Cont...

Making apiculture...from page 15

Roque, Sorsogon, also a beneficiary of the project, testified how establishing a demo farm on beekeeping was able to help her succeed.

Balay sa Uma is one of the established techno demo farm on beekeeping which include mostly of local bee species like the stingless. "Because I don't have the know-how and I lack the technology, I got discouraged at first, but when I learned beekeeping the right way and I am starting to earn and profit from it, it felt good. Also, many people came to know our farm so they come here to learn," said Ms. Gamba.

She also mentioned the advantage of culturing stingless bees. "The stingless are good pollinators of our crops in the farm. Even our neighboring communities benefit from these pollinators. Their coconut plantations and fruits trees, even though they are not planted here in the farm, their yield increased," she added.

Bee product processing is also an important component. This involves processing products from the bees including the use of propolis in cosmetics and medicine. For this component, Dr. Cervancia reiterated the importance of providing process standards to ensure that processing the products is hygenic and has followed protocols. ###

Farmers' school on goat..from page 8

Mr. Pat dela Cruz from the Cooperative Development Authority (CDA) reads the Certificate of Registration that formally recognizes the MASINAG Multi-purpose Cooperative as an organized group. PHOTO:TCA

grazing management, 7) traditional breeding management, 8) waste management, and 9) proper husbandry practices.

In support to farmers, a multiplier farm of upgraded goats (Boer bucks, Anglo Nubian bucks) was established at TCA as a source of better and bigger breeder stocks of goats where farmers could avail of in compliance with the requirements set for sale of stocks. "The produced were bigger and better, thus selling it to a higher price from P3,500 to P5,500 per head of upgraded goat as compared to P800-P1,200 per head of native goat," Dr. Beltran proudly said.

As a result of the project, the farmer-participants formed the MASINAG Multi-Purpose Cooperative which handles all programs and transactions needed by the farmer-members. The coop markets the members' produce at P120 per kilogram live weight of goat to a private company, getting rid of the middlemen that monopolizes the price at P 800-P1,200 per head. The private company purchases at least 100 heads of goats in a month. The coop also sells forage seeds.

The FLS-IGM graduates lead in empowering the community through mentoring and assisting other farmers and reaching about 1,237 farmer-visitors.

The BAR-TCA project is in partnership with the local government unit (LGU) and the Office of the Provincial Veterinarian (OPVet) of Tarlac. ### ***(Ma. Eloisa H. Aquino)***

The article was based on the BAR-TCA project titled "Enhancing Goat Productivity through Adaptation of Technologies on Farmer's Livestock School on Integrated Goat Management (FLS-IGM) by Dr. Ma. Asuncion G. Beltran, et.al.

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

BAR Chronicle
BUREAU OF AGRICULTURAL RESEARCH
ISSN 1655-3942
Visit our official website at http://www.bar.gov.ph
2013 International Year of Rice
Volume 14 Issue No. 4 | A monthly publication of the Bureau of Agricultural Research | April 2013

BAR updates climate change program

PHOTOS:ABRION

Experts say that climate change is the "new normal" and is most felt in tropical countries. To address the adverse climatic disturbances being experienced in the Philippines, the government ratified the Climate Change Act of 2009 (Republic Act 9729) which mandates "mainstreaming climate change into policy formulation, development plans, poverty reduction strategies, and other development tools, and techniques of the government."

As the lead coordinating research and development (R&D) agency of the Department of Agriculture (DA) and in support to its Systems-Wide Program on Climate Change, the Bureau of Agricultural Research (BAR) conducted a roundtable meeting to assess and update its Climate Change Research, Development and Extension (RDE) Program on 23-25 April 2013 in Tagaytay City.

Partners and experts from various concerned institutions including the WorldFish Center, Bureau of Soils and Water Management (BSWM), University of the Philippines Diliman (UPD), and University of the Philippines Los Baños (UPLB) were invited to participate in the meeting. BAR officials and representatives from different divisions were also present.

BAR Director Nicomedes P. Eleazar emphasized the rationale behind the conduct of the meeting. "It is because of the recent developments and policy pronouncements of the Department of Agriculture and Climate Change Commission that we have invited pool of experts for the conduct of this activity," he said. He also highlighted the beginnings of BAR's Climate Change Program in 2009 and how it became a tool in implementing more R&D initiatives which aim to address the impacts of climate change.

The meeting was formally initiated by Ms. Salvacion M. Ritual, head of the Project Monitoring and Evaluation Division (PMED) of BAR, with a presentation on the DA Systems-Wide Program on Climate Change.

The program concentrates on four strategic objectives: 1) increase the adaptive capacity and productivity potentials of agriculture and fisheries livelihood by modifying commodity combinations to better meet weather issues and natural resource endowments, 2) redefine or remap Strategic Agricultural Fisheries

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NTCP projects reviewed

BAR Director Nicomedes P. Eleazar gives his inspirational message. PHOTO:MEAQUINO

BAR Technical Adviser Virginia Agcopra (rightmost) is joined by the panel of evaluators from BAR in giving recommendations to further improve the implementation of each project. PHOTO:MEAQUINO

To determine the impact and sustainability of the projects funded under its National Technology Commercialization Program (NTCP), the Bureau of Agricultural Research (BAR) conducted a series of Terminal Review of BAR-NTCP Projects from 2005-2010. More than 80 projects were subjected for review.

The activity served as a venue not only to further assess the implementation of the projects, but also to solicit and listen to reports of researchers on their respective impacts, milestones, commercialization activities conducted including its sustainability, and noted economic indicators, among others. The conduct of the terminal review was also in response to the directive of BAR Director Nicomedes P. Eleazar to conduct an impact assessment that will help further improve the effectiveness and efficiency of project coordination and implementation.

BAR, through its Technology Commercialization Division (TCD), spearheaded three batches of terminal reviews covering Regions 3 and 4A (Batch 1); Regions 1 and 2 (Batch 2); and CAR (Batch 3) held at the BAR Conference Room; Clark City, Pampanga; and Baguio City, respectively from February to April 2013.

BAR Director Nicomedes P. Eleazar encouraged partners to identify other agri-fisheries products for potential export market. He also invited participants to display and promote their products in the upcoming 9th Agriculture and Fisheries Technology Forum and Product Exhibition on 8-12 August 2013 at the SM Megatrade Hall, Mandaluyong City.

To date, 49 projects were reviewed by the panel of evaluators composed of Ms. Virginia Agcopra (BAR technical adviser); Mr. Anthony B. Obligado (head of BAR-TCD); Ms. Leoncia Del Mar (Office of the Director); Mr. Joell Lales (head of Planning and Project Development Division); Mr. Roberto S. Quing (head of Finance Unit), Ms. Marinelle Espino (technical staff of BAR-PPDD), and other BAR-TCD technical staff.

Researchers were given recommendations to further improve their project implementation and

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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.

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ISSN 1655-3942

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wild and there are many viable products that we can produce out of them. For one, the honey from the stingless bees is quite expensive. We also have pollen and most importantly, propolis," explained Dr. Cervancia.

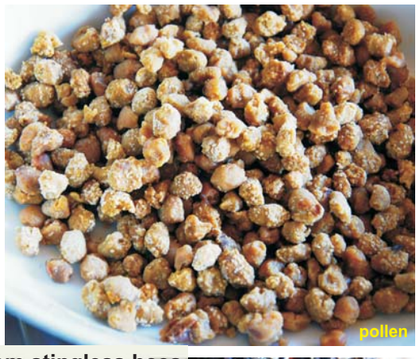
She also reported that among the native species that the project is pursuing, the stingless bees produce the highest propolis. "Propolis has high clinical value and amongst the bee products, this is the only one with high anti-fungal and anti-bacterial properties. Propolis is used in medicine. In Korea and Japan, there is what we call the apitherapy wherein they extract flavonoids and phenolics from the propolis and used this to treat cancer patients," Dr. Cervancia said. Although the study according to her is still in progress and more studies are needed, the potential prospect of propolis as a component in medicine is bright. "Here in the Philippines, propolis is used as component for soaps and shampoo. It is also used in toothpaste. So, in almost every high end product being sold in the market, almost all of them have propolis as component," she added.

On top of these profitable products from the stingless bees, they are also the number one pollinator of mango trees. "That is also why we developed this technology and is now being commercialized as it was proven that it could increase the yield of mango by 80 percent," Dr. Cervancia revealed. Aside from mango trees, the *Trigona spp* is also a good pollinator of pili, rambutan, and lanzones. Given this promising result, the group of Dr. Cervancia is looking into the potential of stingless as pollinator of other high value crops.

Ms. Luz Gamba (left) and Dr. Cleofas Cervancia (right) check if there are enough honey to collect from the stingless bees.

"Stingless are the bees of the future because growing them is sustainable. They are abundant in the wild and there are many viable products that we can produce out of them."

honey



pollen

Products from stingless bees

propolis

One important component of the project is the establishment of a techno demo farm/apiaries. "We are training trainors who can also reach out to other sectors of the community. It's kind of a showcase. If people can see that the farm is earning, they will believe and they will be encouraged. To me, this is more effective than training," stressed Dr. Cervancia.

Ms. Luz Z. Gamba, owner of a well-known apiary farm, *Balay Buhay sa Uma* in Brgy. San

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Making apiculture industry sustainable through stingless bees

Story and photos by Rita T. dela Cruz

Bees are important in the pollination of flowering plants including agricultural crops like fruits and vegetables. Pollination is one of the most important mechanisms in maintaining and promoting biodiversity.

Unfortunately, the number of pollinators are declining, a problem that continues to haunt the world apiculture industry, according to Dr. Cleofas R. Cervancia, president of Apimondia Regional Commision in Asia. Apimondia is the International Federation of Beekeepers' Associations and other organizations working within the apiculture sector.

"We have what we call the colony collapse disorder (CCD), a phenomenon in which worker bees from a beehive or honeybee colony abruptly disappears. In our case, this is because of the problems associated with the introduced bee species, *Apis mellifera* that is used in commercial beekeeping. This bee species that we import to produce honey becomes too susceptible to pests and diseases," reported Dr. Cervancia.

She revealed that although beekeeping is a viable industry in the country, it could hardly take-off because the culture of this bee species requires high inputs due to the use of miticides and antibiotics. Farmers can hardly afford the necessary supplies and equipment. "*Apis mellifera* is not sustainable since we have to import the queens from abroad due to the narrow gene pool of this species in Asia," she added.

Dr. Cervancia mentioned that given the right strategies and interventions, beekeeping can be a promising endeavor. "Currently, we are importing around 300 metric tons of honey but our production is only about 100 metric tons. Hence, we are obligated to increase the production to meet the needs and demands."

Promoting the local bees

Given the intensified support of the government in promoting beekeeping, Dr. Cervancia believes that interest in beekeeping remains high, "but the cost of re-stocking bees and equipment proved to be prohibitive."

To address this, strategies and research and development activities have been developed through the project, "Commercialization of Beekeeping Technologies: Product Processing and Bee Production in Select Communities in Luzon". The project is being implemented by the Bee Program of the University of the Philippines Los Baños (UPLB) with funding support from the Bureau of Agricultural Research (BAR) under its National Technology Commercialization Program (NTCP).

The project, led by Dr. Cervancia, is promoting the use of local bee species: *Apis cerana* (or *laywan*), *Apis dorsata (*giant bees or *pukyutan*), and more importantly, *Trigona spp.* (stingless or *lukot*). Promoting these local bee species is more sustainable and the farmers can easily adopt the technologies.

"That is why this is also the right time that we conserve our local species. We can get a lot of products from them, like honey which has a very high demand and others including pollen and propolis," explained Dr. Cervancia.

Through the project, UPLB developed package of technologies (PoTs) to strengthen the beekeepers' capacity in managing these native bees.

Among the native bee species that the project is promoting are the stingless bees, (*Trigona spp*) locally known as *lukot* or *lukutan*. Dr. Cervancia considered this a milestone and referred to this local species as the "Bee of the Future".

"Stingless are the bees of the future because growing them is sustainable. They are abundant in the

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23rd PhilARM Convention focuses on R&D as a means to uplift local communities

The Philippine Association of Research Managers (PhilARM) held its 23rd National Convention in Naga, Camarines Sur on 16-19 April 2013. With the theme, "Social and Economic Responsibility: A Challenge to Research & Development (R&D) Managers," the convention focused on strengthening and maximizing R&D as a means to improve the lives of local communities, specifically farmers, fishermen, and rural and urban poor.

With emphasis on the commercialization of matured R&D interventions and technologies, the convention also highlighted the development and promotion of R&D products and services that will economically benefit and provide livelihood potentials to the community.

Attended by PhilARM members from various government agencies, including the Department of Agriculture (DA), Department of Science and Technology (DOST), and Department of Environment and Natural Resources (DENR), the convention was graced by a number of notable personalities in the field of R&D.

Hon. John G. Bongat, mayor of Naga City, welcomed the guests and participants, while Dr. Arturo S. Argañosa, president of PhilARM, officially opened the event.

Dr. Romulo G. Davide, professor emeritus, University of the Philippines Los Baños (UPLB) and 2012 Ramon Magsaysay awardee, served as the convention's keynote speaker.

Expressing their message of support to the convention and the association were heads and representatives of the co-sponsoring agencies including Dr. Nicomedes P. Eleazar, director of the Bureau of Agricultural Research (BAR) and Dr. Patricio S. Faylon, executive director of the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD).

BAR Director Nicomedes P. Eleazar reiterates the importance of the partnership between the two institutions in advancing research management in the country. PHOTO:PHILARM

In his message, Dir. Eleazar expressed BAR's support to the initiatives of PhilARM particularly in its aim to advance research management to a better height. This, according to the bureau director, is manifested in the strong partnership that has grown between the organizations.

"The years that passed prove as a witness to an inevitable partnership between the bureau and the association treading on common ground. Where BAR continues to support research that matters to the stakeholders, generating technologies that will help improve the sector, PhilARM provides the inputs to the development of the scientific intellect that went into the production of these new technologies," the bureau chief said.

Dir. Eleazar also highlighted the activities and program being undertaken by the bureau, specifically its two banner programs, the Community-based Participatory Action Research (CPAR) and the National Technology Commercialization Program (NTCP) which render social responsibility in R&D. According to him, "farmers and fisherfolk participate, not only as cooperators and collaborators, but also as members of the community who make sure that while agricultural productivity and profitability are achieved, alternative sources of food and livelihood for the community are also made obtainable."

Co-hosted by the Central Bicol State University of Agriculture (CBSUA), the convention featured 16 competing papers coming from various state universities and colleges in the country. ### ***(Mara Shyn M. Valdeabella)***

> ***"Where BAR continues to support research that matters to the stakeholders, generating technologies that will help improve the sector, PhilARM provides the inputs to the development of the scientific intellect that went into the production of these new technologies."***

National organic rice seed production systems underway

Dr. Teodoro S. Solsoloy (3rd from right) graces the ceremonial harvest of the organic rice planted and produced at RM-CARES PHOTO:NDELROSARIO

In support to Republic Act 10068, also known as Organic Agriculture Act of 2010, the Bureau of Plant Industry-Crop Production Division is implementing a program on the "Development of National Organic Rice Seed Production Systems with Informal Sector" in different locations across the country. The project hopes to establish a national organic seed production system by setting-up organic rice seed production areas in partnership with the private sector, broadening science-based knowledge on organic rice seed production technologies.

Six certified organic groups were chosen as project collaborators, namely: 1) Cordillera Heirloom Project for Indigenous Cordilleran Enterprise, 2) Kahariam Realty and Farms, 3) Ramon Magsaysay Center for Agricultural Resource and Environmental Studies, 4) Pecuria Development Cooperative Inc., 5) Negros Institute for Rural Development, and 6) Bios Dynamis Multipurpose Cooperative.

Following the work plan of the program, the Department of Agriculture (DA) through the Bureau of Plant Industry (BPI), in collaboration with the Bureau of Agriculture and Fisheries Product Standards (BAFPS) and the Bureau of Agricultural Research (BAR), held the "1st National Training on Organic Seed Production" at Kahariam Realty and Farms, Inc. on 2-5 April, 2013. All regions of the country were represented in the event.

BAR Assistant Director Teodoro S. Solsoloy expressed his support to the Organic Agriculture (OA) program of DA which is a priority of Secretary Proceso J. Alcala. He also qualified the role of the bureau as the lead agency in research and development for OA which has undertaken series of activities in support to the program.

"With this project, BPI is able to collaborate not only with BAR, but also with BAFPS, the National Rice Program, and even the local government unit, and the private sector. With your most valued contribution, I know we are able to achieve more than what we have planned," Dr. Solsoloy concluded.

Meanwhile, Mr. Manuel Bagatsing, owner of the Karahiam Realty and Farms, and one of the project collaborators, shared his experiences on practicing organic farming. He claimed that the best organic fertilizer comes from earthworms specifically the African night crawlers or ANCs that feed on farm animal excreta and dead plant remains. It was in 2009 that he started processing the organic certification of his farm, which was a year before the Organic Agriculture Act was enacted. The farm of Bagatsing also practices the Agro Eco System Analysis.

In conjunction with the training, Dr. Fe Porciuncula, director of the Ramon Magsaysay Center for Agricultural Resources and Natural Studies (RM-CARES), led the group for the ceremonial

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The holistic nature of CPAR gave way to empowering the farmers and accelerating the transfer of technology, which now leads the project to agribusiness enterprise and commercialization.

Package of Technologies (PoTs) promoted

Interventions in which the farmers adopted include new peanut varieties, Asha and Namnama 1 and 2 (both means 'hope' in the Indian native language and Iloko dialect in the Philippines), are now the most sought-after peanut varieties in the country. These are ICRISAT-bred confectionery varieties introduced in Region 2 and made popular by CVIARC in Ilagan, Isabela.

The Asha variety is highly tolerant to foliar diseases and moisture stress, while the Namnama-1 is an all-season variety bearing numerous pods and is resistant to bacterial wilt. The Namnama-2 gives a high stable yield even during wet season, which makes it the best 'wet season peanut variety' in the region. These varieties suited the climate conditions of the region, which are flood and drought-prone. Farmers were happy with the new varieties compared to the ones they used to plant because of the varieties' capability to thrive even in sandy and clay loam soils.

Soil nutrient management is introduced to the farmers to increase yield and improve farming practices, since non-fertilization is an identified reason behind low seeding rate/ population density. With proper trainings provided to them, they were able to use *Rhizobium*-bacteria seed inoculant and applied *Gypsum* in their crops. These ensured high yield and filled pods. Spacing, crop rotation, and other Good Agricultural Practices (GAP) on peanut were also provided to the farmers as part of their capacity-enhancing opportunities.

To keep a steady supply of peanut seeds and to augment on-station production, produced seeds were stored at CVIARC and Cagayan Valley Lowland and Marine Research Outreach Station (CVLMROS) cold storage *bodega*. Preparations were already being made so the project will be able to establish a Peanut Service Station (PSS) in selected production sites. The PSS designed by the National Food Authority (NFA)–Food Development Center will be adopted. The establishment of the PSS will enhance the capability of the peanut industry in Cagayan Valley to respond competitively to the import/export industry of peanut, and to meet the demands of processors for graded, certified peanuts.

PHOTO:DBATTAD

Cagayan Valley's Peanut MAGIC is set to be registered through DTI and BFAD.

The real magic in Peanut MAGIC

Addressing the yield gap and improving the quality of peanut varieties cannot alone ensure the success of the project. The impact is best manifested through MAGIC–Market Attractive to Growers and Import Competitive–where peanut farmers are assured of an established, attractive market for their produce.

To attain this goal, CVIARC facilitated partnerships with other government agencies to assist in the upscaling of the project. Peanut MAGIC is set to be registered as Cagayan Valley's *pasalubong* brand in collaboration with the Department of Trade and Industry (DTI).

With continuous support from stakeholders, Cagayan Valley gets closer to realizing not only its renowned glory as the Peanut Capital of the Philippines, but most importantly, its vision of empowering the farmers, making them champions of the region's peanut industry. ###

PHOTOS:DBATTAD

Farmers and stakeholders during the Farmers' Field Day.

Cagayan Valley reclaims lead in peanut industry with CPAR's Peanut MAGIC

by Daryl Lou A. Battad

PHOTOS:DBATTAD AND NPALLER

New peanut varieties can thrive even in sandy areas.

In Cagayan Valley's pursuit of reclaiming its trademark as the 'peanut basket' of the Philippines, agricultural projects are now becoming a priority. Local research and development (R&D) activities are given focus in the hope of addressing problems that have been hindrances in the region's peanut industry.

The Bureau of Agricultural Research (BAR), through its Community-based Participatory Action Research (CPAR) provided an opportunity for peanut growers to enhance their production, thus improve their income. And what better way to do it than involving the farmers and their families in putting back together the 'glory' of Region 2 in peanut farming?

The Department of Agriculture–Cagayan Valley Integrated Agricultural Research Center (DA-CVIARC) implemented a project titled, "Peanut MAGIC: CPAR Approach towards Enhanced Productivity in Cereal-based Areas of Region 2," which aims for a steady increase in peanut supply and income.

This is done through the introduction and promotion of packaged technologies such as large-seeded, high-yielding peanut varieties, development of farm management practices that will cater to the region's occurring problem on drought and floods, and establishment of an attractive market to both farmer-producers and buyers.

Using the CPAR approach

Farmer-led research and development projects are now becoming as equally important as other R&D activities. This means that more farmers are involved in the undertakings made by the local and national agricultural sectors. CPAR is the bureau's version of downstream research tailored to benefit primarily the farmers and their communities. They are the ones to identify their community needs and how they go about addressing such needs. The participatory approach acknowledges the farmers as frontliners of agriculture. This is the reason why CPAR is incorporated in this project.

"We want to make the farmers, the peanut growers, to be at the winning end together with the buyers, and we thought CPAR is the best way to realize this goal," said project leader Ms. Rose Mary G. Aquino, senior agriculturist of CVIARC.

"New varieties were released but what our farmers need most is the confidence in the intervention which will result in technology adoption," Ms. Aquino added. Various yield- and income-enhancing Package of Technologies (PoTs) for peanut production were introduced and demonstrated in at least five farmer-managed demo farms in each peanut farming community as earlier identified through Participatory Rural Appraisal (PRA).

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CPAR's PEANUT MAGIC in Region 2 launched

Engr. Virgilio Adriatico (left), station manager of CVIARC, and Dr. Orlando Lorenzana (right), Regional Technical Director for Research (Region 2), give samples of PEANUT Magic to Mr. Jiamy Apacionado, technical staff from BAR. PHOTO:DBATTAD

National organic rice..from previous page

Dr. Solsoloy with Kahariam Farms owner, Manuel Bagatsing (2nd from left), Project Coordinator from BPI Norma Malimban (right), and BAR-OAD Staff, Wilson G. Viloria II (left) PHOTO:NDELROSARIO

harvest of the organic rice on 8 April 2013. RM-CARES is also one of the certified organic collaborators of the project. The ceremonial harvest was held during the Farmers' Field Day at the RM-CARES Field Office Multipurpose Shed. Organic farming practitioners from the province of Nueva Ecija also attended the field day. ### ***(Wilson G. Viloria II)***

To showcase and promote the technology introduced through the Community-based Participatory Action Research (CPAR) in peanut production, the Department of Agriculture-Cagayan Valley Integrated Agricultural Research Center (DA-CVIARC) spearheaded a farmers' field day which highlighted the launching of a project titled, "Peanut MAGIC: CPAR Approach towards Enhanced Productivity in Cereal-based Areas of Region 2."

The project, funded by the Bureau of Agricultural Research (DA-BAR) and implemented by CVIARC, aims to enhance peanut productivity through value-adding business, and improvement on marketing strategies of peanuts in Region 2. Peanuts, which are Market Attractive to Growers and Import Competitive or MAGIC, as what the brand name stands for, demonstrate enterprise development and at the same time promote income-enhancing technologies.

CPAR project leader, Ms. Rose Mary Aquino of CVIARC, presented the overview of the project emphasizing the farming community situation of the selected sites: from the identified core problems to solution ranking based on the needs assessment conducted by the community through Participatory Rural Appraisal (PRA).

Increase in yield, improvement of the cropping system and peanut varieties, and value-adding for traders were the topmost priorities identified and addressed through CPAR intervention. She also presented the project accomplishments including the registration of the Peanut MAGIC through the Department of Trade and Industry (DTI).

"*Magiging brand na ito ng pasalubong dito sa Cagayan Valley*," Ms. Aquino said. Products were already distributed to selected markets and tourist spots in the region such as the Callao Nature Park.

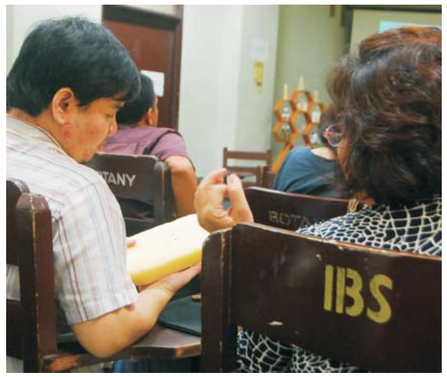
In attendance were the farmer-cooperators/associations and farmer-adopters of all three project sites, representatives from different stakeholders such as the DTI, Department of Science and Technology (DOST), Department of Labor and Employment (DOLE), municipal local government units (MLGUs), the project team led by CVIARC, and BAR.

The farmer-cooperators and adopters presented the CPAR demonstration results and shared their impressions regarding the conduct of CPAR which was then followed by the awarding of the processing equipment package to the associations granted by the bureau.

As one of the banner programs of BAR, CPAR aims to demonstrate its results through commercialization of technologies geared towards the improvement of the lives of the farmers and their communities.

The Peanut MAGIC project uses the CPAR approach towards enhanced productivity in cereal-based areas of Region 2 and made it possible for a wider adoption of technology and establishment of markets while continuously developing package of technologies for the promotion of large-seeded varieties. ### ***(Daryl Lou A. Battad)***

BAR, UPLB collaborate to strengthen Phl apiculture industry



PHOTOS:RDELACRUZ

A week-long intensive course on beekeeping was held on 15-20 April 2013 at the Institute of Biological Sciences, University of the Philippines Los Baños (UPLB). This training is one of the components of the UPLB-Bureau of Agricultural Research (BAR) project, "Commercialization of Beekeeping Technologies: Product Processing and Bee Production in Select Communities in Luzon". It aims to improve the culture bee practices and address issues of existing beekeepers, and to encourage participants in beekeeping.

Integrated into the program were theoretical and hands-on training aimed at further developing the participants' capacity to produce quality bee products and to provide practices that ensure sustainable bee colonies.

The opening day consisted of an in-depth discussion of the basics of apiculture: bee species, definition of the products and jargons, materials for beekeeping, as well as the dos and don'ts in bee production. Succeeding days consisted of lectures and hands-on activities facilitated by experts including project leader, Dr. Cleofas R. Cervancia who is also the current president of Apimodia Regional Commission for Asia.

Under the UPLB-BAR project, the training is geared towards capacitating farmers in breeding, bee management, as well as product development. Apart from this, the project aims to establish techno-demo apiaries to showcase good practices that will enable beekeepers to maximize their profit.

Projects sites in Quezon (Nakar and Narciso), Albay (Sorsogon and Albay), and Laguna (Los Baños and Calamba) stand as learning grounds for existing and would-be beekeepers. Participants were also taught how to get the most out of bee by-products including beeswax, propolis, and pollen.

Started in 2012, the project also focuses on promoting stingless bees which are native to the country and is more economical as commercial beekeeping often involves importing queens that is both time consuming and expensive for the local farmers.

Attendees participate in the hands-on training which aims to further develop their capacity on practices that will ensure sustainable bee colonies. PHOTOS:RDELACRUZ

BAR continues to support research and development (R&D) initiatives directed at increasing profits of our farmers. Research institutions and academics with the capacity and knowledge to improve the farming practices are supported by institutions and agencies like BAR to materialize plans aimed at attaining food security and sustainable living.

Collaborations that further the agriculture and fisheries sector are essential. This partnership for instance, although it may seem very specific to the apiculture industry, in hindsight is an indispensable contribution to the country's struggle against poverty and hunger. Intensifying the apiculture industry ultimately improves the living conditions of farmers and even gives the country a chance to compete in the global market. ### ***(Zuellen B. Reynoso)***

Research and product development conducted by CLSU's Department of Hospitality Management (DHM), College of Home Science and Industry, paved the way for the successful launching of the Tilapia Ice Cream during the 2nd Asian and Western Tilapia Cuisine Festival in September 2011.

Prof. Vera Cruz also presented the sensory evaluation to determine whether the ice cream was comparable to that of the commercially-produced vanilla ice cream. Fifty respondents were asked to taste the product, to observe, and to see if the texture is close to that of the commercial ice cream. Most of all, the ultimate tasting aimed to determine if the ice cream has no fishy smell or an aftertaste that lingers.

Results of the evaluation indicated positive reviews. Prof. Vera Cruz reported that there were 12 parameters that were measured: color, aroma, overall-liking, mouth-feel, taste, intensity of fish aroma, intensity of sweetness, intensity of fishy taste, amount of fish flakes, intensity of after-taste, intensity of pleasant after-taste, and buying attention.

Although there were significant differences between the commercial and tilapia ice creams, initial results in terms of acceptability, liking, and palatability concluded that the tilapia ice cream is close to the overall qualities of commercially-produced ice cream.

To assure participants who attended the BAR seminar that real tilapia meat was used in the process, Prof. Vera Cruz conducted an actual demonstration on preparing and making tilapia ice cream. Ingredients used included: one kilo tilapia fillet, steamed and flaked; two packs (250 ml) all purpose cream; one can condensed milk; one cup fresh milk; one cup chopped walnut; and one cup cheese (cubed).

Free ice cream samples were also provided and given to the participants for them to try and taste. According to some participants, it tasted like the commercial ice cream and one can actually taste the tilapia flakes. Most of all, participants who have tasted the ice cream agreed that "there is no aftertaste of fish."

Tilapia ice cream is available at Chives Café and Patisserie, CLSU, Munoz, Nueva Ecija.

The BAR seminar series is a bi-monthly activity of the bureau which is being spearheaded by the Applied Communications Division (ACD). ### ***(Patrick Raymund A. Lesaca)***

To prove that real tilapia meat was used in making the tilapia ice cream, Prof. Vera Cruz, together with her assistant, conducts an actual demonstration on preparing and making the dessert during the seminar. PHOTOS:ZREYNOSO

ICRISAT ICT expert..from previous page

Officials and staff members from BAR listen as Dr. Guntuku discusses the different knowledge sharing platforms of ICRISAT. PHOTO:ABRION

from the field are translated into useful information which enables farmers and fisherfolk make informed decisions on farm resource management.

There is also the Philippine Agricultural Information Services Network (PhilAgriNet), a systematized network of various agricultural institutions in the Philippines. BAR and the University of the Philippines Los Baños (UPLB) host and maintain its electronic database which contains information and knowledge sources related to agriculture and fisheries. Researchers and concerned stakeholders from its member institutions are given the privilege to access agricultural literatures with less time and effort.

Another ICT-project considered the importance of corn as a staple crop in the country. The Bureau of Soils and Water Management, International Plant Nutrition Institute, UPLB, DA-National Corn Program, and BAR collaborated for the development of a site-specific nutrient manager (SSNM) for maize. This decision support tool helped corn farmers determine and adjust the right amount of fertilizer specific to the nutrient needs of the crop. Initial results have shown that with improvement in crop and nutrient management, a potential increase in yield can be achieved as compared to the current farmers' fertilizer practices.

Undoubtedly, tapping the potentials of ICTs can bring agriculture towards progress and development. Information and knowledge on new innovations and breakthroughs, if properly disseminated, can be instrumental in improving the sector and uplifting the lives of farmers and fisherfolk across countries. ###
(Anne Camille B. Brion)

Nothing "fishy" about tilapia ice cream

No one will say no to ice cream. This sweet flavored frozen dessert, containing mainly of cream or butterfat, eggs, and nuts, has been a favorite and well-loved food by generations.

Best consumed after every meal, ice cream has been a consistent forerunner for anyone who loves desserts. It can also be eaten before or mid-meals depending on the person's preference.

Conventionally, ice creams are either chocolate- , cheese-, and/or fruit-based. These flavors are among the top choices. But, rarely do we hear of an ice flavor coming from a fish! Tilapia ice cream, anyone?

"The concept behind this endeavor started as a challenge posed by Dr. Tereso A. Abella, director of Freshwater Aquaculture Center at the Central Luzon State University (CLSU), to its Hotel and Restaurant Management faculty and students to develop and come up with various dishes using tilapia meat," explained Professor Dana G. Vera Cruz during a seminar series organized and conducted by the Bureau of Agricultural Research (BAR).

The faculty and students took the challenge and were able to develop 40 tilapia recipes. However, the idea of the ice cream still did not prosper until the food sampling and photo shoots were done.

PHOTOS:ZREYNOSO (above) and CLSU (below)

According to Prof. Vera Cruz, during the photo sessions for the recipe book and after the recipes have been tasted, a question propped: "Where is the dessert?" as commented by one of the members of the panel administering the recipe sampling. This challenged the group of Prof. Vera Cruz who initially came up with an ice cream dessert made from tilapia meat which eventually led to developing tilapia ice cream.

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The concept of tilapia ice cream started as a challenge to develop and come up with dishes using tilapia meat.

Seminar features consumer appreciation and use of organic ingredients

A free seminar on "Consumer's Appreciation and Use of Organic Ingredients" organized by Spread Organic Agriculture in the Philippines (SOAP) was held in collaboration with Agricultural Training Institute (ATI), Agricultural Marketing Assistance Service (AMAS), and Bureau of Agricultural Research (BAR) on 19 April 2013 at the Serrano Hall, ATI, Diliman, Quezon City. Mr. Darwin M. Sarabia of ATI and Ms. Leizl C. Jose of SOAP served as the masters of ceremony.

Chef Ronnie Guance, agriculturist turned chef and food processing consultant, discussed the importance of using natural/organic ingredients in healthy cooking and eating. As an organic agriculture advocate, he said that good nutrition can be obtained through good cooking styles. In an effort to facilitate an effective learning activity, Chef Guance conducted a cooking demo using live streaming. In addition, the guest speaker also gave tips on food preparation, better alternative ingredients, and selection of proper cooking materials, as well as trivia on the health benefits of vegetables, herbs and spices. Preparing shakes made of pineapple, mango, and talangka were also demonstrated by the resource speaker. After each cooking demo, the participants had the chance of tasting the recipes made by Chef Guance.

For more information on the next free seminars, you may visit the BAR website at www.bar.gov.ph or the ATI website at www.ati.da.gov.ph. ###
(Liza Angelica D. Barral)

PHOTO: BARRAL

Chef Guance shares his expertise on utilizing the proper organic ingredients through cooking demo.

BAR updates climate change...from page 1

Experts from the WorldFish Center, Bureau of Soils and Water Management (BSWM), University of the Philippines Diliman (UPD), and UP Los Baños (UPLB) attend the roundtable meeting. PHOTO:ABRION

Development Zone by including climate change vulnerabilities as part of mapping variables, 3) redefine the agriculture development planning framework as basis for agricultural planning by including key factors/ variables associated with climate change, and 4) develop a new framework and plan for the provision of new government agriculture services towards the accelerated development of climate smart agriculture and fisheries industries.

This was followed by a presentation of Ms. Cynthia V. de Guia, focal person for climate change and technical staff of the Planning and Project Development Division (PPDD) of BAR, on the implementation of climate change mainstreaming in agriculture and natural resource.

Ms. de Guia also gave light to BAR's RDE logical framework on climate change including the goal, purpose, outputs, and activities of the program. A consolidated list of available adaptive technologies, tools, and practices of the DA to address climate change was also discussed with the experts.

Recommendations regarding the mainstreaming of climate change, particularly on the mapping, were raised by the experts. Dr. Gina P. Nilo of BSWM informed the group about the updating of the Strategic Agriculture and Fisheries Development Zone (SAFDZ) map which provides relevant information on crop and market development areas in the Philippines.

Meanwhile, Dr. Luis Rey I. Velasco of UPLB underscored the ultimate goal of attaining food security amidst climate change. Dr. Rogelio N. Concepcion of UPLB concurred with Dr. Velasco and discussed the three strategies to address climate change while aiming for food security. The three strategies include: 1) reduction, 2) prevention, and 3) avoidance.

Concerns on BAR's logical framework were also raised by the experts. Dr. Ma. Victoria O. Espaldon of UPLB suggested that the DA Outcome Commitments for 2013-2016 be included in the framework as well as the four strategic objectives of the DA Systems-Wide Program on Climate Change. Dr. Maripaz L. Perez of the WorldFish Center agreed and stressed that impact pathways and value chains should be given importance.

Focal persons and officials of BAR conducted a workshop on updating BAR's Climate Change RDE program through the incorporation of the experts' recommendations.

The meeting was formally closed by Ms. de Guia, extending gratitude in behalf of the bureau to the participants for sharing their expertise and time. ### ***(Leila Denisse E. Padilla)***

Farmers' SCHOOL ON GOAT increases production and raiser

PHOTOS: TCA

"There is a marked increase in goat population (360 percent) after the introduction of the Farmer's Livestock School on Integrated Goat Management (FLS-IGM). There are now 20 commercial goat farms (with more than 100 heads and 210 new goat raisers) in Tarlac," reported Dr. Ma. Asuncion G. Beltran during her project's presentation at the Terminal Review of BAR-funded projects held in Clark City, Pampanga.

"Goat raising is one of the most practical livestock ventures a smallhold farmer can engage in. It requires low capital and guarantees high return of investment in as short as two years," she explained.

Thus, a two-year project implemented by Tarlac College of Agriculture (TCA) has been reaping positive results and impact among goat raisers in the province.

Funded by the Bureau of Agricultural Research (BAR), the FLS-IGM presented options for farmers to choose and to assess their relevance and compatability on what can improve their livelihoods through hands-on adaptation of alternative technologies.

"FLS-IGM is a community-based participatory approach, a learning by-doing approach wherein farmers agreed to meet at least once a week in 3-4 hours within six months in rotated sites guided by facilitators from TCA," Dr. Beltran added.

Participants from three barangays in Camiling, Tarlac have at least five does and an available land for forage garden development. Common practices include free grazing or *alpas system* with goats depending on native grasses available in communal pastures.

Learning alternative methods on goat production, the interested 44 farmer-participants produced maps and graphical calendars. They were able to make respective bio-resource flow where in the end they relate them to their current situations in goat productions.

Some of the notable highlights of FLS-IGM were the improvement in farmers' competence and capability through hands-on trainings, enhanced productivity by producing upgrades and abating diarrhea, reduced worm loads and lowering goat mortalities. "These resulted through the adoption of the different baskets of options that the farmers chose and tested in their own farms," Dr. Beltran shared.

The basket of technologies offered by FLS-IGM included: 1) potentials of goat raising, 2) feed resource establishment and management, 3) goat pen designs; 4) traditional health, 5) traditional feeding management, 6) traditional

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NTCP projects...from page 2

other suggestions for future activities and provide with substantial reports.

Technologies presented were those generated from various commodities: crops (tamarind, lanzones, oregano, rubber, makapuno, onions, cacao, tomato, purple yam, ubi powder, wine from selected local fruits, agri-based products, sweet sorghum, mango, mushroom, vegetables, moringa, banana, garlic, citrus, shallot); livestock (goat, native pigs, poultry egg, cattle, sheep); and fisheries (sea urchin, tilapia, dilis, tamban). Other technologies presented were on Good Agricultural Practices (GAP) and postharvest technologies, Hot Water Tank of the Postharvest Horticulture Training and Research Center (PHTRC), participatory upland development program in Dampalit Watershed of the Makiling Forest Reserve, edible landscaping, protective structures for high value vegetable production as an approach to urban agriculture, and agriculture fishery mechanization.

At the end of the activity, it was expected that a list of commercialized technologies will be identified as well as those with intellectual property (IP) potentials.

Aside from the production management technologies, project implementers have also developed various product lines and value-added technologies that provided income-generating opportunities to farmer-beneficiaries. These products have gained social acceptance and popularity, making it available to local stores and nearby towns, some of which have penetrated supermarkets already.

Two more batches of terminal review were scheduled for projects in Regions 5 and NCR on 15-17 May 2013 and projects in Visayas and Mindanao on 27-31 May 2013. ### ***(Ma. Eloisa H. Aquino)***

PHOTO: MEHQUINO

Mr. Anthony B. Obligado, head of the Technology Commercialization Division of BAR

ICRISAT ICT expert shares knowledge sharing innovations

Dr. Dileepkumar Guntuku demonstrates how ICRISAT's innovations work. PHOTOS:ABRION

The World Bank recognizes the need to provide smallholder farmers access to knowledge, networks, and institutions as means to improve their productivity and production, food security, and employment opportunities. One of the ways in which this can be achieved is through information and communications technology (ICT).

Acknowledging the important role that ICT plays in agricultural development, Dr. Dileepkumar Guntuku, global leader of the Knowledge Sharing and Innovation program of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), visited the Bureau of Agricultural Research (BAR) on 22 April 2013 to share ICRISAT's knowledge sharing and innovations in agriculture.

ICRISAT-led innovations

ICRISAT has developed various knowledge sharing platforms that will give smallholder farmers access to significant information regarding farming practices. Dr. Guntuku discussed on how utilizing these innovative ICT tools, techniques, and approaches can lead to a more effective transferring of agricultural knowledge to stakeholders, especially farmers.

Dr. Guntuku cited the Centre of Excellence (COE) in ICT innovations for agriculture as an example. The COE was able to develop various information systems which linked research, extension, farmers, and markets. It connected village knowledge centers to the internet that gave more than 40,000 farmers in India access to new and relevant information such as on climate change adaptation, crop rotation and pest management, to help them with their farming endeavors.

He also presented ICRISAT's Knowledge Sharing and Innovation (KSI) Connect, a virtual knowledge series platform which caters to stakeholders from around the globe, linking them to experts and recent scientific innovations. Likewise, Dr. Guntuku also discoursed on the Open Access Repository of ICRISAT, which grants free access to documents and publications including journal articles, theses, and other research-related activities.

During his presentation, Dr. Guntuku demonstrated how technological tools such as mobile phones and tablets act as knowledge-sharing platforms. Through mobile phones, for example, farmers are able to receive crop advisories from experts through mediated voice communication. On the other hand, the potentials of tablets in delivering services towards a more quality and convenient access to agricultural information are also being explored.

According to Dr. Guntuku, connecting smallholder farmers to such cutting-edge technologies will empower them with accurate and timely information and knowledge that can open doors for opportunities to improve their yields, and enhance production and productivity.

ICTs for Philippine agriculture

As the national research and development (R&D) coordinating agency of the Department of Agriculture, BAR has supported ICT-driven projects that will boost the agriculture and fisheries sector.

In 2007, BAR partnered with Optiserve Technologies, Inc. for the development of the *ePinoyFARMS*. It is a support application tool serving as a monitoring and evaluation (M&E) system for R&D projects being implemented by BAR's research center partners under the bureau's Community-based Participatory Action Research (CPAR) program. Through the project, data gathered

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