Community-based Participatory Action Research

Misamis farmers **maximize profits** and **land use** through **CPAR**

Group-integrated planting area of members of Dulipos CPAR Farmers' Association in Oroquieta, Misamis Occidental use coconut-based farming system. PHOTO:ZREYNOSO

The Community-based Participatory Action Research (CPAR) program of the Bureau of Agricultural Research (BAR) continues nationwide in its campaign towards greater community involvement in profitable and sustainable agriculture and fishery ventures brought about by research and development (R&D) initiatives of the agency in collaboration with both the public and private sectors.

CPAR is a location-specific research cum extension project that focuses in improving farming system technologies for specific micro agri-climatic environment within a province or municipality. Specifically, it aims to: 1) enhance the role of R&D through technology transfer to improve management systems; 2) develop strategies for effective integration of support services; and 3) institutionalize active community participation in overall farm and coastal resources management for enterprise and agribusiness development.

In a recent monitoring visit headed by representatives from the Project Monitoring and Evaluation Division (PMED) of BAR to Northern Mindanao, current coconut- and corn-based CPAR projects were evaluated through field visits and interviews. Farmer cooperators and regional field unit representatives gathered to discuss current achievements and issues encountered by participating farmer cooperatives, namely the Bubuntugan Farmers' Association and the Jampason Farmers' Association in Jasaan, Misamis Oriental.

In the municipality of Jasaan, two barangays represent the most involved farmers in the project. In Brgy. Bubuntugan, 15 members and in Brgy. Jampason, 9 members were cooperators in the implementation of the coconut- and/or corn-based CPAR project. Both presidents of the Bubuntugan and Jampason Farmers' Association were present during the meeting to assist in the documentation and clarification of concerns and issues in the project.

According to the farmers, the CPAR project allowed them additional income as they are now able to harvest other commodities while waiting for the coconut trees to produce. A farmer's wife mentioned that because they are putting fertilizer on the ground for their other crops, the benefit also spills over to the coconut trees, which increases their yield come harvest time. They also mentioned that although there are only a handful of CPAR project participants, because their fields show positive yield, their neighbors have become interested in the CPAR planting system.

Upon witnessing the benefits of CPAR projects, neighbors are encouraged to copy and even join as adopters of the farming system. Apart from this, the participants mentioned how they are able to gain new and important knowledge on increasing their profits through the application of this new technology brought by BAR's CPAR. On their own, the wives of the farmers have proceeded to value-adding activities from crops planted in between coconut trees. They are now trying to make banana chips, wine making, coco sugar, and *lumpia*, among others.

It is a popular belief that coconut farmers are among the poorest of all farmers. However, because of projects like CPAR, they are now able to earn beyond their coconut profits and maximize land use. They acquire techniques and technologies that allow them the capacity to grow more than the coconut they are used to. CPAR projects such as this one brings more than food on the table, but also hope that things can and will get better in the future. ### ***(Zuellen B. Reynoso)***

BARChronicle
BUREAU OF AGRICULTURAL RESEARCH

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

Entered as second class mail at the Quezon City Central Post Office under permit no. 753-01 NCR

BARChronicle
BUREAU OF AGRICULTURAL RESEARCH
ISSN 1655-3942
Visit our official website at http://www.bar.gov.ph

Volume 14 Issue No. 10 | A monthly publication of the Bureau of Agricultural Research | October 2013

25th NRS concludes; 7 Best R&D papers awarded

Seven outstanding researches under the basic research, applied research TG/IG agriculture, applied research TA/TV agriculture, applied research TG/IG fisheries, development research agriculture, and development research fisheries categories win gold awards as the 25th National Research Symposium concluded. PHOTOS:RDELACRUZ&ABRION

As the silver anniversary celebration of the National Research Symposium (NRS) successfully wrapped up, outstanding researches conducted by scientists and researchers from all over the country were recognized by the Bureau of Agricultural Research (BAR) through the awarding of the AFMA Best R&D papers held on 17 October 2013 at the Bureau of Soils and Water Management, Diliman, Quezon City.

For a quarter century, the NRS has been annually organized by BAR to enhance information and knowledge exchange among scientists, researchers, and member institutions of the National Research and Development System for Agriculture and Fisheries (NaRDSAF) community on the recent technologies and developments in the agriculture and fisheries sector. It has also become a means to recognize the products of their efforts that will help

turn to page 11

Eleazar receives PSAS commendation

PHOTO:MVALDEABELLA

BAR Dir. Nicomedes Eleazar (middle) receives the award given by PSAS. With him are Dr. Rosalina Lapitan (right), PSAS president, and Dr. Geronima Ludan (left), PSAS immediate past-president.

The Philippine Society of Animal Science (PSAS), in its 50th Scientific Seminar and Annual Convention, gave honor and recognition to the Bureau of Agricultural Research (BAR) as one of the institutions who have supported the society through the years. Held during the convention's dinner/fellowship night at Tagaytay International Convention Center, Tagaytay City on 23 October 2013, the awarding ceremonies specifically recognized the bureau's support to the printing of the Philippine Journal of Veterinary and Animal Sciences (PJVAS), the official journal of PSAS.

Dr. Nicomedes P. Eleazar, director of BAR, received the award. It was presented to him by PSAS President Rosalina M. Lapitan with Dr. Geronima G. Ludan, PSAS immediate past-president.

turn to page 7

IN THIS ISSUE...

10th NOAC, 1st Organic Expo convene organic farming enthusiasts

Senator Grace Poe delivers her keynote address during the 10th NOAC.

1st Organic Expo


(L-R) BAR Dir. Nicomedes Eleazar, ACIAR Country Manager to the Philippines Cecilia Honrado, and DA Secretary Proceso Alcala PHOTOS:DDELEON

To further promote the practice of organic and natural farming, the Department of Agriculture (DA), through the National Organic Agriculture Board (NOAB), organized the 10th National Organic Agriculture Congress (NOAC) on 17-18 October 2013. This annual event gathers organic agriculture advocates and those interested in venturing into organic farming to be updated on what is happening in the field.

This year's celebration carried the theme: "A decade of sharing, a life-long commitment." The call for the shift to organic agriculture is continuously and steadily gaining attention and support in the country for the past decade. The merits of going into organic agriculture has encouraged a lot of people to turn to organic farming.

Gracing the event were DA Secretary Proceso Alcala, DA Undersecretary for Special Concerns Bernadette Puyat, Department of Agrarian Reform Undersecretary Jerry Pacturan, and Senator Grace Poe.

Sec. Alcala delivered a message underscoring how far the DA has gone in pushing for organic agriculture. He stressed on changing the mindset of the people for them to go into organic farming. *"Ang dapat po nating isipin 'pag gumamit tayo ng natural farming, pinabababa po natin ang production cost ng ating magsasaka. Kapag mas mababa ang production cost, mas malaki ang matitira sa bulsa ng ating magsasaka,"* (We need to think that when we go into natural farming, we lower the production cost of our farmers. When we lower the production cost, our farmers get more profit), said the secretary.

Meanwhile, Senator Poe, as the keynote speaker during the congress, tackled the importance of organic agriculture in addressing the problem of food safety. *"Kaya dapat naman talaga pagtuunan natin ng pansin ang pagsasakang organiko.Meron tayong obligasyong moral na pangalagaan ang ating kapaligiran para sa ating mga anak at sa mga susunod pang henerasyon. Responsibilidad natin sa ating mamamayan na mabigyan sila ng ligtas na produkto at masustansyang pagkain,"* (It's just right that we look into organic farming. We have the moral obligation to take care of the environment for our children and the next generation. It is our responsibility to the people that we give them safe products and nutritious food)".

Joining this DA-wide event for the Bureau of Agricultural Research (BAR) were Director Nicomedes Eleazar and selected BAR staff. Joining Dir. Eleazar was the Australian Centre for International Agricultural Research (ACIAR) Country Manager to the Philippines, Cecilia Honrado.

Highlight of the opening program was the giving of awards and recognitions to deserving organic farming advocates. Among these were: Gawad Saka Award (Outstanding Organic Agriculture Farmer of 2013), Outstanding

turn to page 9

BARChronicle
BUREAU OF AGRICULTURAL RESEARCH

BAR CHRONICLE is published monthly by the Applied Communications 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 Editors:	Julia A. Lapitan and Victoriano B. Guiam
Managing Editor:	Patrick Raymund A. Lesaca
Layout:	Anne Camille B. Brion
Writers:	Ma. Eloisa H. Aquino, Liza Angelica D. Barral, Daryl Lou A. Battad, Anne Camille B. Brion, Diana Rose A. de Leon, Rita T. dela Cruz, Patrick Raymund A. Lesaca, Leila Denisse E. Padilla, Zuellen B. Reynoso, and Mara Shyn M. Valdeabella
Reproduction/Printing:	Ricardo G. Bernardo and Lino Norman D. Reyes
ACD Head:	Julia A. Lapitan
Adviser:	Dr. Nicomedes P. Eleazar, *CESO IV*

ISSN 1655-3942

For subscription and inquiries, please contact us: Tel. Nos.: +63 (2) 928-8505, 928-8624, 920-0234 local nos. 3012, 3025, 3323 Fax No. +63 (2) 927-5691 Email: *rd@bar.gov.ph*. Website: *http://www.bar.gov.ph/barchronicle*


Dr. Supal Sharma of Prathista Industries Limited talks about the 3G technology and its ability to provide bio-available organic nutrition to plants, livestock, and aquculture species in a sustainable and eco-friendly manner. PHOTO:ABRION


The seminar was attended by representatives from attached agencies, staff bureaus, and regional field units of the Department of Agriculture, as well as technical staff members of BAR. PHOTO:ABRION

produced through sophisticated fermentation biotechnology and tap innovative molecules. These can substitute for chemical fertilizers, biofertilizers, effective microorganism, and other nutritional inputs needed by the plants and animals to achieve their optimum growth.

Studies of the 3G technology showed that there is no fixation of nutrients in the soil, hence leading to no soil or water pollution. Increase in microflora was also observed making the nutrients bioavailable, providing balanced distribution to plants and animals. It was also cited that with 3G, plants and animals are more immune to diseases and pathogens.

3G technology for Pinoy farmers

The 3G technology was developed by the Prathista Industries Limited (PIL), an India-based multinational company that pioneers in fermentation technology and specializes in eco-friendly fertilizers, and animal feed supplements. It has registered offices around the globe and is exporting their certified products to 13 countries including the Philippines.

The bigger plan is for PIL to put up a $12-million third generation (3G) fertilizer plant in the Philippines. The plan is to market its 3G technology to Vietnam, Malaysia, Indonesia, Cambodia and Thailand, with the Philippines as a manufacturing hub.

In a report, Prathista President KVSS Sairam said that currently, they are in preliminary talks with the Department of Agriculture (DA) for the plan to establish the 3G manufacturing facility in a bid to capture a significant share of the local fertilizer market.

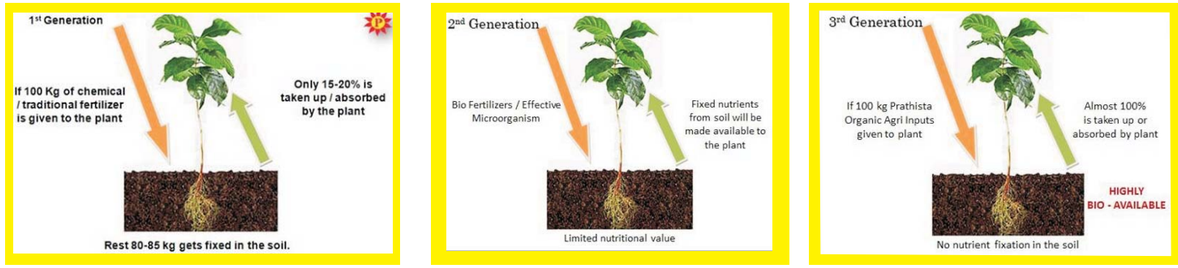
The implication is that, aside from the products that will now be locally manufactured and thus, becomes less expensive, it will create local jobs. Sairam said that the company plans to hire at least 250 people and increase investment capital to $34 million.

While the 3G plant is not yet in the country, Prathista India has registered Prathista Industries International Corp. in the Philippines with local potential partners and established its office in Greenhills, San Juan City. ###

References:

1. *Sharma, Rajesh and Sharma Supal. (2013). "The Third Generation Nutrition Technology for Providing Highly Bio Available Organic Nutrition for Eco Friendly Sustainable Agriculture". Prathista Industries Limited, Hyderabad, India.*
2. *3G Nutrition Technology for Eco-Friendly Sustainable Agriculture. (2013) A brochure produced by Prathista Industries International Corporation, Greenhills, San Juan, Philippines.*
3. *Galvez, JK. "Indian firm eyes $12-M organic fertilizer plant". Manila Times, October 22, 2013.*


BAR Assistant Director Teodoro Solsoloy (leftmost) converses with Mr. Sharma (middle) and Mr. Cesar Ryan Sicada (rightmost), country manager for animal healthcare of Prathista. PHOTO:ABRION



3G Nutrition Technology:
Promoting eco-friendly, sustainable agriculture

Story by Rita T. dela Cruz

Achieving global food security is tantamount to increased food production. The Food and Agriculture Organization (FAO) estimates a 75 percent increase in the next 36 years in order to achieve global food security.

Given the demand to produce more food, increased yield is necessary. Increasing the production of agricultural crops requires the continuous use of chemical fertilizers as well as feed supplement for the livestock and aquaculture industries. This, however, is not sustainable as continuous usage can eventually cause ecological damage to soil, water, and the atmosphere.

The International Fertilizers Industry Association (IFIA) reported that every year, 170 million tons of chemical/traditional fertilizers and feed supplements are being continuously used resulting to damage to our natural resources.

There is a need to develop a technology that will not only provide bio-available organic nutrition to plants, livestock, and aquculture species but most importantly, will also be sustainable and eco-friendly. In a seminar lecture delivered by Supal Sharma of the Prathista Industries Limited at the Bureau of Agricultural Research (BAR) during its seminar series on 18 October 2013, he discussed a recently developed technology that answers to this particular need. He referred to the technology as the third generation nutrition technology or simply, *3G Technology*.

What's in the 3G Technology?

According to Sharma, plants, livestock, and aquaculture species require both macro and micro nutrients and they should come in balance in order to achieve optimum plant growth and best yield. The ways in which macro and micro nutrients are given to plants and animals can be classified into first, second, and third generation nutrition technologies.

The first generation nutrition technology involves the traditional way of applying chemical fertilizers. This include: compost fertilizers; inorganic fertilizers that use chicken or other animals' dung or vermicompost type manures; urea; MoP (*muriate of potash*); and DAP (*diammonium phosphate*). Studies showed that with this technology, only 10-15 percent of the nutrients are being absorbed and 85-90 percent remained in the soil or serve as residue. Likewise, the use of this technology is not ecologically desirable as it causes soil degradation and microflora reduction, resulting in soil and water pollution.

The second generation nutrition technology includes the use of biofertilizers and effective microorganisms. However, this technology has limited nutrition value and can only make available the nutrients that are already fixed in the soil. Likewise, this technology, according to studies can work in optimum weather conditions only.

The third generation nutrition technology or 3G includes bioavailable, organic nutrients which were chelated with gluconate, lactate, and amino acids which are almost 100 percent absorbed by plants and animals. The 3G bioorganic nutritional products were

3G includes bioavailable, organic nutrients which were chelated with gluconate, lactate, and amino acids that are almost 100 percent absorbed by plants and animals.

No agri-fishery program will ever succeed without relevant research -Alcala

"Wala pong aabanteng programa sa sakahan at pangisdaan kung walang tamang research na gagawin (No agri-fishery program will ever succeed without the support of relevant research)," said Agriculture Secretary Proceso J. Alcala during the awarding and closing ceremonies of the 25th National Research Symposium on 17 October 2013 at the Fernando Lopez Hall, Bureau of Soils and Water Management. Alcala was one of the honored guests alongside Dr. Bruce J. Tolentino, deputy director general of the International Rice Research Institute (IRRI).

Secretary Alcala's message underscored the importance of R&D in addressing food security amidst the challenge of extreme weather and changing climate conditions. "Through the technologies generated from research, we are opening opportunities for our farmers and fisherfolk towards a better life. The DA has the necessary strategies and mechanisms to effectively disseminate these technologies for the adoption and utilization by our stakeholders," the agriculture chief said.

For the next three years, DA has set its three central goals: 1) attaining and sustaining food staples sufficiency, 2) establishing environment for enhanced competitiveness in agriculture and fisheries, and 3) developing and improving climate resilient agri-fishery technologies and infrastructure. Given these goals, R&D will play an important role as the Philippine agriculture sector faces various challenges ahead including climate change, food insecurity, and ballooning population.

He also commended the bureau for conducting the NRS for 25 years now and mentioned how BAR has become a crucial element in DA's endeavors as it strives to generate information that will help our farmers and fisherfolk bring about improvement in their lives. He mentioned that NRS is not just a competition that recognizes research but it is also a mechanism to improve the lives of the farmers and their production and, ultimately, their income.

While the secretary recognized the importance of R&D in improving the plight of the farming and fishing communities, he also acknowledged the contributions of the researchers and their importance as the oasis of knowledge. He said, "*ngunit walang pananaliksik kung wala ang ating mga mananaliksik sapagkat sila ang pinagbubukalan ng karunungan na siya nating ipinalalaganap sa ating mga sakahan at pangisdaan."* (but there is no research without the researcher because they are the source of knowledge which we disseminate to our farming and fishing communities.)

DA Secretary Alcala acknowledges the importance of researchers and their contributions in the R&D sector.
PHOTO:ABRION

"At the end of the day, ito po 'yung kailangan: 'yun pong tulong na maibibigay ng inyong researches ay masusukat lang po natin kung gaano nagtagumpay kung mas marami pong pera ang matitira sa bulsa ng magsasaka at mangingisda (At the end of the day, the success of your research will be measured by how much money is left in the pockets of our farmers and fishers.)," Secretary Alcala concluded.

The agriculture chief emphasized that, in the last quarter century since BAR started the conduct of NRS, this event has come a long way having become a signature event of the bureau that researchers from all over the country look forward to every year.

The NRS is a nationwide competition annually organized by BAR and participated in by researchers all over the country. Research papers in the fields of agriculture and fisheries vie for recognition alongside cash incentives.

This year's celebration carried the theme: "NRS@25: Pananaliksik Tungo sa Mataas na Ani at Kita sa Pagsasakahan at Pangingisdaan". ###
(Rita T. dela Cruz)

Tolentino lays out IRRI's R&D initiatives supportive to DA's FSSP

IRRI Deputy Director General Bruce Tolentino mentions some of the R&D initiatives on rice that are in line with the department's food security program. PHOTO:ABRION

Dr. Bruce Tolentino, deputy director general for communication and partnerships of the International Rice Research Institute (IRRI), laid out the current programs and R&D initiatives of IRRI in response to the issues on health and food security vis-à-vis the growing population and scarce natural resources. He related these to the government's food security blueprint, in particular, the Department of Agriculture's (DA) Food Staples Sufficiency Program (FSSP) which ultimately aspires for the country to become self-sufficient in rice by the end of 2013.

Tolentino served as the keynote speaker during the 25th National Research Symposium (NRS) awarding ceremony on 17 October 2013 at the Bureau of Soils and Water Management (BSWM). In his presentation titled, "Rice, health, and food security", Tolentino highlighted the importance of research in addressing the need for food given that by 2040, it is expected that hungry people will escalate to 10 billion. He reported how the number of hungry people continues to grow from 857M in 2001 to 925M in 2010, majority (578 million) of which are in Asia and the Pacific. He mentioned how this number has affected and slowed down the growth in rice yield which was mainly due to worsening resource scarcity including land, labor, and water. He also identified climate change as the main culprit bringing into account how extreme weather can drastically affect rice productivity. "Science and technology will play a leading role. We need to make deep changes in technologies and policies to decouple future economic growth from unsustainable use of fossil fuels, land, oceans, freshwater, and other resources," he said.

IRRI however, given its commitment to rice science, is ready to take on the challenge. Dr. Tolentino cited some of the R&D initiatives of IRRI that have led to the development of various varieties of rice alongside conserving the country's heirloom rice.

Tolentino cited some of the so-called "rice ready for climate change" varieties like the C4-photosynthesis rice which can increase yield, and use water and nitrogen efficiency by 30-50 percent. Another is the Submarino rice, which can survive around 17 days of being under water, unlike other rice which may be devastated by floods; the plant will grow even before flowering. Other IRRI initiatives included rice varieties that are drought and submergence tolerant (2-in-1), 3-traits-in-1 variety, and the alternate wetting and drying (AWD) which is a smarter water management practice that can reduce water use by 30 percent without yield loss.

These various R&D initiatives according to Tolentino are in sync with the government's food security program (FSSP). In December 2012, IRRI and DA entered into a five-year agreement to jointly pursue major areas of collaboration, one of which is strategic mapping of current rice production and expansion areas using geographic information system (GIS) and remote sensing to provide a better estimate of the country's total production, area planted and harvested.

In lieu of this five-year project, Tolentino commended Secretary Alcala specifically for his strong support to the country's agricultural research and development (R&D). Tolentino said that Alcala has provided the biggest funding and other provisions for the R&D community of all the 11 agriculture secretaries from 1986 to present. For IRRI alone, the Philippine government's annual contribution to the institute's research agenda ballooned to US$2 million under Alcala's helm–from an average of US$38,000 since 1960 when IRRI was established.

DA's investments and engagement with the R&D community have indeed flourished as proven by the Department's increased allocation for R&D as well as extension activities. In its proposed 2014 budget, DA has earmarked around P2.41 billion for its R&D operations and projects–arguably the highest in history–in a bid to raise farm and fishery productivity and efficiency.

"This is very important because it means that the Philippine government, through the Philippine Rice Research Institute (PhilRice) and the DA, has the first call on any research that IRRI produces before it is even released to other partner-countries so that Filipino farmers will benefit from it first," said Dr. Tolentino.

Tolentino had worked at the DA's Office of the Secretary in various capacities, including as undersecretary, from 1986 to 1993, and then 1998 to 2003. He is one the few Filipinos holding a major position at IRRI. ### ***(Rita T. dela Cruz)***

propagation; and genetically superior water buffaloes were: Dr. Eduardo Macose (Aurora State College of Technology), Ms. Ayn Kristina Beltran (UPLB-Institute of Plant Breeding), Dr. Artemio Salazar (UPLB-IPB), Mr. Tereso Rasco (AANI, Inc.), and Dr. Danilda Duran (Philippine Carabao Center), respectively.

BAR, through its various coordinating divisions and units, regularly conducts monitoring activities to assess the implementation of the projects and the program, and provides recommendations on how to improve the implementation of the projects.

TCD Head Anthony B. Obligado officially opened the three-day activity followed by the activity overview presented by BAR Technical Adviser Virginia Agcopra.

"As there are projects completed or terminated, may we, as researchers realize that our tasks do not end here. Rather, may we always be reminded of the purpose of making these generated technologies sustainable for our future generations," said Mr. Obligado.

In addition, Ms. Agcopra mentioned that, "the activity aims to determine the sustainability of the projects, and the Technology Commercialization Program and its contribution to the modernization of the agriculture and fisheries sectors."

The panel of evaluators were composed of Mr. Obligado, Ms. Agcopra, Mr. Joell Lales, Dr. Andrea Agillon, Ms. Ligaya Santos, and Ms. Leoncia del Mar of BAR together with BAR pool of experts, Dr. Heraldo Layaoen and Ms. Marcia Lanuza. Also present were Auditor Eleanor Pancho and Auditor Petronilo Del Mundo.

More than generating various technologies for farmers' adoption and improving crop/farm yield, the NTCP projects provided income-generating opportunities to its beneficiaries and helped established linkages among various R&D institutions.

"[The] Project directly or indirectly benefited nearly 1,000 farmers in 40 cluster sites in terms of enhanced access to biofarming technology," reported Mr. Raul Montemayor of the FFF. The federation implemented a project on "biofarming technology development and dissemination".

Sustainability of the projects under the NTCP was likewise determined during the review. Project implementers shared that they invested capability building activities through the conduct of trainings to farmer-cooperators, production of IEC materials for dissemination to farmers, promotion of technologies through attendance to technology forum and exhibits, and ensure continuous adoption of technologies through regular conduct of monitoring activities, among others.

On-going projects are scheduled for evaluation in November 2013. ### ***(Ma. Eloisa H. Aquino)***

More than generating various technologies for farmers' adoption and improving crop/farm yield, the NTCP projects provided income-generating opportunities to its beneficiaries and helped established linkages among various R&D institutions.

Powderized malunggay...from page 15

PHOTOS:ABRION

The audience get to taste samples of the food products with *malunggay* powder & *dilis* flour.

grams, has the following nutritional value: carbohydrates (3 percent), protein (5 percent), vitamin A (40 percent), vitamin C (2 percent), calcium (40 percent), and iron 10 (percent).

The World Health Organization (WHO) is also promoting *M. oleifera* as a cheaper health enhancer especially to families in the poverty line.

The SLSU-initiated project directly responds to Republic Act (RA) 8976 or the Philippine Food Fortification Program, which mandates processed-food manufacturers to fortify their products with essential nutrients to meet the required recommended daily allowance (RDA), for which *malunggay* is most preferred.

The project is funded under the National Technology Commercialization Program (NTCP) of BAR. ### ***(Patrick Raymund A. Lesaca)***

16 NTCP projects reviewed

Serving as the evaluators during the review of the NTCP projects are: (counterclockwise) BAR experts Ms. Marcia Lanuza and Dr. Heraldo Layaoen; Mr. Anthony Obligado, Ms. Virginia Agcopra, Ms. Ligaya Santos, Dr. Andrea Agillon, Ms. Leoncia del Mar, and Mr. Joell Lales of BAR. They are joined by Auditor Eleanor Pancho and Auditor Petronilo Del Mundo. PHOTOS:MEAQUINO

In an earnest effort to determine the impacts and sustainability of the projects funded under the National Technology Commercialization Program (NTCP), the Bureau of Agricultural Research (BAR), through its Technology Commercialization Division (TCD), spearheaded a terminal review of 16 completed projects on 23-25 October 2013 at BAR. The terminal review was an offshoot of the Terminal Review of 2005-2010 projects held on February-April 2013 wherein projects that started implementation in 2011 were reviewed and evaluated.

The 16 completed NTCP projects that were subjected for review and evaluation were implemented by proponents from: Department of Agriculture (4), state universities and colleges (8), and outside DA and SUCs (4).

Technologies covered by the review included: artificial insemination; genetically superior water buffaloes; sweet sorghum plantation and bioethanol processing; sweet sorghum in marginal lands; sweet sorghum hybrid seeds as biofuel feedstock; *malunggay* propagation; *malunggay* for dairy goat; smoked ham-flavored *bangus*; crab, prawn and tilapia culture; sweet potato as feed for aquaculture; citrus development; coffee roasting machine; sustainable cacao program; beekeeping technologies; microalgae as biodiesel feedstock; and biofarming technology.

Prof. Rex Demafelis (University of the Philippines Los Baños-College of Engineering and Agro-Industrial Technology), Mr. Danny Galvez (Cocoa Foundation of the Philippines), Dr. Jovita Movillon (UPLB-CEAT); Mr. Raul Q. Montemayor (Federation of Free Farmers); and Dr. Emmanuel Samson (La-Granja Research and Training Station, UPLB) served as project leaders for sweet sorghum plantation and bioethanol processing; sustainable cacao program; macroalgae as biodiesel feedstock; biofarming technology; and sweet sorghum in marginal lands, respectively.

Dr. Rodolfo Demo-os (Tarlac College of Agriculture), Dr. Manuel Agsaoay (TCA), Ms. Juliet Ochasan (Benguet State University), Mr. Joel Ablayan (Bureau of Fisheries and Aquatic Resources VI), President Edgardo Paningbatan (Pangasinan Goat and Sheep Raisers Association), Ms. Remedios Acasio (Bureau of Animal Industry), Mr. Alex Fajardo (UPLB), and Dr. Mary Jane Tepora (Cavite State University) shared the technology highlights of their projects which were: sweet potato as feed for aquaculture, citrus development, smoked ham-flavored *bangus*, artificial insemination, *malunggay* for dairy goat, beekeeping, and coffee roasting machine, respectively.

Project implementers for crab, prawn, and tilapia culture; sweet sorghum hybrid seeds as biofuel feedstock; *malunggay*

turn to next page

PHOTO:RDELACRUZ

BAR launches 4 SPG-supported publications during NRS

The Bureau of Agricultural Research (BAR) launched four Information Education Communication (IEC) materials, all of which were funded under the bureau's Scientific Publication Grant (SPG). The book launch was part of the closing ceremony of the 25th National Research Symposium (NRS) held on 17 October 2013 at the Bureau of Soils and Water Management.

The four publications that were launched include: 1) Competitive Research and Development Grants Manual (CRGM), 2) Philippine Rainfed Agriculture Research, Development and Extension Program (PhiRARDEP), 3) Healthy Cooking with Soybeans, and 4) SSNM-based Fertilizer Recommendation Quick Guide for Yellow Corn.

The first two publications, CRGM and PhiRARDEP, were revised/updated editions. As the front runner in agriculture and fisheries research and development (R&D), BAR updated the CRGM to keep it responsive to the emerging issues and priorities of the agriculture and fishery (A&F) sector. It serves as a guide for all R&D stakeholders who wish to work in partnership with BAR in the implementation of its A&F R&D programs. The manual also provides a standardized process in carrying out these projects under BAR's programs.

For the PhiRARDEP, one of BAR's major programs, the time was high for reassessing the implementation protocol of the program. This was done through a series of consultations among partners and stakeholders, thus the *Updated Framework and Action Agenda 2013 and Beyond.* The manual contains recent developments and accomplishments, policy researches, farming systems innovations, and research schemes towards meeting the PhiRARDEP's goals in line with the Department's food sufficiency program.

Also launched was a recipe book titled, "Healthy Cooking with Soybeans", which was crafted in response to the government's call to intensify soybean production in the Philippines. The book promotes the economic and health benefits of soybean. Soybean is one of the high value crops endorsed by the DA and BAR is the focal agency for its R&D.

The SSNM-based Fertilizer Recommendation Quick Guide for Yellow Corn was also launched. It is an information kit on the use of Site-Specific Nutrient Management (SSNM) to increase the productivity and profitability of corn farming in the country. Included in the kit are factsheets containing the guidelines for conducting an on-farm evaluation of SSNM, guidelines for the development of SSNM quick guides, and an introduction to the nutrient expert for hybrid maize. A one-page quick reference is also included which was developed for use by 15 DA regional field units as fertilizer guides.

DA Sec. Alcala (3rd from left) and IRRI Deputy Director General Bruce Tolentino (4th from left) receive copies of the BAR publications. PHOTO:ABRION

Gracing the launching of the publications was Agriculture Secretary Proceso J. Alcala who also received copies. All four publications were produced in collaboration with BAR's partner agencies, and attached agencies and staff bureaus of the DA.

The SPG is one of the services given by BAR to support government initiatives in modernizing the agriculture and fisheries sectors of the country. It is awarded to organization/institution or scientific/professional societies to cover the cost of publications of scientific proceedings/symposia, refereed scientific journals, manuals on research methodologies, and books that can be availed of by members of the National Research and Development System for Agriculture and Fisheries (NaRDSAF).

(Daryl Lou A. Battad)

BAR JOINS 2013 Agrilink/Aqualink/Foodlink

Held on 10-12 October 2013 at the World Trade Center, Manila, the theme for this year's Agrilink/Aqualink/Foodlink was "Common Service Facilities: Key to the Value Chain" which focused on the importance of common service facilities and farm mechanization in helping the agriculture and fisheries industry to be more efficient and productive in turning out value-adding products.

It officially opened with the ribbon-cutting ceremony spearheaded by Senate Agriculture and Food Committee Chair Cynthia Villar and Department of Agriculture (DA) Secretary Proceso J. Alcala.

The Bureau of Agricultural Research (BAR) supported the event as one of the major sponsors and exhibitors. Featured in BAR's center setting was the University of the Philippines Los Baños' Edible Landscaping, a technology which integrates science and creativity by using the elements and principles of design in order to provide a new twist to conventional food production.

Also part of the booth exhibit was a small bar which showcased various local wines by state universities and colleges (SUCs), DA-Regional Field Units (RFUs) and multi-purpose cooperatives supported by BAR.

For product promotion, the bureau conducted free tasting of selected fruit and herbal wines like guyabano, chico, ybanag, zuriel and bignay from Isabela State University (ISU), abiu, lipote, rambutan, and pineapple from Goyena's Fruit wines, sapinit from DA-Quezon Agricultural Experiment Station (QAES), tamarind from Big A Multi-purpose Cooperative, and oregano from Green Rescue Organic (GRO).

Instructional and educational materials such as books, manuals, flyers, and technology brochures were distributed to the participants and booth visitors. Special publications produced and published by BAR were also given away to the visitors through raffle.

Famous personalities and VIPs visited the BAR's booth including Senator Cynthia Villar, Agriculture Secretary Alcala, South Africa Ambassador Agnes Nyamatilde-Pitsu, and former 3rd District Camarines Sur Representative, Luis R. Villafuerte Sr.

BAR also sponsored a seminar titled, "Production of Agricultural Products through Indigenous Practices", with Dr. Catherine Buenaventura, supervising agriculturist of the Ifugao Provincial Local Government Unit, as the resource speaker.

Agrilink is the Philippines' premier international agribusiness exhibition attracting hundreds of exhibitors and visitors from different parts of the world. It is organized annually by the Foundation for Resource Linkage and Development (FRLD) in collaboration with the DA and other partner agencies. ### ***(Liza Angelica D. Barral)***

VIPs visiting the BAR booth include (left photo, left to right) Senator Cynthia Villar, DA Secretary Proceso Alcala, South Africa Ambassador Agnes Nyamatilde-Pitsu, and former 3rd District Camarines Sur Rep. Luis R. Villafuerte, Sr. (above photo, leftmost)

bread with *malunggay* powder & *dilis* flour

PHOTOS:ABRION

POWDERIZED MALUNGGAY expands uses as food ingredient

The *Moringa oleifera*, locally known as *malunggay,* is a perennial vegetable tree proven to be highly nutritious with leaves, young pods and young inflorescence as the main edible parts.

Ms. Dorris Gatus of SLSU-JGE lectures on how to prepare the *malunggay* powder & the *dilis* flour. PHOTO:ABRION

It is known to provide significant amounts of minerals, proteins, vitamins, beta-carotene, amino acids, and an array of medicinal benefits. The gram-for-gram nutritional data comparison between fresh and dried *Moringa* obtained from the Trees for Life Journal *(www.TFLJournal.org)* revealed that fresh *Moringa* leaves is seven times the vitamin C of orange, 4 times the vitamin A of carrots, and 4 times the calcium of milk. Meanwhile, the dried leaves are 0.5 times the vitamin C of orange, 10 times the vitamin A of carrots and 17 times the calcium of milk.

Given the nutritional value and health benefits of the *Moringa*, researchers from the Southern Luzon State University–Judge Guillermo Eleazar (SLSU-JGE) based in Tagkawayan, Quezon, thought of expanding the uses of *malunggay* by turning it into a powder for use as a food ingredient in many more dishes. This was the topic of a seminar titled, "Malunggay Powder Processing", held at the Bureau of Agricultural Research (BAR) on 30 October 2013. Professor Dorris Gatus of SLSU-JGE served as the resource speaker. Gatus is also the leader of the BAR-funded initiative titled, "Dilis-Fortified *Malunggay* Powder Project", the results of which were primarily discussed during the seminar.

Gatus' presentation focused on the health benefits and advantages of *Moringa* in its fresh and processed forms. This undertaking promotes increased uptake of food and awareness of highly nutritious foods fortified with *Moringa*.

According to Gatus, the project is seen as a viable strategy in addressing the inadequacy of quality food intake among children, especially the poorest of the poor. A food preparation that combines *Moringa* and *dilis (Stolephorus indicus)* is a worthy endeavor to ensure nutritionally balanced diet, not only among the people of Tagkawayan, Quezon, but the entire Southern Tagalog region as well.

She reported that the *dilis* flour fortified with a *malunggay* powder, which has net weight of 100

turn to page 17

Effects of climate change on coastal marine fisheries discussed in BAR seminar

Dr. Laura David of UP-MSI explains on the effects of climate change on coastal marine areas. PHOTO:LPADILLA

[Extreme heating of the waters] this causes the destruction of fish habitat and results to a decline in fish produce, further crippling the Filipino fishermen.

As the focal agency for climate change research and development (R&D) of the Department of Agriculture (DA), the Bureau of Agricultural Research (BAR) continues to provide relevant topics that concern not only the farming sector, but also the fishing community which will be greatly affected by climate change.

Climate change is an inevitable phenomenon, brought in as one of the colossal effects of global warming. It continues to plague countries, hampering the production of agricultural harvest among others. In the Philippines, the impacts of climate change vary from loss of products to even loss of lives. Extreme weather disturbances including long periods of drought and unusually strong typhoons have been occurring in different parts of the county causing chaos and unrest among the public.

BAR featured in its seminar series a lecture on climate change focusing on its effects on coastal marine food security. Presented by Dr. Laura T. David of the University of the Philippines–Marine Science Institute, the seminar titled, "Projecting Coastal Marine Food Security based on Climate and Ocean Exposure Models", explained how greatly climate change affects our waters, hence our ability or inability to maximize the profits of being an archipelagic country.

Change in water temperature contributes significantly to the availability of fish catch in fishing communities. The reduced number of catch results to higher market price and inadequate supply. With the lecture focusing on the effects of climate change on bodies of water, and not only on land drying up, the participants gained a bigger understanding and a deeper picture of how devastating climate change is for everybody.

According to Dr. Laura David, extreme heating of the waters surrounding the country is one of the main effects of climate change, apart from the drying up of rivers and effects on the agriculture industry. This causes the destruction of habitat of fish and results to a decline in fish produce, further crippling the Filipino fishermen. "Changes in fish distribution and availability can lead to decrease in catch per unit effort and consequently increase in fish prices or choice of target species," she explained in her lecture.

Dr. David enlightened the participants of the seriousness of this phenomenon. Although we are a small contributing factor to the occurrence of global climate change, awareness brings us a bit more clarity into what should be done to prevent further aggravating the situation, at least in our country. ### ***(Zuellen B. Reynoso)***

BAR seminar features agri production through *indigenous practices* in 2013 AgriLink

Interested individuals coming from both the public and private sectors attend the seminar. PHOTO:LPADILLA

Dr. Catherine Buenaventura lectures on agricultural by-products which are utilized for organic farming such as fruit vinegar, botanical pesticides, *kuhol* amino acid (KAA), indigenous microorganisms (IMO), fermented plant juice (FPJ), and many others. PHOTO:LPADILLA

As one of the major sponsors in the recently held Agrilink/Foodlink/Aqualink 2013, the Bureau of Agricultural Research (BAR) organized a seminar titled, "Production of Agricultural By-products through Indigenous Practices", on 10 October 2013 at the World Trade Center, Manila.

Dr. Catherine V. Buenaventura, supervising agriculturist of the Ifugao Provincial Local Government Unit (PLGU), served as the resource speaker for the seminar. She has led several projects, most of which promote organic agriculture, funded by BAR under its Community-based Participatory Action Research (CPAR) program, a location-specific research *cum* extension activity aimed at improving farming systems.

"Most of the agricultural products I will talk about are not new, but some are unique to the Ifugao culture. If you are a farmer who performs organic practices, you must be familiar with most of these products. But for some who are new to this topic, I hope to be of help in your agricultural endeavors," said Dr. Buenaventura as she began the presentation.

In line with Republic Act No. 10068, also known as the Organic Agriculture Act, most of the by-products featured in the seminar are utilized for organic farming. These included fruit vinegar, botanical pesticides, *kuhol* amino acid (KAA), indigenous microorganisms (IMO), fermented plant juice (FPJ), fermented fruit juice (FFJ), calcium phosphate (Ca P), lactic acid bacterial serum (LABS), and oriental herbal nutrient (OHN).

"Based on my experience, I can say that these agricultural products really help improve production and health of the environment," said Mr. Jesus Domingo, a farmer in Ifugao who serves as one of the cooperators in some of the projects led by Dr. Buenaventura.

Also highlighted were farming practices that are unique to the Ifugao culture. In *inado* or *sorjan* farming, "farmers gather rice straws, weeds, sunflower and other mulches and form it into mounds at least one meter high. Aside from the mounds, paddy dikes and other available spaces are also planted with leafy vegetables, beans and condiments," explained Dr. Buenaventura. For a long time now, this practice has been performed by Ifugaos and they have witnessed how it has improved the fertility of the soil and water (plankton).

Over 100 individuals from the public and private sectors attended the seminar. This type of activity enables BAR, as the lead research and development (R&D) agency of the Department of Agriculture (DA), to disseminate effective research and technologies to create a capable and sustainable agriculture sector. ### ***(Leila Denisse E. Padilla)***

Eleazar receives PSAS...from page 1

In a statement, Dir. Eleazar recognized the award as a "testament that we [BAR and PSAS] are heading towards the right direction. It is a reminder that we should not be complacent on what we are doing. It is a challenge that we have to personally take upon ourselves to do better in our field."

The convention carried the theme: "PSAS Golden Years: *Quo Vadis?,*" which reflected on what PSAS has done for the Philippine animal industry and the direction it will pursue in the coming years, particularly on addressing the needs of the sector that it is serving. ### ***(Mara Shyn M. Valdeabella)***

BAR JOINS 2013 WORLD FOOD DAY CELEBRATION

Held every October of the year, the celebration of the 2013 World Food Day in the Philippines commenced during an opening program held at the grounds and lobby of the Department of Agriculture (DA) on 14 October 2013. In collaboration with the Food and Agriculture Organization (FAO) of the United Nations, the DA spearheaded the annual conduct of the event which is intended to increase awareness on the incidence of hunger and malnutrition worldwide, and encourage the implementation of sound policies that will address such problems.

This year's theme, *Sustainable Food Systems for Food Security and Nutrition*, is directed at empowering the country's farmers and fisherfolk to produce safer, quality, more affordable, and nutritious food through sustainable means in line with the DA's vision of an empowered, food-secure, and healthier Philippines.

DA Secretary Proceso Alcala acknowledged the strong partnership between FAO and DA in scaling up the efforts towards achieving food security and emphasized the importance not only of having enough food for all, but of nutrition as well. *"Tayo po ay patuloy na nakikiisa sa FAO sa pagsusulong ng pagkakaroon ng kasapatan ng pagkain sa hapagkainan ng bawat mamamayan, hindi lamang po sa buong bansa natin kung hindi sa buong mundo. Ang importante po sa pagdadaos ng ganitong selebrasyon ay para ipaalam po sa bawat isa na hindi po sapat na ang bawat mamamayan ay busog, kung hindi ang kailangan din po ay malusog",* the DA chief furthered.

FAO Philippines Assistant Representative for Programmes Aristeo Portugal also graced the event and talked about the vital role that agriculture plays in feeding the growing population around the world. Sec. Alcala and Mr. Portugal led the cutting of the ribbon during the launching of the 2013 WFD photo and product exhibits. To further promote this year's WFD advocacy, a similar program was also held at Eastwood Mall, Quezon City graced by DA Asst. Sec. Allan Umali and FAO Representative Sarah Lacson.

Meanwhile, the culmination program was held on 16 October 2013 where the DA family, joined by FAO and UN officials, gathered at the Quezon Memorial Circle in Quezon City to celebrate World Food Day. In behalf of DA Sec. Alcala, DA Undersecretary Emerson Palad delivered a message and mentioned how the World Food Day has been instrumental in realizing that cooperation among countries is an important tool towards ensuring that there will be enough and nutritious food for the people. He was joined by DA Asst. Sec. Umali, United Nations (UN) Resident and Humanitarian Coordinator in the Philippines Luiza Carvalho, and Hon. Toshihiro Tanaka, FAO representative in the Philippines in gracing the event.

Key officials and staff members of BAR celebrate the 2013 World Food Day with the DA family

PHOTOS:ACONSTANTINO&ABRION

Also part of the program were the: 1) launching of the Beautification and Greening Program, a DA-wide contest aimed at promoting the cleanliness and greening of the environment which is led by the DA-Concerned Ladies on Environment and Nutrition, Inc. (DA-CLEAN), 2) recognition of the Outstanding Rural Women, 3) awarding of the 2013 WFD On-the-Spot Mosaic Making Contest winners, 4) demonstration of the "palay dance", and 5) presentation of a video message from the Philippines' Rice Ambassador Jasmine Curtis. To conclude the event, the DA family, key officials, and staff members of BAR, lighted candles and recited the World Food Day Pledge. ###

(Anne Camille B. Brion)

BAR Regional Seminar Series in Bohol features EDIBLE LANDSCAPING

The participants pose for posterity after establishing the initial Edible Landscaping Garden in Bohol Experiment Station located in Ubay, Bohol. PHOTO: LBARRAL

The Bureau of Agricultural Research (BAR), in collaboration with the University of the Philippines Los Baños (UPLB)-Crop Science Cluster, and the Department of Agriculture Regional Field Unit VIII (DA-RFU VIII), conducted its fourth Regional Seminar Series on Edible Landscaping (EL) on 1-3 October 2013 at the Department of Agriculture-Bohol Experiment Station in Ubay, Bohol.

Dr. Fernando Sanchez, professor and UPLB vice chancellor for Planning and Development, discussed the concept of EL and its integration to agritourism. Further, he explained the goals of agritourism followed by the definition of EL and the processes involved in it.

Part of Dr. Sanchez's presentation was the discussion of the elements and principles of design wherein he emphasized that "art can transform your creativity". New points that were discussed by the speaker were tips on how to maintain a low maintenance garden. Landscape design process were discussed thoroughly wherein Concept Diagram, Masterplan, Lay-out plan, Grading and Drainage Plan, and Planting plan were defined through its process, function, and importance.

Mr. Ryan Rodrigo Tayobong and Mr. Bryan Apacionado of UPLB facilitated the hands-on training wherein the elements and principles of design were applied through creative artworks and conceptualization and creation of the base map.

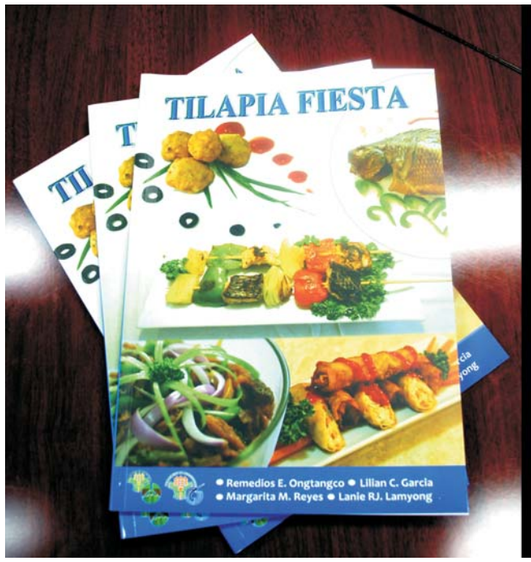
First time in the conduct of regional seminar series was the actual implementation of the base map within the vicinity of Bohol Experiment Station. The resource speakers prepared a sample design within the selected EL area and the participants planted the available plants to be utilized like pineapple, *luyang dilaw*, variegated oregano, parsley, lemon basil, guava, *mayana*, and *tanglad*.

Mr. Tayobong gave practical examples on the alternative plants that can be used aside from the other plants being utilized in the EL garden.

There were 54 participants present during the activity, most of whom came from the DA Regional Office in Mandaue, Cebu; Agricultural Promotion Center (APC) DA-Region VII Tagbilaran, Bohol; Technical Education and Skills Development Authority (TESDA); Bohol Experiment Station (BES), Siquijor; Mactan Experiment Station (MES); and the local women's cooperative. ###

(Liza Angelica D. Barral)

An actual implementation of the base map gives the participants a first-hand experience on edible landscaping. PHOTO: LBARRAL



Gracing the book launch from BAR are Applied Communications Division OIC-Head Julia Lapitan (2nd from left) and Project Monitoring and Evaluation Division Asst. Head Ligaya Santos (3rd from left). They were joined by officials from the DA Regional Field Unit III, the Bureau of Fisheries and Aquatic Resources, and the local government unit of Mabalacat, Pampanga. PHOTOS:ACONSTANTINO&ZREYNOSO

BAR-supported book on tilapia launched in 4th Tilapia Congress

Six years after the last tilapia congress was held, the 4th Tilapia Congress was celebrated on 17-19 October 2013 at Fontana Hotel and Villas, Clark, Pampanga. With the theme "Tilapia: Isdang Pangkabuhayan at Pangkaunlaran," it was attended by around 1,000 visitors from all over the country.

The event aimed to boost productivity of tilapia through research and development (R&D) initiatives, expand new areas and sites of tilapia production including the Bicol region, realize export opportunities of tilapia, and set in motion the processing of *tilanggit* for increased profitability.

One of the highlights of the celebration was the book launch of a recipe book, *Tilapia Fiesta*, a collaborative effort of the Bureau of Agricultural Research (BAR) and the Bureau of Fisheries and Aquatic Resources Region III (BFAR III). Its purpose is two-fold: 1) to promote tilapia cooking nationwide and abroad; and 2) to boost the consumption of tilapia for the benefit of the producers, mainly those in Central Luzon, and exhorting them to retain the region's reputation of being the "tilapia capital of the country".

The publication showcases 89 tilapia dishes in various forms: soups, appetizers, and main courses. Common dishes such as home favorite, crispy fried tilapia, and delicacies like *kinilaw na tilapia* are included in the cookbook, together with the unusual but equally tasteful tilapia burger and tender cheese fish dog recipes.

Dir. Remedios E. Ongtangco, regional director of BFAR III, welcomed the participants. Addressing the visitors were Hon. Marino T. Morales, Mabalacat, Pampanga mayor; Atty. Asis G. Perez, BFAR director; and Dir. Andrew Villacorta, DA-Region III executive director. All showed their undying support for tilapia, or what they call as the "aquatic chicken", and the tilapia industry.

Tilapia is a staple in the Filipino dining table. Its popularity is attributed to its affordability and availability as an inexpensive source of daily protein for the average family. Because it is a mainstay on the table, the authors of *Tilapia Fiesta* found it fitting to explore and commemorate in print the various scrumptious dishes produced using tilapia as the main ingredient in Central Luzon.

Apart from the book launch, activities during the congress included booth exhibits, seminars and lectures, as well as free tasting of tilapia products located at the grilling area outside the covered conference venue. BAR also participated as one of the booth exhibitors. ### ***(Zuellen B. Reynoso)***

As one of the booth exhibitors, BAR distributes flyers and brochures on its R&D programs, and raffles off publications for information dissemination. PHOTOS:ACONSTANTINO&ZREYNOSO

BAR director keynotes IFSU's 93rd Foundation Day

Director Eleazar recognizes IfSU's role in helping improve the province through its R&D projects. PHOTO:MVALDEABELLA

In recognition of his expertise in the field of research and development (R&D), the Ifugao State University (IfSU) invited Dr. Nicomedes P. Eleazar, director of the Bureau of Agricultural Research (BAR), as the keynote speaker in its 93rd Foundation Day and 4th Charter Day Celebration held on 11 October 2013 at the IfSU Main Campus, Nayon, Lamut, Ifugao.

"We, at BAR, are more than proud to be in partnership with this university. In the past years of our collaboration, the bureau has seen the commitment that IfSU has put in for the continuous development and improvement, not only of education for its students, but also for the benefit of the entire province," said Dir. Eleazar.

The bureau chief emphasized how the university, through the implementation of various agri-fishery R&D projects and activities, became an instrument for the province to better utilize and optimize the potentials that they have. With this, he mentioned the BAR-supported projects that IfSU has implemented. These include the "Development of Organic Farming Practices for Dragon Fruit Production in Ifugao," which is in support to the Department of Agriculture's (DA) National Organic Agriculture Program, and the "Assessment of Climate Change Impacts, Vulnerabilities and Adaptation Strategies in the Traditional Rice Terraces of the Cordillera Region," which has resulted in the development of various adaptability strategies that address the adverse effects of climate change on rice productivity in the province.

Along with these projects, BAR also supported two institutional development projects in IfSU: 1) "Pomelo Clonal Multiplication Project," which aids in providing farmers with quality pomelo planting materials; and 2) "Upgrading of the Existing Bio-Organic Fertilizer R&D and Production Facility," which is in support to the organic agriculture advocacies of the university.

The bureau director also took the invitation as an opportunity to visit and monitor these projects. Dir. Eleazar also checked the value-adding projects of the university as he encouraged the project implementers to submit proposals to the bureau to further improve the products.

IfSU's 93rd Foundation Day was attended by members of the local government unit, as well as faculty, staff, and students of IfSU headed by its President, Dr. Serafin L. Ngohayon. ### ***(Mara Shyn M. Valdeabella)***

Director Eleazar visits some of the IfSU projects supported by the bureau. PHOTOS:MVALDEABELLA

10th NOAC, 1st Organic Expo...from page 2

Provinces, Outstanding Municipalities, Outstanding Provincial and Municipal Organic Agriculture Focal Persons, and Outstanding Agricultural Extension Workers.

Dr. Catherine V. Buenaventura, supervising agriculturist of the Ifugao Provincial Local Government Unit, won the Outstanding Provincial Organic Focal Person for Luzon. She is an active partner of the BAR, particularly in implementing several Community-based Participatory Action Research (CPAR) projects in the Cordillera Administrative Region (CAR).

Also part of the NOAC was the "First Philippine Natural and Organic Products Exposition" which aims to promote natural and organic farming. It was the first-ever national gathering of organic agriculture advocates wherein visitors were able to buy various organic products featured in the participating booths.

BAR participated in the expo as one of the exhibitors. The BAR booth featured the results of its projects funded under its National Technology Commercialization Program (NTCP) including fruit wines, *sapinit*, oregano, soybean, and *adlai*.

With the enactment of Organic Agriculture Act of 2010, BAR is tasked as the lead agency for the Organic Agriculture RDE program. From 2011 to the present, BAR has supported 78 organic agriculture R&D projects on applied research, production and post production related technology commercialization, and R&D facilities development.

Thousands of participants from all over the country attended the three-day congress. Aside from visiting the expo, there were breakout sessions on the topics of agri-ecotourism, policy and governance, marketing, research and technology, organic production and practices in the local setting, as well as side activities such as fruit and vegetable carving, food photography, edible landscaping, and cooking demonstrations, among others. ### ***(Diana Rose A. de Leon)***

BAR, ICRISAT officially start Bhoochetana in Phl

ICRISAT Director General William D. Dar (seated, center left) and BAR Director Nicomedes P. Eleazar (seated, center right) sign the MOA that will implement the *Bhoochetana* program in the country. Witnesses to the signing are: (standing L-R) Ms. Leoncia del Mar, head of the Administrative Unit; Ms. Kris Thea Hernandez of the Project Monitoring and Evaluation Division; Mr. Gian Carlo Espiritu of the Technology Commercialization Division; Ms. Maureen Mangaring of the Planning and Project Development Division (PPDD); Mr. Joell Lales, head of PPDD; Ms. Mara Shyn Valdeabella, executive assistant for Communications; and Ms. Rita dela Cruz, assistant head of the Applied Communications Division. PHOTO:LPADILLA

The much anticipated implementation of the *Bhoochetana* program in the Philippines was made official through the signing of a Memorandum of Agreement (MOA) on 8 October 2013 by Dr. Nicomedes P. Eleazar, director of the Bureau of Agricultural Research (BAR) and Dr. William D. Dar, director general of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

Bhoochetana means "soil rejuvenation" and, as implied by the term, the program titled, "Pananariwa ng Lupa Program: *Bhoochetana* Principles and Approach for Natural Resource Management in Boosting Agricultural Productivity in the Philippines", aims to develop a resilient rainfed agriculture sector to improve rural livelihoods and to induce sustainable rural growth and inclusive development.

The program originated in India and was implemented by the Government of Karnataka and ICRISAT in 2009 to increase the state's crop productivity by 20 percent, thus, improving the lives of 3.6 million families in Karnataka who depend on agriculture as their main source of living. As a result, an average of 30 percent increase in productivity was attained by 30 districts in Karnataka.

Encouraged by the notable success, BAR as the lead research and development agency of the Department of Agriculture (DA), partnered with ICRISAT to implement the *Bhoochetana* program here in the Philippines.

In Luzon, the selected project site is Quezon with DA-Regional Field Unit IVA (Southern Tagalog Integrated Agricultural Research Center) and Southern Luzon State University (SLSU) as the implementers. DA-RFU VIII (Eastern Visayas Integrated Agricultural Research Center) and Visayas State University (VSU) will implement the program in Samar, while DA-RFU IX (Zamboanga Peninsula Integrated Agricultural Research Center) and Western Mindanao State University (WMSU) will implement it in Zamboanga.

As stipulated in the MOA, the program aims to "improve rural livelihoods by developing a resilient rainfed agriculture sector for sustainable rural growth and inclusive development through the adoption of the *Bhoochetana* principles and approach in strategic rainfed areas for increased productivity of selected crops by 20 percent in three years while improving/preserving the overall soil health condition".

The specific objectives include: 1) assess soil health status including micro and macro nutrient status of the soils of agricultural lands in the selected representative sites from Luzon (Quezon), Visayas (Samar), and Mindanao (Zamboanga); 2) identify best-bet options (soil, crop, and water management) including improved cultivars to enhance the productivity of selected crops in the selected representative sites by 20 percent; 3) build capacity of stakeholders (farmers and consortium partners) in the sustainable management of natural resources and enhancing productivity in rainfed areas;

turn to next page

and 4) develop a model for scaling-up the benefits through innovative platform with enabled policies and supply chains needed for achieving the impact.

In a press conference immediately held after the MOA signing, Dr. Eleazar and Dr. Dar were interviewed about the program.

"The Philippine soil is sick. We are producing too much without regard to the micro nutrients in the soil. Through this program, we will map the fertility of the soils in the selected areas which will enable us to know the suitable fertilizer requirements. What comes after is the recommendation of improved varieties of existing crops planted within the selected areas. We will not change the production system, we will only introduce improved cultivars or varieties to increase profit and sustain soil health," explained Dr. Dar.

After further elaborating the aspects and mechanics of the program, Dr. Eleazar said "In the conduct of this program, we have invited experts on plant breeding, soil science, and agroforestry to help us in the implementation. This is not the first time that we have collaborated with ICRISAT. In implementing projects, we ensure smooth flow of operations from technology adoption down to commercialization. After this three-year program, if we get additional funds, we hope to extend this soil rejuvenation principle to other parts of the country and boost our overall agricultural productivity."

In preparation for a smooth implementation of the program, BAR and ICRISAT have conducted a series of consultations and pre-implementation activities since January this year. In the recent strategic planning *cum* participatory rural appraisal (PRA) workshop attended by partners and implementers, key elements and factors such as operational framework, future directions, deliverables, and PRA tools were identified and fine-tuned. The program is expected to commence this year. ### ***(Leila Denisse E. Padilla)***

25th NRS concludes...from page 1

address current issues confronting the sector, and in finding alternative ways towards achieving sustainable agriculture and fisheries development.

From the 130 research entries received by BAR for this year's NRS, seven papers emerged victorious and were hailed as the AFMA Best R&D papers.

Besting the other papers for basic research category was the paper titled, "Molecular Analysis of Somaclonal Variation in Tissue Culture Derived Bananas Using MSAP and SSR Markers", by Emma Sales and Nilda Butardo of the University of Southern Mindanao (USM).

For the applied research (TG/IG) agriculture category, the paper titled, "Development of ELISA-Based Technique for Detection of Antibiotic Residues in Meat and Meat Products", by Edgardo Tulin, Cynthia Godoy, and Edgardo Barsalote of the Visayas State University (VSU) won the gold award as well as the Best R&D Poster Award.

For the applied research (TA/TV) agriculture category, the first prize was given to the paper titled, "Considering Farmers' Preferences in Breeding and Dissemination of White Corn Varieties as Staple Food", by Romeo Labios, Proceso Manguiat, Jocelyn Labios, Donna Bae Malayang, and Leonardo Tamisin of the University of the Philippines Los Baños (UPLB), Avelita Rosales of DA-Southern Tagalog Integrated Agricultural Research Center (STIARC), Severino Tumamang of DA-Cagayan Valley IARC, Teresita Mangaya-ay of DA-Central Visayas IARC, and Jessie Lumbao of DA-Central Mindanao IARC.

Bagging the best paper for the applied research (TG/IG) fisheries category was the paper titled, "Indicators of an Approaching and On-going Lake Overturn with Sulfur Upwelling in Taal Lake", by Macrina Zafaralla, John Michael Aguilar, Yves Christian Lagasca, and Marieanne GR Itol of UPLB.

The gold award was also received by the paper titled, "Analysis of Investment Needs for Banana (*Musa balbisiana*) Using Value Chain Approach: A Pilot Study in Selected Municipalities in the Province of Leyte", by Antonio Abamo and Mark Ratilla of VSU, and Raul Repulda of DA-Regional Field Unit 8 under the socio-economics category.

For the development research agriculture category, the highest prize went to the paper titled, "Development of Open Pollinated Corn Varieties in Region 02", by Severino Tumamang, Orlando Lorenzana, Virgilio Adriatico, Roynic Aquino, Robert Atalin, Remar Gulatera, and Lorna Malenab of DA-Regional Field Unit 2.

For the development research fisheries category, the paper titled, "Community-based Participatory Action Research: Blue Crab (*Portunus pelagicus*, Linnaeus, 1758) Fishing Using Gillnets for Marginal Fisherfolk in Bataan", by Lilian Garcia of the Bureau of Fisheries and Aquatic Resources-RFO 3, Gladys Resubal of the Office of the Provincial Agriculturist-Bataan, and Gaudelia Calinao of the Office of the Municipal Agriculturist-Balanga City got the gold award.

This year's theme, *NRS@25: Pananaliksik Tungo sa Mataas na Ani at Kita sa Pagsasakahan at Pangisdaan,* focused on the vital role that R&D plays in boosting economic growth through the development and productivity of the agri-fisheries sector.

"Hangad po namin na sa pamamagitan ng R&D, hindi lamang matutugunan ang kasapatan sa pagkain, kundi maisasaayos at maiaangat din natin ang buhay ng ating maliliit na mga magsasaka at mangingisda, (We hope that through R&D, we will not only address food sufficiency, but we will also enhance and uplift the lives of our small farmers and fisherfolk)," said BAR Director Nicomedes Eleazar.

Gracing the awarding ceremonies were Agriculture Secretary Proceso Alcala and International Rice Research Institute (IRRI) Deputy Director General Bruce Tolentino who served as the event's keynote speaker. ### ***(Anne Camille B. Brion)***