluation held in June 2017, a month-long field validation was conducted from July to August for the 2017 *Gawad Saka* Search for Outstanding Agricultural Scientist (OAS) and Researcher (OAR). The activity aimed to check the accuracy of information of the nominees' works in the field level. In the validation, the evaluators looked into the originality of research and scientific works and methods, and the impact of new knowledge generated from such works.

For the OAR category, among the project sites validated was from Dr. Berly F. Tatoy, one of the shortlisted nominees from the Department of Agriculture-Regional Field Office (DA-RFO) 10-Research Division. Her works include the implementation of a Community-based Participatory Action Research (CPAR) project highlighting the reduction of bacterial wilt incidence on potato production, apart from her studies involving organic vegetables and rice. Another nominee is Dr. Merlina H. Juruena of the Provincial Agriculture Office-Davao del Norte whose research efforts are focused on addressing *Fusarium wilt* incidence in Davao del Norte. Dr. Arthur D. Dayrit of the DA-RFO 3-Research Division is also a contender under the OAR category for his various



Field visit in a banana project in Panabo City, Davao del Norte PHOTO: ABRION

projects under the CPAR program.

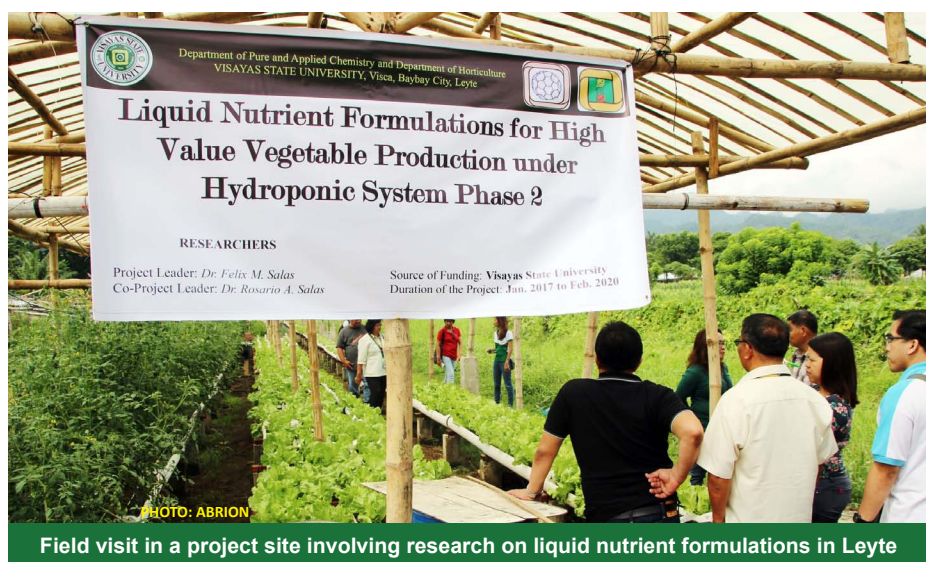
As for the OAS category, one of the shortlisted nominees is Dr. Olivia P. Damasco of the University of the Philippines Los Baños (UPLB) for her accomplishments, particularly the *lakatan* variety with built-in resistance to banana bunchy top virus, in vitro conservation of asexually propagated crops, and tissue-cultured disease-free banana planting materials. There is also Dr. Marissa V. Romero of the Philippine Rice Research Institute. Among her works include the innovative application of grain quality in rice, different value-adding for rice, nutraceuticals of pigmented rice, and initiatives on healthier rice. Dr. Felix M. Salas of the Visayas State University also made it to the list with his works on environment-friendly

pesticides, 'Generally Regarded as Safe' coatings technology, liquid nutrient formulations, and hydroponic system, among others. Dr. Emma K. Sales of the University of Southern Mindanao completed the list of shortlisted nominees with her projects on validating the varietal integrity of promising rubber clones through DNA fingerprinting, as well as researches on banana, marang, and other agricultural commodities.

Serving as the field evaluators from the National Technical Committee (NTC) for OAR were Assistant Director Teodoro Solsoloy (Bureau of Agricultural Research), Dr. Enrico Supangco (UPLB), Dr. Jose Hernandez (UPLB), Dr. Elda Esguerra (UPLB), Dr. Mudjekeewis Santos (National Fisheries Research and Development Institute), and Ms. Digna Sandoval (BAR).

Meanwhile, field evaluators from the NTC for OAS were Assistant Director Teodoro Solsoloy (BAR), Dr. Edralina Serrano (UPLB), Dr. Roberto Rañola, Jr. (UPLB), Dr. Jonar Yago (Nueva Vizcaya State University), and Ms. Digna Sandoval (BAR).

The *Gawad Saka* Search for the OAS and OAR categories is an annual activity of the Department of Agriculture wherein BAR serves as the coordinator and secretariat. It recognizes researchers and scientists whose researches and scientific works have contributed to the overall growth of the agriculture and fisheries sector. ### (Anne Camille B. Brion)



Field visit in a project site involving research on liquid nutrient formulations in Leyte PHOTO: ABRION

BAR-supported products showcased in *TienDA*

The Department of Agriculture (DA) launched the *TienDA* Farmers and Fisherfolks' Outlet on 28-30 July 2017 at the Bureau of Plant Industry, Malate, Manila.

Gracing the event were Senator Loren Legarda, Agriculture Secretary Emmanuel Piñol, Undersecretary Bernadette Romulo-Puyat, undersecretaries, assistant secretaries, regional directors, staff members of the DA, farmers, fishermen, and cooperatives from all over the country.

Considered as a new marketing initiative, *TienDA* aims to directly link farmers and rural entrepreneurs to the market, eliminating cartel and other unnecessary layers in the food value chain. Featured in the activity were fresh produce from all over the regions and different products developed by farmers' cooperatives available at farm gate price.

Among the products exhibited were “*Queench*” natural pineapple drink from the Queen pineapple developed by the Labo Progressive Multi-Purpose Cooperative (LPMPC); and “*Mush Charap*” crispy mushroom developed by Mushroom Producers Cooperative. Both received support

in terms of product development from the Bureau of Agricultural Research (BAR) under its National Technology Commercialization Program (NTCP).

LPMPC is based in Camarines Norte which promotes livelihood projects on Queen pineapple production and is producing pineapple products and by-products. During the *TienDA*, consumers were able to buy pineapple juice and jam produced by LPMPC. The development of such product lines were supported through the BAR-NTCP project, “Enhancing Competitiveness of the Queen Pineapple in the Bicol Region.”

Meanwhile, the Mushroom Producers Cooperative was formed after its current chairman attended trainings organized through the BAR-NTCP project, “Promotion and Commercialization of Lowland Mushroom-based Food Processing Technologies”. Products made available were crispy mushroom, noodles, pickled, and jam, among others.

As proposed, the *TienDA* Farmers and Fisherfolks' Outlet will be available twice a month in different locations. ### (Ma. Eloisa H. Aquino)

Biofertilizer pro

Promoting organic agriculture in the Philippines by means of using biofertilizers has been determined as one of the main options to address the rising concern on agricultural sustainability, and a key tool in helping provide answers to huge problem on shortages of food in the country. Hence, on 20 July 2017, the Bureau of Agricultural Research (BAR), through its Applied Communication Division (ACD), led the conduct of seminar series featuring topics on biofertilizer.

With over 300 people in attendance, the seminar topics aimed to promote sustainable management of soil health, minimize the use of chemical-based inputs, and help farmers earn higher profit from their produce by lowering cost of farm production.

The topic, “Protocol Improvement and Product Development of Liquid Organic Fertilizers from Fermented Plant Extract,” was discussed by Dr. Mannix S. Pedro, university researcher at the National Institute of Molecular Biology and Biotechnology (BIOTECH), University of Philippines Los Baños. The topic was a result of a BAR-funded project that aimed to develop a science-based protocol in the formulation of high-quality biological extracts for use as liquid fertilizer.

According to Dr. Pedro, biofertilizers, known as microbial products, act as nutrient suppliers and soil conditioners that lower agricultural burden and conserve the environment. “These microbial products when applied can provide good soil condition that is imperative to increased crop production, as well as human health welfare. As a result, the materials used to sustain good soil condition, are treated as agricultural matters,” he explained. He also mentioned that there are still some quality measures to be met on the use of these microbial products. More precise quality



PHOTO: MEAQUINO

TienDA is a new marketing initiative of the DA which attracts hundreds of visitors who are able to get a taste of fresh produce and products from farmers' cooperatives nationwide.

production, application featured in BAR seminar



More than 300 seminar attendees listen to the talk about biofertilizers from experts of BIOTECH-UPLB. PHOTO: RDELACRUZ

control must be made in favor of the farmers adopting the protocol. “We already developed better production techniques in order to improve the management system for microbial products. These recommendations of biofertilizers are based on the crops’ needed requirement due to variances in climate and soil conditions,” he added.

Dr. Pedro also discussed the topic, “Biofertilizer Technologies for Sustainable Agriculture and Its Other Beneficial Usage,” that focused on the various microbial-based fertilizers that were developed specifically to increase availability of plant nutrients in the soils.

He shared that the BIOTECH-UPLB offers a wide array of biofertilizer technologies that can be used for crop farm management. Among these include: *Nitroplus*, a nitrogen supplement for legumes such as peanut, *sitao*, soybean and mungbean; *Biogroe*, a plant growth promoter of *rhizobacteria* (PGPR) and solubilize phosphorus for *ampalaya* and *sampaguita*; *Brown Magic*, a growth enhancer and biocontrol of root diseases of various orchid species; *Vesicular Arbuscular Mycorrhizal Root Inoculant* (VAMRI) which promotes growth of agricultural and horticultural crops, and trees, such as sugarcane, eggplant, tomato, and *papaya*; *Bio-N*, a microbial-based fertilizer

that supplies nitrogen and enhances growth of rice, corn, and vegetables; *BioGreen*, *BioQuick*, and *BioFix* which are microbial inoculants for the bioconversion of crop residues and agro-industrial by-products into bio-fertilizers; *Mycogroe*, a tree vitamin to enhance growth and development of pines, eucalypts and dipterocarps; and *Mykovam*, a soil-based biofertilizer for fruit trees, agricultural crops, reforestation species, and ornamentals.

Dr. Pedro accentuated that these microbial product technologies result to farm inputs being enriched with beneficial microorganisms that are active mediators in the cycling of nutrients involved in the natural conversions of nitrogen, phosphorus, potassium, and carbon, among others needed for plant growth. He also discussed the impacts and advantages of using biofertilizers. According to him, it can replace 50-100 percent of the plant’s chemical fertilizer requirement; impart a degree of plant resistance and tolerance to many stressants including soil-borne pathogen, drought, and pollutants; and contribute to the maintenance of ecological balance.

An actual demonstration on the product procedures in making fermented plant juice (FPJ) from *madre de cacao* or *kakawate* was showed after.

The final topic, “Fermented Plant Extract Using Fish Hydrolisate,” was presented by Ms. Luz B. Opeña, also from BIOTECH-UPLB. Fish hydrolysate is a ground fish turned into liquid during fermentation process with plant extract. It is high in nitrogen, a principal element needed by growing plants. Ms. Opeña explained that its application provides many essential macro and micronutrients that help to rebuild and replenish unproductive soil, and promote the growth of bacteria and other organisms that work on breaking down the nutrients that are in the soil to make them more accessible to plants. Ms. Opeña called fish hydrolysate “a unique and natural composting bio-active stimulant” for plant material. She also taught the seminar attendees on how to make fish hydrolysate out of *galunggong* (round scad).

During the seminar, BAR disseminated agri-fisheries R&D information materials and technology flyers to the participants. The production of these materials was funded by the Asian Food and Agriculture Cooperative Initiative (AFACI), a Korea-based inter-governmental and multi-lateral cooperation body that aims to promote sustainable agriculture through knowledge and information sharing on agricultural technology. ### (Leoveliza C. Fontanil)

Progress of 3-year Yamang Lupa Program assessed



Members of the Program Management Group of Yamang Lupa review the three-year implementation in Regions 4A, 8, and 9. PHOTO: PLESACA

Assessing the progress of the Yamang Lupa Program (YLP), a program management group review was conducted on 21 July 2017 at the Bureau of Agricultural Research (BAR).

The YLP pilot regions and lead proponents from Department of Agriculture-Regional Field Offices (DA-RFOs) 4A, 8, and 9 and the Southern Luzon State University (SLSU)-Lucban campus presented their accomplishments during the program implementation.

The YLP aims to assess the macro and micronutrients of soil in the selected provinces of Quezon, Samar, and Zamboanga Sibugay thereby developing, evaluating, and popularizing best-bet soil, water and nutrients, as well as pest and disease management options. Other goals include the strengthening of the existing seed delivery system; pilot testing of farmer-friendly ICT-enabled innovative extension system; and building the capacity of stakeholders for increasing agricultural

productivity through scaling-up model in the piloted regions.

Reporting for SLSU was Dr. Gondolina Radovan, vice president for Planning, Research, Extension, Production and Development; while Dr. Elvira Torres, regional technical director for DA-RFO 8; and Engr. Roger Bagaforo, research manager together with Mr. John Paul Guadalupe, YLP focal for DA-RFO 9.

After almost three years of implementation, Dr. Radovan updated the group that 1,564 farmers have been registered, and 75 farmer-cooperators and 75 demonstration farms have been enrolled under the program. There were 220 soils samples representing 8,433 hectares have been collected and analyzed. Soil sampling will still be conducted in the remaining 1,500 hectares within the year.

RTD Torres said the piloted sites in Region 8 have accomplished 99.23 percent in terms of hectares identified. This means that out of the 6,500 hectares targeted, 6,450 has been covered. Of the 1,493 soils sampled, 1,485 soils were analyzed. A total of 1,113 soil health cards were distributed to farmer-cooperators.

In Region 9, Engr. Bagaforo



In celebration of the National Science and Technology Week (NSTW), the Department of Science and Technology (DOST) organized the 2017 Science Exposition and Trade Fair from 11 to 15 July 2017 at the World Trade Center, Pasay City.

Bannered with the theme, “Science for the People,” the NSTW showcased the latest and most innovative products, developed and funded by Filipinos in service to society. The activity aimed to bring science and technology (S&T) result to the public by letting them

experience its vital role, and promote innovation in improving the Filipino’s life and its contribution to the national development as a whole.

This year’s NSTW highlighted seven major S&T-based programs in the areas of food, biodiversity, health, transport and services, advanced emerging technology, disaster risk reduction, and climate change.

The Bureau of Agricultural Research (BAR), through its Applied Communication Division, participated in the NSTW and featured booth exhibition showcasing novel results in research and development (R&D) projects under its two banner programs: Community-based Participatory Action Research (CPAR) and National Technology Commercialization Program (NTCP).

For this year, among the

and Mr. Guadalupe reported that 210 soil samples were analyzed covering 4,075 hectares out of 10,000 hectares targeted; 60 health cards were distributed to farmer groups; and 1,231 farmers have been registered.

YLP is an approach that aims to assess soil health conditions and develop resilient rainfed agriculture towards improving rural livelihoods, with a mission of increasing productivity and income of farmers by roughly 20 percent through improving soil health conditions as an entry point.

It is a three-year (2015-2017) project cycle, and is a collaborative effort between BAR and the Bureau of Soils and Water Management, in partnership with the International Crops Research Institute for the Semi-Arid Tropics, DA-RFOs, state universities and colleges, and local government units.

Engr. Samuel Contreras of the BSWM, who facilitated the review, is the chair of the YLP Program Management Group. He reiterated the need to adhere to the proposed action plans or activity timelines since the program is nearing its year of completion. Assisting him during the review were the YLP focal persons and coordinators from BAR. ### (Patrick Raymund A. Lesaca)

research-generated technologies highlighted were on integrated organic farming, corn and vegetable intercropping, benefits of shiitake mushroom, production of seedless breadfruit, white potato production, development in citrus industry, and soybean.

Aside from the booth exhibits, visitors were provided with technology books and production guides on garlic, Queen pineapple, seaweeds, abalone, native pig, native chicken, and goat. BAR also distributed information, education, and communication materials including flyers and brochures.

Around 1,260 participants visited the BAR booth composed mostly of researchers, scientists, and innovators from the government, academe, and private sectors. ### (Leoveliza C. Fontanil)

ADLAY FOOD PRODUCTS showcased in PAFT Fair



Representative Evelina Escudero (2nd from right) drops by the BAR booth during the PAFT Annual Convention and Trade Fair. PHOTO: LFONTANIL

The Bureau of Agricultural Research (BAR), through its Applied Communication Division, participated in the PAFT Annual Convention and Trade Fair held on 26-28 July 2017 at the Blue Leaf Cosmopolitan Venue in Libis, Quezon City. With the theme, “Levering Food Technology Solutions,” the event was organized by the Philippine Association of Food Technologists (PAFT) in celebration of its 56th year anniversary.

The three-day activity aimed to bring people together and forge strong partnership in bringing the latest trends and innovations on food technology solutions, and to highlight the need to develop new technologies and maximize its application.

As participants, BAR featured various *adlay* products in its exhibit and invited one of its partners and active implementers of R&D activities on *adlay*, the Southern Tagalog Integrated Agricultural Research Center (STIARC) of the Department of Agriculture – Regional Field Office (DA-RFO) 4A to conduct a seminar on *adlay* product development, *adlay* market trends, and its actual processing demonstration.

Ms. Cynthia D. Leycano of the DA-RFO 4A, served as resource speaker on the topic “*Adlay* Food Processing Technology” during the event. In her presentation, she highlighted *adlay* as a food ingredient. “*Adlay*, not known to most of us, has been around for many years. Many

of us may have come across this crop without knowing that it can actually be a substitute to rice in our daily needs,” she said. “*Adlay* grains can be cooked like rice and corn grits, and it can also be made into flour for baking purposes and other delicacies. Aside from that, the polished *adlay* grains contains sodium, calcium, potassium, and zinc which may help provide essential nutrients to human health,” she added.

Leycano taught the participants the techniques on how to prepare affordable, nutritious, and palatable *adlay* delicacies by presenting the procedures of the DA-RFO 4A on different *adlay* recipes such as *bibingka*, popped *adlay*, *adpaw*, *adlay maki sushi*, *pulvoron*, *turones de adlay*, *maja blanca*, *adlay espasol*, and *tikoy*, among others. “As people are becoming more health-conscious nowadays, I encourage everyone to try *adlay* with its new recipes and include them in daily diets,” Leycano said.

In 2010, a research and development (R&D) program for *adlay* was initiated by BAR, in collaboration with the DA-RFOs and other public and private partners. The program pushes for the development, utilization, and promotion of *adlay* as an alternative food crop. This is also in line with the efforts of the DA on achieving food self-sufficiency by developing technologies that will further improve the *adlay* crop as an alternative staple food to rice and corn. ### (Leoveliza C. Fontanil)

CGUARD : Safekeeping native seeds, Securing the future

Story and photos by Rita T. dela Cruz

Long before plant hybridization and other advanced breeding techniques were developed, early corn farmers have been practicing selective breeding. They examine the plants and save the seeds that possess the qualities that they like such as big kernels, tastier, and high-yielding. These seeds that they have collected and saved will be planted for the next cropping season.

With the world experiencing climate change, along with continuous increase in population and dwindling agricultural lands, farmers are compelled to produce more food. Thus, they rely on hybrid seeds which are more expensive and unsustainable.

“This calls for varieties that are tolerant to various environmental stresses and generally native varieties are just like that, they are stress tolerant,” explained Dr. Artemio Salazar of the Institute of Plant Breeding-University of the Philippines Los Baños (IPB-UPLB). “Through almost five centuries of corn production in our country, we have tremendous genetic variability in the field. In fact, the most reliable

source of genetic resistance to the then most serious disease of corn in Asia could be traced to our native variety, *Tiniguib*,” he added.

According to Dr. Salazar, native varieties, having been planted for centuries by early farmers, have already undergone natural, selective breeding including the various environment stresses that could affect its yield. “Most of our native varieties are low yielders but there would always be production no matter what. Also, they were selected by farmers for quality traits, for eating, and for storability,” he said.

Given this, varieties that do not need chemical inputs and have acceptable taste quality are the specific types that must be considered in addressing food security, climate change, conserving biodiversity, and sustainable agriculture.

Conserving, utilizing native corn varieties

To conserve the country’s native corn varieties, which were saved and developed by farmers for thousands of years, the IPB-UPLB, in collaboration with the Department of

Agriculture-Bureau of Plant Industry (DA-BPI) and DA-Regional Field Offices (RFOs), is implementing a long-term program called Corn Germplasm Utilization through Advance Research and Development (CGUARD). Funded by the Bureau of Agricultural Research (BAR), the program, which was initiated in 2015, aims to collect, conserve, and develop native corn germplasm for agronomic response to different environment and physiological stresses including pests and diseases, soil acidity and salinity, soil fertility, drought, and water logging.

“The thrust of this program is really to focus on the utilization aspect which means breeding which will be used in developing the varieties that the farmers can use,” said BAR Director Nicomedes P. Eleazar.

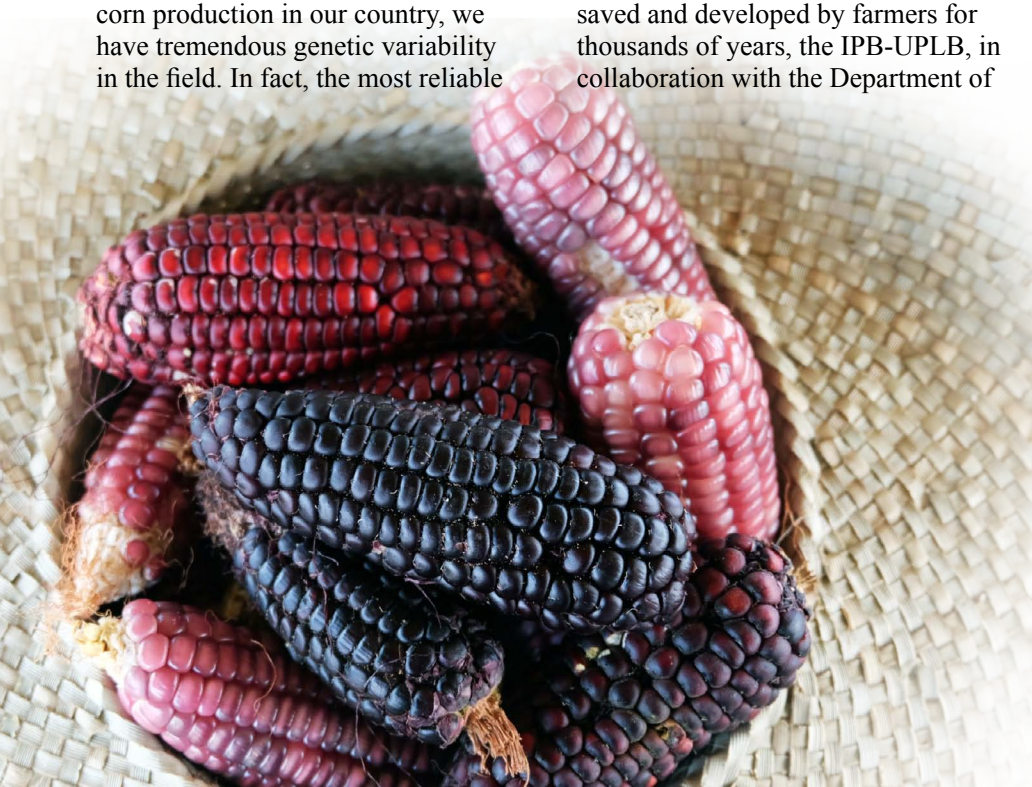
Meanwhile, Dr. Salazar, CGUARD program leader, furthered that study showed that these native varieties have resistance to varying stresses naturally occurring in various corn farms.

The traits of the native varieties will be used to further develop good quality corn seeds for farmers. “By doing so, we are also protecting our novel local corn genetic resources, which is crucial in ensuring food security and safeguarding the future generations, so that they too will still be able to see and taste these native varieties that, if not conserved will be gone on the face of the earth,” he said.

Accomplishments of the program

The collection of seeds is being done by the 16 participating DA-RFOs. “All the collections in the country will be done by the regions, they will coordinate with the farmers and the seeds collected will then be screened and characterized. This collection will then be maintained

turn to page 12



BOOSTING UPLAND RICE PRODUCTION THROUGH SCIENTIFIC DISCOVERY

Story by Patrick Raymund A. Lesaca

Rice is the country's main food staple. It is consumed by almost every Filipino. It provides our calorie requirement and carbohydrate needs.

The Department of Agriculture (DA) is resolute in its campaign to boost the production of the country's food staple and aiming to achieve rice self-sufficiency and providing available and affordable food for all Filipinos.

In the report of the Philippine Statistics Authority, production level of *palay* (unmilled rice) in January-March 2017 reached 4.42 million metric tons (mt). Harvest area stretched to 1.15 million hectares from previous year's record of 1.08 million hectares. Yield per hectare increased from 3.64 mt in 2016 to 3.85 mt in 2017 or by 5.80 percent (PSA, 2017).

Upland rice in the Philippines

Due to limited arable lowland, some of the country's upland areas are being cultivated for rice production. It is estimated that upland rice occupies close to 100,000 hectares with an average yield of 1.95 tons/ha.

Upland areas are rainfall dependent and are generally prone to drought because there is no field accumulation of water in the system. These areas are exposed to adverse factors such as water stress, hot and dry climatic conditions, and poor aerobic soils that have excesses of toxic elements, such as aluminum or manganese, or deficiencies of vital elements such as iron and phosphorus.

The deficiency of phosphorus (P), for instance, limits rice productivity and is mainly visible in drought environments because the mobility of phosphorus decreases sharply as the soil dries.

To address the deficiency of phosphorus in upland areas, a research project on "Genetic Improvement for Upland Rice through marker-assisted selection (MAS) for Tolerance to Phosphorus Deficiency" was undertaken by a group of researcher-scientists from the Philippine Rice Research Institute (PhilRice). The project aimed to develop P-tolerant lines or varieties under upland condition that will produce higher yield than the current level of roughly 2 t/ha to at least 4 t/ha grain yield.

According to Dr. Victoria C. Lapitan, supervising science research specialist of PhilRice Los Baños, the application of phosphorus fertilizer and irrigation enhancements can be used to lessen the effect of low P availability and mitigate drought stress. However, the lack of locally available P sources and the high cost of importing and transporting fertilizers prevent many resource-poor rice farmers from applying P. Sources cited that the development of phosphorus uptake (Pup1) rice cultivars may be an attractive and cost effective approach to increasing rice yields where P deficiency is the major constraint. Pup1 is a major quantitative trait locus (QTL) which confers tolerance of P deficiency in soil.

The team of Dr. Lapitan has adopted the MAS method and

the double haploid (DH) technique to fast track the development of rice varieties for upland condition. The researchers indicated that the use of MAS is advantageous in selecting for complex traits, pyramiding of multiple genes and in backcrossing, while in the DH approach, the system improves breeding efficiency by reducing the amount of time to develop elite lines. The development of rice cultivars with enhanced P use efficiency coupled with higher P acquisition efficiency is an attractive and cost-effective strategy for a sustainable P management in upland farming.

Project results

Based on survey using Pup1 markers and agro-morphological characterization of the 93 rice germplasm, four modern rice varieties (NSIC Rc238, NSIC Rc240, PSB Rc82, and NSIC Rc222) were selected as recipients of Pup1 gene from the Vandana genotype. Four cross combinations were produced: NSIC Rc238 x Vandana, NSIC Rc240 x Vandana, PSB Rc82 x Vandana, and NSIC Rc222 x Vandana. Near Isogenic Lines (NILs) generated from these crosses were screened through MAS with Pup1 markers. From a total of 537 NILs derived from BC2F5 progenies of the above crosses, 57 MAS-selected NILs with Pup1 gene are now under preliminary yield trial (PYT) evaluation. These outstanding NILs also showed good performance under P-deficient condition in the uplands.

Careful characterization and evaluation of these breeding lines in terms of their yield and

turn to next page

Boosting upland...from page 11

agro-morphological performance will be continued in order to develop P-tolerant lines or rice varieties suitable for upland condition.

Way forward

The combination of the MAS and DH techniques can be a powerful tool in the breeding program for upland rice and can be a faster way for success with much more certainty. And with the DA's thrusts on its rice program on achieving rice self-sufficiency, not only in the lowland areas, but also in upland areas would be a pivotal strategy as one of the interventions of the program particularly, addressing food insecurity of poor households in upland marginal areas.

The rice genetic improvement project of Dr. Lapitan was funded under the Asian Food and Agriculture Cooperation Initiative (AFACI) which is being coordinated by the Bureau of Agricultural Research (BAR). AFACI is an inter-governmental and multilateral cooperation body established through a Memorandum of Understanding (MOU) signed among the member-countries on 3 November 2009 in Korea. It involves international collaboration for the development of sustainable agriculture and food technology to help economies deal with the changes in the agricultural environment.

Dr. Lapitan received the "Most Outstanding Principal Investigator" and "Outstanding Principal Investigator" awards in 2015 and 2016, respectively for the implementation of the project under the AFACI Rice Program, "Development of rice production techniques for increase of self-sufficiency of staple food in Asia".

For more information, contact:

Dr. Victoria C. Lapitan

Supervising Science Research Specialist
Plant Breeding & Biotechnology Division
Philippine Rice Research Institute
Los Baños, Laguna
Tel. No. (049) 536-8620 or 501-1917
Email: vc.lapitan@philrice.gov.ph

CGUARD...from page 10

and conserved as part of our genetic diversity," Dr. Salazar explained.

As of February 2017, the DA-RFOs have a total collection of 2,116 native corn varieties. Half of the collection has been sent to the National Plant Genetic Resources Laboratory (NPGRL) of UPLB for breeding, while the other half has been characterized in their respective research stations.

"NPGRL is also our partner in this program. It houses all the germplasm collections of the country for long term storage. NPGRL also coordinates with the DA-RFOs and advises them on how to properly conduct the seed collection and conservation process," reported Dr. Salazar.

Among the significant findings of the program included the identification of an early maturing variety, CGUARD Cn N48 or "Abra Glutinous" which is harvestable as green corn in 55 days. Meanwhile, CGUARD Cn N34 or "San Jose White" and CGUARD Cn N10 or "Calimpus" were varieties identified to be high in lysine, an essential amino acid for human health.

Three native varieties that were identified to have high downy mildew resistance were CGUARD Cn N 15 or "Tiniguib D"; CGUARD Cn N33 or "Manggahan White"; CGUARD Cn N 17 or "Bulldog" while two were found to have potential resistance to Asian Corn Borer: CGUARD Cn N 42 or "Lawaan Bukidnon" and CGUARD Cn N36 or "Valencia Orange".

Future activities

BAR Director Eleazar emphasized that CGUARD is a long-term program that aims for a long-term impact, specifically the generations to come. "CGUARD is one of the priority programs of Agriculture Secretary Emmanuel Piñol in line with the Food Security Program of the DA. Corn is

the second most important staple crop in the Philippines. As a staple crop, (white) corn substitutes for rice especially in the South and during rice scarcity. So this also supports the rice program of the government," he said.

As this is a continuing program of the DA, all RFOs will continue the collection and characterization of native corn varieties and develop their CGUARD posters by featuring the best native corn variety. Meanwhile, IPB-UPLB will continue the population improvement work for selected entries.

"What we are doing with this CGUARD Program is that we make the industry self-sufficient and food secured, and that what we are eating is nutritious and healthy. At the same time, we want to provide our farmers with good livelihood. We are not only working for ourselves but for the future of the generations even after us," concluded Dr. Salazar. ###



A woman farmer showing the purple flint corn she collected from the cornfield.



From training attendee to mushroom producer

Story by Ma. Eloisa H. Aquino

The National Technology Commercialization Program (NTCP), a banner program of the Bureau of Agricultural Research (BAR), does not only aim to highlight research and development breakthroughs and mature technologies generated and developed by research institutions, but it also serves as a vital tool for enterprise development.

One testament to this is the story of Ms. Thelma P. Vinoya of Marikina City on how attending a training on “Mushroom Production and Processing” led to greater heights—paving way to the establishment of a cooperative and development of mushroom-based products.

Dr. Emily Soriano, mushroom technology developer from the Department of Agriculture-Regional Field Office 3, conducted series of

trainings on mushroom as part of the BAR-NTCP project titled, “Promotion and Commercialization of Lowland Mushroom-based Food Processing Technologies”.

In 2012, Ms. Vinoya started as a training attendee but a year after, she started growing oyster mushroom and sold its fruits. Eventually, she offered various food products developed from mushroom through participation in various exhibitions and trade fairs organized by various agencies in different SM Stores in Masinag, Taytay, and Megamall; Lucky Mall in Binondo; and World Trade Center. She started offering processed mushrooms such as toasted mushroom siopao, *siomai*, burgers, *chicharon*, and other various “to-go” viands.

In August 2013, she was able to register the TPV Mushroom Food Haus at the Department of Trade

and Industry which later on formed partnership with JMP Mushroom, and became SEC-registered as TJ Milky Mushroom Co.

Sharing the information and knowledge gained, she conducted trainings on mushroom culture and production to her fellow mushroom growers and to budding enthusiasts. The growing attendees resulted to the creation of the Mushroom Producers Cooperative in 2015 involving various growers from different parts of Luzon. TJ Milky Mushroom Co. conducted trainings for 695 beneficiaries of 4Ps in the four municipalities of Tarlac.

To date, TJ Milky Mushroom Co. continuously provides trainings on mushroom culture and growing. The cooperative is likewise producing and developing various mushroom products including crispy mushroom, mushroom noodles, *siomai*, burgers, pickles, roasted mushroom powder, and other snacks made from mushrooms.

“We fully acknowledge the technical assistance shared to us by Ma’am Emily Soriano and to BAR for being one of the government agencies that continuously provide support to budding entrepreneurs like us,” said Ms. Vinoya.

Essentially, the BAR-NTCP project aimed to commercialize low-cost technologies on mushroom production and processing for village-level producers. “The result of the project was very promising. The project efforts on commercialization resulted to infusion of learnings and insights on production and processing,” affirmed Dr. Soriano.

She added that the project was able to develop product prototypes such as pickled mushroom; jam, candies, crackers, cookies, *pulvoron*, wine, tocino, and *longganisa* from mushroom; and mushroom meals like *siomai*, burger, *bola-bola*, and *sisig*. “These products greatly extended the shelf life of harvested mushroom fruits from 1 to 14 months depending on packaging and storage. The estimated value-added income for producers ranges from Php 40 to Php 239 per kilogram of mushroom fruits,” she added. ###



PHOTO COURTESY OF DA-RFO 11

Participants of the "Capacity Enhancement of Cacao Cooperators and Stakeholders, R&D Technology Sharing and Investment Forum"

Cacao R&D forum opens opportunities to Mindanao farmers

Opening opportunities for cacao farmers in Mindanao, particularly on investment, technology sharing, and marketing, the Department of Agriculture-Region Field Office 11's (DA-RFO 11) Research Division, in partnership with the Office of the Provincial Agriculturist (OPAG)-Davao del Sur, held the "Capacity Enhancement of Cacao Cooperators and Stakeholders, R&D Technology Sharing and Investment Forum" on 21 July 2017 in Digos City, Davao del Sur.

One hundred sixty farmers from the municipalities of Bansalan, Digos, Hagonoy, Kiblawan, Magsaysay, Malalag, Matanao, Padada, Sta. Cruz, and Sulop attended the event. Other participants were representatives from the DA-RFO 11, local government units, non-government organizations, and officers from different farmer associations.

The DA-RFO 11, through its Cacao R&D Program, has already launched six sites with a one-hectare technology demonstration of cacao rehabilitation and rejuvenation, and integrated cacao farming systems in different provinces region-wide including six sites with one-hectare per province region-wide for cacao intercropping systems with coconut

and cassava.

Two of the technology demonstration sites are located in Linawan, Bansalan in Davao del Sur with cooperator, Mr. Tito Gucor; and in Padada, Davao del Sur with cooperator, Mr. Roger Depalobos.

Providing technical inputs to cacao farmers, the event invited nine speakers. The first speaker was Dr. Yolanda A. Camillo, assistant provincial agriculturist from OPAG with her presentation on the "Davao Del Sur Cacao Industry Situationer". This was followed by Mr. Dario Divino, cacao focal person of DA-RFO 11, where he presented the "Cacao Road Map and HVCDP Program Support". Mr. Marvin Oxillo from the Agribusiness and Marketing Assistance Division also explained the mandate of their division, assisting farmers in finding linkages to entrepreneurs for direct market and product promotion. From Panabo City, Ms. Joycebel Macias, vice-chairman of Rehobooth Association, gave an overview about their buying standards and other assistance that they provided to the farmers through technical support. Ms. Portia Sugsi, technical services manager from Kennermer Foods Int'l Inc., gave an orientation on their Contract Growing Program and Agronomika's Cacao Farm Productivity Loan, providing financial

and technical assistances to all farmers. Meanwhile, for lending opportunities, Mr. Algie Bughao, area project supervisor from the People's Bank of Caraga Inc. briefly presented an overview of the loans that they offer to cacao farmers in Davao del Sur.

The farmers were oriented on the Philippines' Good Agricultural Practices (GAP) through Ms. Geraldine Gaterine, regional Cacao R&D Program leader of the Regulatory Division. Lastly, Mr. Simeon C. Fernandez, science research specialist II of DA-RFO 11-Research Division, presented the different cacao technologies from research, and a presentation of progress report for the R&D Program on Integrated Cacao Farm Management and Product Development in Region 11.

Based on the statistics from OPAG, Davao del Sur occupies about 1,457 hectares planted to cacao with 3,648 farmers province-wide. The total area harvested was 635.39 hectares with a total of 886.05 metric tons produced, annually.

Most of the products are processed into tablea by local processors. They have local markets in Davao del Sur municipalities particularly in Digos, General Santos, and Davao City.

The current market price for cacao beans based on Kennermer Foods Int'l Inc., ranges from Php 32 to Php 34 for good quality wet beans, Php 28 for wet beans with low recovery, and Php 85 for class A dry beans. ### (Joy Montecalvo, DA-RFO 11)

CVRC's Soybean Program: From zero to future hero



PHOTO COURTESY OF DA-RFO 2-CVRC

In the early 90's, the Cagayan Valley region cultivated almost 500 hectares of soybean, but this did not prosper due to poor appreciation of the crop. In 2011, through the launching of the Soybean Program of the Department of Agriculture (DA), the soybean industry in the region was revitalized.

Through the strong

collaboration of the DA-High Value Crops Development Program, Bureau of Agricultural Research (BAR) headed by Dr. Nicomedes P. Eleazar, and DA-Cagayan Valley Research Center (CVRC) led by Ms. Rose Mary G. Aquino, the promise of a blooming future for soybean production was slowly realized.

From almost zero in the

beginning of 2011, the Cagayan Valley region has now a total of 1,750 hectares (cumulative production areas) of soybean production area. This can be attributed to the growing appreciation of farmers who utilize soybean grains into quality raw materials for food (i.e., milk and *sapal*-based products). This led to an improved consumption and nutrition intake that eventually, became a reliable source of income-generating activities.

In 2015-2016, further promotion of soybean production and utilization was conducted. Potential farming areas and farming communities that showed interest on soybean seeds, food, and feed business enterprise and local consumptions were the primary clients of the agency for this program.

The Bacnor East Soya Farmers Association is one of the successful beneficiaries of the soybean program in the region. Mr. Cancio Balais, production manager of the association sought the assistance of DA-CVRC. True to its mission to help farmers, the

turn to next page



The Bacnor East Soya Farmers Association is one of the many farmers' associations assisted by CVRC in soybean production in Cagayan Valley region. PHOTO COURTESY OF DA-RFO 2-CVRC

DA-RFO11's research on native durian bags best paper



Officials of DA-RFO 11 and RAFC, and panelists together with the winners of the best paper during the 30th Agency In-house R&D Review PHOTO COURTESY OF DA-RFO 11

The study titled, “Evaluation on the Response of Selected Native Durian Lines Used as Rootstock Against *Phytophthora palmivora* Butler,” bagged the first place award during the 30th Agency In-House Research and Development Review held on 13 July 2017 in Matina, Davao City. Receiving the certificate and cash award amounting to Php 5,000 was Ms. Marilou Infante, chief, Regional Crop Protection Center (RCPC).

The review is an annual activity of the Research Division of the Department of Agriculture-Regional Field Office 11 that aims to provide a venue for presenting and evaluating the results and findings of completed researches that are useful to end users. Participating in the event were research division chief and staff, guests and project partners from Provincial Agriculture Office (PAGRO)-Davao Oriental, Davao del Norte and Regional Agricultural and Fishery Council (RAFC) 11.

The second place went to “Rice Crop Manager (RCM): A Comprehensive Decision Support Tool for Increasing yields and Income for Farmers in the Philippine-Phase 1” presented by Ms. Liezl Sanoria, research assistant; while the third place went to the study, “Accelerating the Development and Adoption of Next Generation (Next-Gen) Rice Varieties for the Major Ecosystem in the Philippines” presented by Ms. Jessel Cardines, science research specialist. As winners, the second and third awardees were given certificates and cash awards of Php 3,000 and Php 2,000, respectively.

The winning papers will qualify to join and compete for a larger set of audience during the Regional Symposium in August 2017 and in October for the Bureau of Agricultural Research’s National Research Symposium (NRS). ### (Joy Montecalvo and Anecita Telabangco, DA-RFO 11)

CVRC's soybean...from page 15

DA-CVRC provided every ounce of knowledge and effort by conducting technology demonstration trials on soybean as an intercrop to mango and calamansi, and established soybean as a crop rotation to corn in Burgos, Isabela. To disseminate the introduced technology to farmers and other stakeholders, a field day was also conducted.

The association is now supplying the soybean demand of Santiago City Public Market (1,500 kgs/month) and Dondonayo’s Enterprise in Alicia, Isabela (1,500 kgs/month). Mr. Kim Whan II, a Korean entrepreneur engaged in the production of soybean sprout is also a client of the association. Sprouted soybean is distributed to Korean hotels and restaurants in Angeles City, Pampanga.

The Bacnor East Soya Farmer’s Association made a difference as it serves as an instrument to DA-CVRC to fully achieve its long term goal on soybean production—making soybean a hero not only for the association but for the whole Cagayan Valley region. More importantly, through the association, CVRC was able to accomplish its main objective, the reason why it was established, which is to create a difference for the people, by the people, and with the people. ### (DA-RFO 2-CVRC)

For more information, contact:
Cagayan Valley Research Center
DA-Regional Field Office 2
San Felipe, City of Ilagan, Isabela
Email: da.cvrc02@yahoo.com



RDMIC Bldg., Visayas Ave., cor. Elliptical Rd.
Diliman, Quezon City 1104
PHILIPPINES
