DA adopts IPM scheme against *Brontispa*

Following the alarming outbreak of an invasive coconut pest in the country, the Department of Agriculture (DA), through the Philippine Coconut Authority (PCA), has devised and adopted an integrated pest management (IPM) strategy to control the spread of the coconut pest. IPM is a combination of different pest-control strategies implemented to reduce pest damage to an acceptable level.

The coconut pest, which was identified as *Brontispa longissima* Gestro or the coconut hispine beetle is an insect that feeds on the young leaves of coconuts and other palm species. The pest poses a great threat to the country's coconut industry as it is considered among the most damaging pest of coconut. The larvae of *Brontispa* feeds on young leaves of coconut, leaving it scorched in a ragged appearance, while the adults leave chewing marks on the leaves. The damage that the pest causes impairs the physiological activity of the leaves, which can lead to the death of the plants. Coconuts that are 4-5 years old are most heavily attacked by this pest.

According to PCA Administrator Oscar Garin, the plague of *Brontispa* can be controlled and contained through integrated control measures. This includes (1) mechanical control method which involves the cutting of the young coconut fronds infested by the beetle; (2) biological control method which involves the mass propagation of earwigs, a biological predator of *Brontispa*. Earwigs will be released on infested coconut trees to feed on brontispa as its prey; and (3) the chemical control which suggests the use of systematic insecticides through trunk injection. The devised IPM scheme against the *Brontispa* plague is the result of PCA's research, actual observations, and field experiences.

The IPM scheme for the control and containment of the coconut pest is already being implemented with PCA as the lead agency. Garin reported that PCA has already treated more than 70,000 infested coconut trees.

DA has placed Metro Manila under quarantine and other 26 provinces that were reported to have *Brontispa* infestation. The provinces under quarantine are Ilocos Norte, Pangasinan, Nueva Vizcaya, Pampanga, Bulacan, Nueva Ecija, Tarlac, Aurora, Laguna, Batangas, Cavite, Quezon, Rizal, Palawan, Albay, Camarines Sur, Sorsogon, Iloilo, Aklan, Guimaras, Bohol, Eastern Samar, Northern Samar, Zamboanga, Bukidnon and Davao.

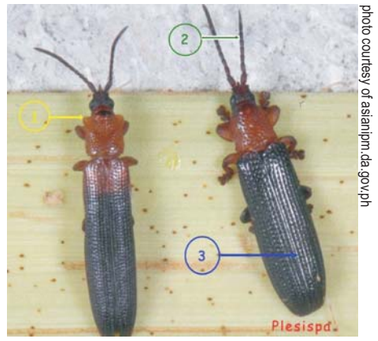

photo courtesy of asianipm.da.gov.ph

Coconut leaf beetle

Brontispa was believed to be introduced in the country in 2004 through the importation of ornamental palms. In this regard, the imports of palm seedlings and germinated seeds from over two dozen countries with reported *Brontispa* infestation were banned by DA. *(Ellaine Grace L. Nagpala)*

DA implements program to abate use of chemical fertilizers

The Department of Agriculture (DA) through the Bureau of Soils and Water Management (BSWM) is implementing the Organic-based Agriculture "Agri-Kalikasan" Development Program to abate the dependence of small farmers on chemical-based fertilizers which are not only expensive but are also risky to the their health and the environment. This, reported by BAR Director Nicomedes P. Eleazar during a brief presentation during the "Bio-organic Fertilizer Production Project Orientation" held on 2 October 2007 at the 2/F RDMIC Bldg., Visayas Ave., Diliman, Quezon City.

The presentation was made in complementation with an on-going project funded and supported by BAR on bio-organic fertilizer and in cooperation with a private institution, the Agro-Forestry Crop Systems, Inc. (AFCSI). The project is implemented in 18 pilot experimental sites of the Regional Integrated Agricultural Research Centers (RIARCs).

In the presentation, Dir. Eleazar stressed that the Agri-Kalikasan program is a science-based back-to-basic sustainable agricultural and rural development program that promotes organic-based farming guided by scientific principles.

Initially, the program implements two types of technologies: Modified Rapid Composting (MRC) and *Tipid Abono* (TA). MRC promotes farm wastes recycling and composting, which is an alternative technology suitable in poverty stricken areas, with farmers having limited capital to sustain production. Meanwhile, TA technology is an alternative to help farmers cope with high input costs which promotes the judicious use and proper mixtures of oil-based chemical fertilizers and recycled home and farm wastes, animal manures, chicken dung, guano, and other forms and natural sources of soil ameliorates and organic fertilizers in areas where input costs are too high for farmers.

The Japanese Government, under the RP-Japan Increased Food Production or the KR2 program, in cooperation with the National Agriculture and Fisheries Council (NAFC) has approved the three-year financial assistance amounting to PhP 246.0 million as a start-up fund for its nationwide implementation.

Dir. Eleazar said that the promotion of biofertlizer production technology is hoped to generate income not only for the farmer-cooperators but ultimately to improve the economic activities in the regions. Through this project, resource utilization are optimized while at the same time protecting the environment through proper disposal and use of farm and agro wastes.

Attending the project orientation were RIARC managers and key staff from the Regional Coordination Division (RCD) of BAR. *(Rita T. dela Cruz)*

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Yap promotes abundant & nutritious agri food products

In the recent AgriLink/AquaLink/FoodLink celebration held on 4-6 October 2007 at the World Trade Center, Pasay City, Department of Agriculture (DA) Secretary Arthur C. Yap emphasized that the future of the country lies in agriculture.

He stressed this during the culminating activities of the affair wherein winners of the O! May Gulay Cooking Contest and the Pinaka-BEST agricultural products were recognized and awarded.

Yap mentioned that we should encourage children, youths and everyone to eat healthy, nutritious, and delicious vegetable recipes because of their nutritive value and affordability. He made reference to the new vegetable recipes that enable households to cook cheaper and better vegetable preparations as six high schools in Metro Manila competed for the coveted award for originality, innovativeness and affordability.

He also encouraged the students to be creative and be the best as new vegetable discoveries are unveiled for better nutrition program for families, households, communities, schools and the whole country.

Meanwhile, this year's Pinaka-BEST agricultural crop and fishery commodities showcased the bountiful harvests from rich and fertile soils and water resources from the different regions of the country.

Yap pointed out that to have nutritious and healthy food, agriculture must play an important role in making the commodities abundant and sustainable to address the nutritional requirements of people in the rural areas and metropolis.

"If we want to have a steady supply of agricultural products, we must involve ourselves and be productive for a healthier and wealthier Philippines," he concluded. *(Dr. Marlowe U. Aquino)*

World Food Day highlights "Right to Food"

"The need to realize the human right to obtain adequate food by ensuring respect, protection, and fulfillment"— this highlights the theme for the 2007 World Food Day (WFD) celebration highlighting the banner,"Right to Food".

Department of Agriculture (DA) Secretary Arthur C. Yap with Food and Agriculture Organization (FAO) Representative Kazuyuki Tsurumi organized various programs and activities in observance of the worldwide event.

Seminar on indigenous plants

Director Nicomedes P. Eleazar of the Bureau of Agricultural Research (BAR), being the chairperson for the WFD Seminar Committee, led in the conduct of seminars/fora particularly on topics concerning indigenous plants. This is in relevance with the recently launched Indigenous Plants for Health and Wellness RDE Program of Secretary Yap. The seminar on indigenous plants served as BAR's participation in the WFD celebration.

Other agencies involved were the Agricultural Training Institute (ATI), National Agricultural and Fishery Council (NAFC), DA-Agribusiness and Marketing System (DA-AMAS) and Bureau of Plant Industry (BPI).

Participants coming from the attached bureaus and agencies of the Department, Regional Field Units (RFUs), Regional Integrated Agricultural Research Center (RIARCs), Regional Fisheries Research Centers (RFRDCs), state colleges

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

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72-kilogram squash aces as "Pinaka-BEST" People's Choice

photo by NICANOR B. DEL ROSARIO III

photo by RITA DELA CRUZ

Lifting the 72-kg squash during the pre-screening (right) and final judgement (left).

A heavy pumpkin weighing 72 kilograms was hailed as People's Choice and grand-prize winner for the squash category in the search for the Pinaka-BEST Agricultural Harvest held on 6 October 2007 during the awarding ceremony of the 2007 Agrilink/Aqualink/Foodlink at the World Trade Center, Pasay City, Manila.

A crowd-drawer, the pumpkin was brought all the way from Davao City as an entry of the Punetespina Orchids and Tropical Plants, Inc. to the said contest.

Sponsored by the Department of Agriculture (DA), in coordination with the Bureau of Agricultural Research (BAR), the Pinka-BEST Agricultural Harvest was launched in line of DA's priority to make food available, abundant, and affordable to all Filipinos.

Likewise, the activity contest was conducted to give due recognition to the farmers and fisherfolk who raise and produce commodities to their maximum capability with good quality and command high value when sold in the market.

The Pinaka-BEST Agricultural Harvests were judged per commodity based on its weight (45%), length (45%) and overall appearance (10%), and where compared to the usual size of the commodities with reference to exhibit exemplary size, weight, length, and visual quality that were grown in the normal production management practices of the crop and developed within the culture period in enclosed or developed aquaculture facilities.

The grand-prize winners for each commodity received a cash-award of PhP 10,000 while a consolation prize of PhP1,000 were given to the runners-up.

The commodities include mango, Cardaba banana, pineapple, papaya, and yellow corn for the crops category; bitter gourd, eggplant, squash, cabbage, and sweet potato for the vegetable category; and tilapia, milkfish, lapu-lapu, carp, black tiger shrimp *(sugpo)*, white shrimp, and fresh water shrimp *(ulang)* for the fisheries category.

Winning commodities came from Region 11 (Davao del Sur, Davao Oriental and Davao City), Region 1 (Sto. Tomas, Pangasinan and Dagupan City), Region 4A (Rizal, Quezon and Cavite), Region 5 (Camarines Norte), Region 7 (Cebu City and Negros Oriental), and Region 2 (Isabela).

The judges for the search of the Pinka-BEST Agricultural Harvest were East West Seed Company General Manager Mary Ann Sayoc, Bureau of Fisheries and Aquatic Resources (BFAR) Assistant Director Gil Adora, Ms. Jenny Remoquillo of the Ginintaung Masaganang Ani-High Value Commercial Crops Program, BAR Assistant Director Teodoro S. Solsoloy, and BAR-Program Development Division Head Carmencita V. Kagaoan. *(Ellaine Grace L. Nagpala)*

BAR conducts...*from page 4*

beneficial microorganisms.

The project aims to increase the productivity, profitability, and sustainability of farmers' farming systems through the use of biofertilizers.

RIARC managers accompanied by the regional coordinators visited the BPSU, which serves as one of the pilot sites of AFCSI for the BioPlus Activator.

The different regions are currently drafting their respective proposals in preparation of the implementation of the biofertilizer project in their respective regions. *(Ma. Eloisa E. Hernandez)*

photos courtesy of Dax S. Lorena

The author during one of their field visits in Japan.

AGRICULTURAL COOPERATIVES:

Catalyst for profitability and answer to globalization

The advent of globalization and free trade creates a condition wherein the Philippine agricultural sector is changing fast. Imported food products are on the rise, cheap and often subsidized fresh agricultural produce are penetrating the market making our agricultural productivity low compared to our Southeast Asian neighbors. Moreover, most Filipino farmers are still engaged in traditional methods of production and live below the poverty line.

Under such circumstances, there is an urgent need to address these issues and the answer might lie in the formation of agricultural cooperatives.

On 12-29 September 2007, a group of 17 Filipinos from the Department of Agriculture (DA) and state colleges and universities (SCUs) attended a "Training Programme for Young Leaders" sponsored by the Japanese International Cooperation Agency (JICA).

One of the key objectives of the program is for the participants to gain understanding about the structure, role and management systems of agricultural cooperative organizations in Japan.

The training created an opportunity for the participants to study the Japan Agricultural (JA) Cooperatives in Yamagata, Japan and see it in the perspective of a highly successful, effectively organized, and efficiently managed organization.

The author (left) with officials from the Yamagata General Agricultural Research Center, Japan.

Uniting the weak

The basic tenet of an agricultural cooperative is mutual aid. Those farmers in a weak economic position must unite and help each other for the common good.

A cooperative provides a venue to lend money, buy raw materials at low price and sell products directly to consumers. This empowers poor farmers through higher profits and an opportunity to alleviate them from poverty.

Through a cooperative, the standard of farming is increased based on collaborative works and technology sharing. This ensures quality of produce and lowers cost of production making it more competitive in the market as against imported goods.

Characteristics of Japanese cooperative: The Case of Yamagata

JA Yamagata is a regional cooperative with almost 21,000 members. It employs 557 people and holds office bigger than the Bureau of Agricultural Research (BAR) with an asset and liabilities in 2005 valued at Php61B and net income of Php93M (P1:¥0.39).

This is the cooperative that is involved in all aspects of a farmer's life from farm planning to selling, from marketing, banking to technology dissemination and even with the medical treatment, welfare and education of its members.

JA Yamagata is also a prime decision maker in the conduct of research and development (R&D) in agriculture thereby exemplifying a true market driven R&D.

The good thing about this cooperative is that, farmers become traders wherein profitability of stakeholders is dispersed as farmers and capitalist work hand in hand. The cooperative also does the market guaranteeing supply and utilization and determining the best price for the products. Quality is also assured as products are standardized.

The use of "branding" and first-rate "packaging" in all the major products of Yamagata such as cherries, pears, wines and beef is a marketing coup. Raw materials are processed into commodities, carefully packaged and branded with JA Yamagata assuring quality, product brand, and processor's trade name retention to consumers.

Implications to agricultural development

Given the level of success, organizational structure, and the critical role of JA Yamagata, it is plausible that it can be replicated in the Philippines. If there is cooperation among farmers, businessmen, and the local government, agricultural cooperatives will be a major catalyst in the agricultural development.

Marketing concepts such as branding and the effective use of packaging is also a driving force in the success of JA Yamagata as it gives competitive advantage over imported goods through the projection of high quality and being locally manufactured.

There is a great opportunity for Philippine agriculture products. Having farmers' organizations and cooperatives to operate their own promotion and business management is a good start to be competitive particularly in handling their goods both for domestic and international markets.

Empowering upland communities through *Dampalit watershed* project

How does one prevent environment degradation and still provide livelihood for the upland farmers and in the communities that depend heavily on forest-based resources?

For the case of the Makiling Forest Reserve (MFR), this is certainly no picnic in the park.

The forest reserve is a major source of livelihood for many landless farmers in the adjacent and nearby communities of Los Baños that they have become antagonistic to any government intervention.

Past records show that punitive actions such as arresting and imprisoning illegal MFR occupants proved ineffective along with resettlement endeavors. Forest occupants return gradually and continue to grow by the numbers.

So like the saying, "if you can't beat them, join them" the government, instead of imposing punitive actions to illegal occupants, upland farmers and communities were made partners in addressing the problems of environmental degradation and poverty in the area.

The key is to implement a participatory upland development program that is both pro-environment and pro-upland farmers.

Why a watershed project?

The Dampalit watershed of the MFR plays a crucial role in the communities surrounding it. The watershed is part the MFR's major watershed zones with an area of 690 hectares. Its water largely flow into the Laguna Lake where many fish ponds are located.

The Laguna Water District gets its water supply from the watershed distributed among its four major municipalities including Los Baños, Bay, Calauan, and Calamba and other nearby provinces. The headwater of the Dampalit Falls is also a popular tourist spot among the locals.

photo by RITA DELA CRUZ

SAMALUP founder and former president, Martin P. Onico briefs visitors on how their association was established 14 years ago.

To ensure the productive and sustainable management of the watershed, a participatory upland development project is being implemented by the Makiling Center for Mountain Ecosystems (MCME) of the University of the Philippines Los Baños College of Forestry and Natural Resources (UPLB-CFNR). This is in collaboration with a farmers' organization-Samahang Magsasaka sa Mataas na Lupa ng Lalakay sa Bundok Makiling, Inc. (SAMALUP) and the local government of Brgy. Lalakay.

The project is being implemented from April 2006 to 2008 with funding support from the Bureau of Agricultural Research (BAR) in line with its drive to empower the farmers through participatory development programs.

In general, the two-year project hopes to address the problems of poverty and environmental degradation through participatory involvement of upland farmers making them partners of the government. Consequently, by tapping their active participation, the MFR's resources are being managed and protected in a sustainable basis and in harmony with the existing national forestry and environmental laws.

Specifically, the project has four objectives: 1) determine the current state and gather benchmark information on the resources, farming systems and socio-economic condition of the farmers; 2) provide knowledge and skills in designing, planning, and developing upland farming systems; 3) establish demonstration farms showcasing appropriate upland farming techniques in partnership with farmer groups; and 4) strengthen the capabilities of the farmers' organization in upland development.

Forging ties with farmers' org

SAMALUP, the farmers' organization involved in the project has a lot to say about how this watershed project's turn into a success.

According to SAMALUP former President Martin P. Onico, he was happy that what he had envisioned more than a decade ago is slowly being realized now through this project. This, he revealed during the celebration of the Farmers' Day and 14th Founding Anniversary of SAMALUP on 14 October 2007, Brgy. Lalakay, Los Baños, Laguna.

photo courtesy of MCME

Dampalit Falls

"This project provided us adequate information, skills, and means of livelihood which enable us to go on our farming activities without compromising the forest," Onico added.

Attending the activities were institutional representatives that are instrumental in the implementation of the project.

Lalakay Barangay Chairman Gaudencio P. Macatangay highlighted the importance of the project not only for the communities benefitting from the watershed but also its impact to the environment as a whole. He said that, through this project there is a great chance that the next generation would be able to enjoy clean and safe water. He added that, this participatory development project serves as a model for other nearby communities to adopt and follow.

Meanwhile, BAR Director Nicomedes P. Eleazar stressed that poverty need not immediately lead to environmental degradation. In a message read by Ms. Evelyn H. Juanillo, he emphasized that, upland farmers resort to natural resources misuse to survive. "They depend heavily on these forest resources for their basic needs and unless we teach them on the importance of sustainable development, there will come a time when the forest resource will no longer be there for the next generation to enjoy."

He added that this watershed project is a great proof that upland farmers can co-exist in harmony with their marginal environments.

Los Baños Mayor Caesar P. Perez commended the people behind this project and hoped that the it will be emulated and replicated in other communities. He emphasized the importance of upland farmers' participation in this endeavor and hoped that their income-generating capability will soon improve.

Also present during the activity were UPLB Chancellor Luis Rey I. Velasco, SAMALUP President Juanito S. Mercado, UPLB-CFNR Dean Ramon A. Razal, and MCME Director Portia G. Lapitan.

BAR awards 16 outstanding researches in agri & fisheries

photos by RITA DELA CRUZ

Dr. Kevin F. Yaptenco of UPLB receives the AFMA Best R&D Paper (applied research, agriculture category).

Ms. Lorna V. Sancha of PCA receives Best AFMA R&D Paper (development category) and Best R&D Poster Award.

Elmer R. Esplana of BAI receives this year's Best AFMA R&D Paper (socio-economics category).

The Department of Agriculture's (DA) thrust of creating a technology-based agriculture and fisheries industry is brought at the forefront as the Bureau of Agricultural Research (BAR) awarded 16 researchers and their outstanding researches in the fields of agriculture and fisheries during the culmination of its 19th National Research Symposium (NRS) on 6 October 2007 at the Manila Hotel.

Handing over the awards were Agriculture Secretary Arthur C. Yap, BAR Director Nicomedes P. Eleazar, and BAR Asst. Dir. Teodoro S. Solsoloy.

NRS is an annual event coordinated by BAR wherein top scientists and researchers from various state colleges and universities (SCUs) and premier research institutions gather together to present their most promising researches and technologies developed and generated in the year. It coincides with the celebration of the National R&D Week, which is observed every first week of October as stated in Proclamation No. 382 series of 2000.

This year's entries centered on the theme: "Agriculture and Fisheries R&D Toward Agribusiness Development and Agro-industrialization".

Winners were awarded based on the six categories: applied and adaptive researches (agriculture), applied and adaptive researches (fisheries), development research, and socio-economics.

Applied and Adaptive Researches (agriculture)

Applied research is directed toward gaining knowledge or understanding necessary for determining the means by which a recognized and specific need is met. Adaptive research refers to the fine-tuning of newly developed technologies necessary to determine their technical feasibility in solving specific needs related to agricultural and fisheries productions and postproduction in agro-ecological and social conditions in location-specific areas.

For the applied research, the study on "Respiration Modeling of Cherry Tomato at Different Temperatures for Modified Atmosphere Packaging Applications" by Kevin F. Yaptenco of the College of Agriculture-University of the Philippines Los Baños (CA-UPLB), Ji Gang Kim and Hye Eun Lee of the Rural Development Administration (RDA) South Korea, bagged the first prize for the applied agriculture category.

Meanwhile, the studies on "A Complete Micropropagation System of Avocado (*Persea americana* Mill.) from Somatic Embryogenesis to Successful Transplant to Soil and its Application to Mutation Breeding" by Renato A. Avenido, Lilian F. Pateña, Julita G. Dimaculangan, Julieta N. Welgas, Jennelyn M. Carandang, Ramon C. Barba of UPLB and the "Production of Kawayan Charcoal Briquette Using Chichacorn Processing Effluent as Binder" by Stanley C. Malab, Jose A. Zafaralla, Beatriz S. Malab, Angeline A. Tagay of the Mariano Marcos State University (MMSU) – garnered the second and third spots, respectively.

For the adaptive, the study of Roberto C. Guarte and Marisel T. Andrino of the Visayas State University (VSU) titled, "Sustainable Production of Plant Oils in the Philippines" took home the grand prize.

Second prize went to Rose Mary G. Aquino, Orlando J. Lorenzana, Violeta A. Peralta, and Vanessa Joy V. Fortin of DA-Regional Field Unit II-Cagayan Valley Integrated Agricultural Research Center (CVIARC) for their study, "*Namnama* 2: CVIARC Peanut Crop Improvement Project High-Yielding Wet Season Variety".

The third prize went to Severino C. Tumamang, Roynic Y. Aquino, Robert M. Atalin, Buena Allyn C. Malbas, Orlando J. Lorenzana, and Valentino C. Perdido of DA-RFU II -CVIARC for their study, "New Open Pollinated White Flint Corn Varieties in Support to Food Security in Region 02".

Applied and Adaptive Researches (fisheries)

For the adaptive, the study on "Settlement, Growth and Survival of Post-Larval Abalone (*Haliotis asinina)* Feed on Different Diatom Diets" by Mario N. Ruinata of the Bureau of Fisheries and Aquatic Resources-Region VIII and Anthony S. Ilano of the University of San Carlos (USC) was awarded the third place.

For the applied, the first prize went to the study on "Cortisol Response of Nile Tilapia (*Oreochromis niloticus*) Subjected to Different Hatchery Management Stressors" by Apolinario V. Yambot and Jonathan V. Lazaro of the Central Luzon State University (CLSU), Ronalie J. Barlis of the Pampanga Agricultural College (PAC), and Su-Mei Wu of the National Chiayi University.

The second prize went to the study, "Bio-Piscicide from Physic Nut (*Jatropha curcas* L.) for Aquaculture" by Tereso A. Abella, Julieta D. Holasca, Annabelle A. Tadeo, Jeremiah P. Abella, Rosie B. Reyes, Christopher D. Del Rosario, May R. Sandoval, Remmele M. Malit, Rosalie R. Rafael, and Gella Patria L. Abella of CLSU. Meanwhile, the study on "Vaccine Against *Aeromonas hydrophilla* and Probiotics-supplemented Diet Increased the Yield of Nile Tilapia *Oreochromis niloticus* Cultured during Dry and Wet Seasons in Pampanga, Philippines by Apolinario V. Yambot, Ma. Neda A. Catalma, Tereso A. Abella, Isagani P. Angeles of CLSU; Julie-Anne D. Lanuza, Carina M. Tayag of ACE Feeds Inc.; and Annette Ong, Yasuyoshi Miyake of Biobank Japan – got the third prize.

Development Research

This refers to output of systematic work, drawing on existing knowledge gained from research and/or practical experience that is directed towards producing new materials, products, devices, installing new processes, systems, services, and improving substantially those already produced and in use by the intended client.

This year's first prize winner went to

next page

Locally-developed ND vaccine wins PSAS Award

Dedication, passion, and efficiency– these are the qualities that made the research on "Efficacy of Locally-developed Inactivated Oil Emulsion Newcastle Disease (ND) Vaccine in Native Chicken" to win the Philippine Society of Animal Science (PSAS) award for the health and welfare research category.

The award was given during the closing ceremony of the 44th Scientific Seminar and Annual Convention on 18-19 October 2007 held at the CSB International Conference Center and Hotel, Malate, Manila.

The research is a joint collaboration project of the DA Regional Field Unit –VII and the Bureau of Animal Industry (BAI). The main researcher, Dr. Rachel B. Cadeliña, agricultural center chief of the Biologics Vaccine Production Laboratory in the region said that, her team was working on the vaccine for two years specifically within Region VII.

The research including laboratory and field experiments is supported by BAR through a research grant for poultry and livestock program. It used locally-produced vaccine through Hemagglutination Inhibition (HI) technique and challenge test. The technology on vaccine production was assisted by a Japanese volunteer together with Filipino researchers whose main goal is to produce local vaccine.

Results revealed that the local vaccine can irradicate the ND even within the free range production management system of native chicken. To be successful, it is advised that native chicken raisers must strictly follow clean and sanitized management system and incorporate the use of the ND vaccine for better production efficiency.

Plans of ND vaccination in the entire Visayas zone and selected Mindanao areas are now in their final stage and are ready for expansion. Given the utility and application of the locally ND vaccine, a 100% survival rate is expected when applied properly compared to zero or unvaccinated native chicken during production management. (*Marlowe U. Aquino, PhD.)*

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BAR awards...*from page 3*

the study, "Farm Level Technology Adoption towards Entrepreneurship to Overcome Poverty in Coconut Growing Community: The Case of Feimco in Maitum, Sarangani Province" by Erlene C. Manohar, Elisa P. Gabi, Lorna V. Sancha of the Philippine Coconut Authority (PCA)- Region XII.

The second prize was bagged by researchers from DA RFU I – Ilocos Integrated Agricultural Research Center (ILIARC) led by Jovita M. Datuin, Mary Jane B. Alcedo, Josefina P. Bueno, Melinda G. Calumpit, Joey Warren A. Bragado, Edmundo M. Quinit, and Liza L. Ronquillo for their study on "Enhancing Goat Production Through Public and Private Partnership in Region I".

Meanwhile, the last spot was awarded to the study, "Community-based Participatory Action Research on Banana Development Program (CPAR-BDP) in Sarangani Province" by Rogaciano J. Lumen, Jessie A. Lumbao, Jose L. Malaque, Loreto I. Pagarigan, Eddie A. Ampodia, Crisaida Peralta, and William Bustamante of DA RFU XII – Central Mindanao Integrated Agricultural Research Center (CEMIARC).

Socio-economics Research

This research deals with people and institutions including governance, politics, economics, sociology, and anthropology, focuses on methods of participatory research, monitoring and evaluation of technological packages with regard to adoption and impact, and contributions to policy-related issues pertaining to agriculture and fisheries production.

The grand prize was awarded to the study, "Development in the Supply Chain of the Philippine Goat Industry: An Assessment" by Elmer R. Esplana, Lary Nel B. Abao, and Rolando M. Vasquez of the Bureau of Animal Industry (BAI).

The study, "Social Equity and Public Policy Dimensions of Innovative Rice and Corn Technologies" by Linda M. Peñalba, Aida O. Grande, and Flordeliza A. Sanchez of UPLB garnered the second spot.

The third spot belonged to Lilibeth G. Miralles, Pablo B. Pedrera, and Marichu M. Padayao of the Visayas State University (VSU) for their study, "Social Profile Characterizing Adoption of Agricultural Technologies, N. Leyte, Philippines".

Winners of the "AFMA Best R&D Paper" received P20,000 cash and trophy. Second and third prize winners went home with their trophies and cash prizes amounting to P15,000 and P10,000, respectively.

AFMA Best Poster

The AFMA Best poster winners were chosen from the submitted posters of the different papers presented during the NRS.

This year's winner went to the study, "Farm Level Technology Adoption towards Entrepreneurship to Overcome Poverty in Coconut Growing Community: The Case of Feimco in Maitum, Sarangani Province" by Erlene C. Manohar, Elisa P. Gabi, Lorna V. Sancha of PCA-Region XII. They received P7,000 cash prize and a trophy.

The second and third runners-up went to the posters, "Production of Kawayan Charcoal Briquette Using Chichacorn Processing Effluent as Binder" of MMSU; and "Namnama 2: CVIARC Peanut Crop Improvement Project High Yielding Wet Season Variety" of the DA-RFU II-CVIARC. They received P5,000 and P3,000 cash prizes and trophies. *(Rita T. dela Cruz)*

BAR conducts bio-organic fertilizer orientation

The issuance of Executive Order 481 on "The Promotion and Development of Organic Agriculture in the Philippines" signed by President Gloria Macapagal-Arroyo, prompted the Department of Agriculture (DA) through the Bureau of Agricultural Research (BAR) to support the "Bio-Organic Fertilizer Production Project".

During an orientation held on 2 October 2007 at the RDMIC Conference Room, the Regional Integrated Agricultural Research Center (RIARC) managers were given a briefer on the components of the project together with the private sector partner, Agro-Forestry Crop Systems, Inc. (AFCSI). The orientation was followed by field visits at the Bataan Peninsula State University (BPSU), Abucay, Bataan.

As stipulated in the Memorandum of Agreement (MOA) fo the project, BAR and AFSCI will establish biofertilizer production facilities in the different experimental sites of RIARCs.

BAR, through its Agribusiness Development Projects (ADPs), will be responsible in the adoption and dissemination of technologies on the organic fertilizer using biodegradable organic waste. RIARCs will assist on the promotion of the technology in collaboration with the local government units (LGUs). AFCSI, on the other hand, will provide the manufacturing technology through conduct of trainings. It will also provide the BioPlus Activator, a scientific biological formulation consisting of 25

turn to page 2

Operating the onion industry with C RC


photo by RUETH T. CABRAL

Onions are stacked in a packing house in Nueva Ecija ready to be hauled.

Onions *(Allium cepa)* are practically essential in the everyday lives of Filipinos. For every cook, it is an important food seasoning that renders a spicy and pungent taste to their dishes. For the health conscious ones, onions are excellent source of vitamin C, potassium, dietary fiber and folic acid. Likewise, it has antioxidants which help delay slow oxidative damage to cells. For the farmers, onions are cash crops which can give high returns considering the high demand and high market price of for the crop in the domestic and foreign markets. Onions can be sold at PhP27.50/kg to wholesale and PhP38.61/kg at retail price.

The local onion industry

Over the past years, the production of onion in the country is slightly increasing to meet the local demand. The domestic consumption of onion in 2003 was estimated at 64,443 metric tons (MT) equivalent to PhP 2,488.14 million increasing to high production of 86,741 MT in 2004. However, despite the increase in farm productivity of onions, the influx of cheap imports of fresh and chilled onions impedes the development of the local onion industry. Reports of smuggled onions also badly affected the local onion growers.

In response to this dilemma, Agriculture Secretary Arthur C. Yap recognized the need for a roadmap of the onion industry, with focus on increasing the productivity of onion growers and the tapping of more markets for onions produced.

Being able to proactively respond to market demand and opportunities is the key to a successful venture with onions. The weak structural integration of the critical resources and information in production, postharvest facilities, marketing, and credit plays a vital role in making strategic decisions, especially in the agribusiness sector.

A successful onion industry is dependent on the interlocking decisions, timing, and effective management of resources. It has vital implications on fund allocation, access to postharvest facilities and institutional market.

In this case, the Bureau of Agricultural Research in partnership with the Optiserve Technologies, Inc. and DA-Agricultural Training Institute (ATI) came up with an information and communications technology (ICT) intervention that aims to establish a field-level business process management system.

Introducing OPREMS

The Operation of an Onion Resource Management Systems or OPREMS is an ICT-based project of BAR and Optiserve that will allow farmers and their cooperatives effectively manage the supply chain of onion. It is an enterprise resource planning solution developed to establish process-driven information which can be shared by the key players in the onion industry.

Thru the project, the onion farmers and their organizations will be equipped with ICT tools to organize, process, and access mission-critical data for planning, production, resource allocation and marketing. With the establishment of the necessary ICT tools, an onion resource management system (OPREMS) will be installed and operationalized initially in Northern and Central Luzon to monitor the supply flow of onion at any given time, at the same time, monitor the activities of onion growers and traders, and effectively link the farmers to prospect markets.

The project's entry-point is the establishment of OPREMS in the top five onion producing areas in the country. Information such as farmer's profile and production details will be encoded and uploaded utilizing the e-Pinoy Farms platform developed by Optiserve. Approximately 5,000 farmers will be enrolled in the OPREMS from the provinces of Nueva Ecija, Nueva Vizacaya, Ilocos Sur, Pangasinan, and Tarlac. The information that will be gathered will be integrated with the current body of knowledge in onion production system for strategic decision-making, i.e. expenditures in production inputs, postharvest facilities, agricultural credit portfolio or advance selling of produce to institutional markets. Moreover, the OPREMS can be considered as a one-stop-shop where information can be exchanged among various partners and stakeholders.

OPREMS heavily banks on the use and interpretation of information for strategic decision-making. Hence, data gathering becomes a crucial step for the success of the implementation of the project.

Once the information exchange structure is established, both producers and consumers will be linked to an on-line auction-type marketplace, or the e-Pinoy marketplace.

What is expected

With the implementation of OPREMS, the onion farmers are expected to become information sensitive when in comes to decision making. Likewise, onion farmers are willed to become entrepreneurs and agribusiness managers thru effective management of resources, thereby leading to a more productive onion industry. OPREMS is also expected to provide access to the critical information from its database houses to different program implementers and policy-makers specifically in the provision of vital support services for the onion industry.

World Food Day...*from page 1*

and universities (SCUs), attended the seminar on 4 October 2007 at the RDMIC 4th Floor Conference Room, Visayas Ave., Diliman, Quezon City and on 6 October 2007 at the World Trade Center, Manila.

Poster-making contest

One of the highlights of the WFD celebration is the National On the Spot Poster Making Contest. This activity was made possible through in collaboration with the Department of Education (DepEd). Students from Grade IV to VI from the different public schools in Metro Manila and DepEd accredited private schools were encouraged to join. Students showed their artistic minds and talents in interpreting the theme, "The Right to Food". President Gloria Macapagal-Arroyo and Secretary Yap awarded the trophies and cash prizes to the winners at Pritil Public Market during its inauguration as one of the Barangay Food Terminals (BFTs) on 16 October 2007. BFTs serve as venue for quality, safe, and affordable food.

Worldwide candlelight vigil

Culminating this year's celebration is the worldwide candlelight vigil on the "Right to Food". Staff members from the DA family, civil society organizations, legal and religious organizations, and civil rights groups were enjoined to take part in this momentous event. The ceremonial lighting of candles was led by Secretary Yap followed by the reading of pledge of "Right to Food". The activity showed the commitment of the DA family in ensuring the right of every Filipino to food. Thus serving as instruments and advocates in eradicating hunger and poverty. *(Ma. Eloisa E. Hernandez)*

Let's go indigenous!

BAR introduces potential product lines from Philippine oregano

Oregano wine, oregano juice for human, oregano juice for poultry, oregano tea and oregano vinegar.

These are just some of the potential products that can be derived from the Philippine oregano (*Coleus aromaticus*). This was reported by Dr. Estela C. Taño of the Department of Agriculture Regional Field Unit IVa - Southern Tagalog Integrated Agricultural Research Center (STIARC) during a public seminar on "Indigenous Plants for Health and Wellness" conducted by the Bureau of Agricultural Research (BAR) in celebration of the Health and Wellness Tourism (HWT) Month.

In many parts of the world, oregano is cultivated for its condiment and culinary use. It's strongly flavored leaves make an excellent filling for grilled meat, fried vegetables, and other specialty dishes that need that distinct aromatic flavor.

However, in the Philippines, oregano is mostly known for its medicinal value particularly in relieving children's coughs as claimed by earlier generations through indigenous knowledge.

Dr. Taño revealed that oregano contains carminative, diaphoretic, tonic, and stimulant chemical and medicinal properties. Specific contents in oregano are rosmarinic acid compound, and thymol responsible for its anti-inflammatory, anti-bacterial, anti-oxidant, anti-fungal and anti-viral properties per document analysis. However, chemical analysis on the commodity is still to be conducted to support and promote these potential product lines.

The fleshy and scaly leaves of oregano are rich in volatile oils which according to Dr. Taño is believed to be responsible for slowing the process in the spoilage of food therefore minimizing the risk of ingesting harmful microorganisms. She reported that fresh leaves of oregano can yield to as much as 0.055% volatile oil which is largely carvacrol.

The potential products from Philippine oregano, as introduced by Dr. Taño, are the results of an indigenous technology documentation research efforts that aim to develop innovative products from indigenous plants, increase awareness and promotions, and market them to generate income and sustainable community-based livelihood .

These technologies on production, processing and value-adding are parts of a BAR-funded research through its National Technology Commercialization Program (NTCP), which is a major initiative of Agriculture Secretary Arthur C. Yap on "making business from agriculture." This is implicated by creating job opportunities and income growth created from yield-improving technologies generated from research and development (R&D).

Dr. Taño said that once the technologies are perfected, these potential product lines of Philippine oregano will greatly boost the government's promotion on rural agribusiness.

She added that there is now a great market potential for these kinds of products especially because consumers are becoming more cautious in what they eat. *(Rita T. dela Cruz)*

A fresh look at *siling labuyo*

Siling labuyo (Capsicum frutescens) has the potential to reduce the risk of cancer, cardiovascular diseases, cataract, and macular degeneration. This was stressed by Dr. Evelyn B. Rodriguez, professor from the Institute of Chemistry at the University of the Los Baños (UPLB) in a seminar on indigenous plants for health and wellness at the Bureau of Agricultural Research (BAR) during its 19th National Research Symposium and in celebration of the 8th National Agriculture and Fisheries R&D Week.

Also known as the chili pepper, *siling labuyo* is among the indigenous plants that the Department of Agriculture (DA) promotes through the Indigenous Plants for Health and Wellness RDE Program" of BAR. The said program aims to promote and highlight the importance of indigenous plants and its products.

The fruit of *siling-labuyo* is a popularly used as a spicy and chili condiment while its leaves are usually consumed as vegetables.

In medicinal terms, the *labuyo* fruit was earlier utilized as an herbal plant to ease arthritis and rheumatism. Likewise, the *labuyo* is an effective cure for dyspepsia, flatulence, and toothache.

"Phytochemicals are what people need to stay healthy," Dr. Rodriguez stressed in her presentation.

Phytochemicals are chemical compounds that are abundant in fruits, vegetables and other plant species. These naturally-occurring compounds which act as anti-oxidants capable of metabolizing free-radicals in the body that can cause cell death.

In chili pepper, carotenoids and phenolic acids are the phytochemicals that can be derived from its leaves and fruits.

Based on the studies conducted by the team of Dr. Rodriguez, the anti-oxidant activity of *siling labuyo* extracts (300ppm) in terms of free radical scavenging activity is 60.1%. Meanwhile, phenolic content of fruit and leaves of *labuyo* are 3536mg/Kg and 839mg/Kg fresh sample, respectively.

photo courtesy of BAR Album

Dr. Roriguez encouraged eating a variety of fruits and vegetables to acquire the phytochemicals present in them along with its promising health and wellness benefits.

Moreover, Dr. Rodriguez pointed that more studies should be done on *siling labuyo* and with other indigenous plants like *malunggay*. The potential disease-preventive mechanisms of pyhytochemicals in fruits, vegetables and their constituents are not limited to antioxidant activity only. The phytochemicals can also act in the modulation of detoxification enzymes, stimulation of the immune system, alteration of cholesterol mechanism, and blood pressure reduction. *(Ellaine Grace L. Nagpala)*

Eleazar receives distinguished alumni award from UPLBAA

photo by RITA DELA CRUZ

BAR Director Nicomedes P. Elezar

Recognizing his notable efforts and achievements in the field of research management and administration, Bureau of Agricultural Research (BAR) Director Nicomedes P. Eleazar is this year's recipient of the distinguished alumni award from the University of the Philippines Los Baños College of Agriculture Alumni Association (UPLBCAAA) and the College of Agriculture Alumni Awards Committee.

The award was presented during the Alumni Fellowship and Awards Night in celebration of UPLB's 89th Loyalty Day and Alumni Homecoming held on 9 October 2007 at the Baker Hall, UPLB, College, Laguna.

Handing over the certificates and the trophies for the awardees were UPLB Chancellor Luis Rey I. Velasco, UPLBAA President Elpidio L. Rosario, and CA Dean Candida B. Adalla.

In the welcome and congratulatory address of Chancellor Velasco, he commended and recognized the distinguished alumni awardees for bringing "home a lifework of dedicated service."

He congratulated them for their contributions to UPLB and society. He re-echoed what they symbolize for the university saying that "You are exemplars of the UPLB spirit of service to the nation. You reflect the true meaning of *iskolar ng bayan*, that is: *iskolar para sa bayan*."

Dir. Eleazar was given the recognition along with other nine awardees who are well-known in their respective fields.

They were: Resurreccion Banzon-Apiras (achievement in fine arts), Eladio Baradas (rural youth development through sports), Emmanuel Cayton (public service-military), Catalino Flores (plant breeding research and agricultural entrepreneurship), Alfredo Gonzalez (public service and extension), Francisco Peñalba (swine research and industry development), Lydia Velasco-Magnaye (agricultural research), Erlinda Rillo (coconut research and development), and Violeta Villegas (science and technology).

Prior to the alumni award, Eleazar is also an outstanding alumnus awardee of the Lourdes Academy in 1992 and a recipient of the Gawad Saka of the Department of Agriculture (DA) in 1991.

His specialization in the fields of project development and implementation; policy studies; and research management and administration is well recognized both here and abroad.

He was a technical consultant in various international research institutions such as the Centre for International Agricultural Research (ACIAR), and Food and Agriculture Organization (FAO).

He led and coordinated various development projects under the SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA), FAO-United Nations Development Programme (UNDP), Japan International Cooperation Agency (JICA), Canada-International Development Research Center (IDRC), and Asian Development Bank (ADB).

Eleazar finished his Bachelor of Science in Agriculture (Animal Science) from UPLB in 1981 and his Master of Science in Management (Project Management) from Cranfield University, England in 1993.

He holds the CESO IV position in the Career Executive Service (CES) ranking structure. *(Rita T. dela Cruz)*

UPLB celebrates Loyalty Day; Velasco highlights DA support

UPLB is where our hearts are. But also the UPLB which has become our home has also kept itself a home in our own hearts".

Thus proudly said by University of the Philippines Los Baños (UPLB) Chancellor Luis Rey I. Velasco as he welcomed UPLB alumni during the Alumni Fellowship and Awards Night on 9 October 2007 at the Baker Hall, UPLB, College, Laguna.

In his message Chancellor Velasco acknowledged the financial support of the Department of Agriculture (DA) in the conduct of their research development and extension (RDE) activities. This year, DA has released PhP 200M worth of projects. UPLB is currently working for the release of another PhP 200M promised by Secretary Arthur C. Yap during the UPLB 35th Commencement Exercises.

The UPLB Alumni Association (UPLBAA) awarded outstanding alumni for their significant contributions and accomplishments in their respective fields. Bureau of Agricultural Research (BAR) Director Nicomedes P. Eleazar is one of recipients of the Outstanding College of Agriculture Alumni Award for his notable achievements in the field of research management and administration.

Other awardees from the DA family were Dr. Davinio P. Catbagan, director of the Bureau of Animal Industry (BAI) and Dr. Erlinda P. Rillo, division chief of the Philippine Coconut Authority (PCA), Guinobatan, Albay.

The Fellowship Night was part of the 89th Loyalty Day and Alumni Homecoming celebrations.

Faculty, staff, students, jubilarians, and other alumni, together with the different government agencies, civic organizations, and R&D institutions joined the traditional foot parade on 10 October 2007, bringing with them banners and flags of their respective offices.

Culminating the event is the ceremonial launching of the UPLB centennial celebration officially unveiling the centennial logo led by Chancellor Velasco, UP President Emerlinda Roman, and UPLBAA President Elpidio Rosario.

The UPLB Centennial theme song, *"Isang Daan"* was also performed marking the start of the year-long preparation for the centennial celebration of UP in 2008. *(Ma. Eloisa E.*

All about *Moringa Oleifera*

Nutritious malunggay-based recipe wins 2007 Agri-Cookfest

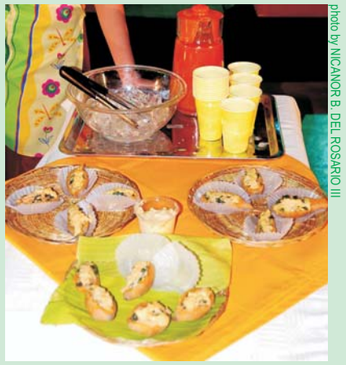

photo by NICANOR B. DEL ROSARIO III

Winning recipe: Malunggay combo with malunggay and carrot juice

Innovative, authentic, affordable and nutritious malunggay-based recipes are the important factors necessary to win this contest. This was shown by the creativity and artistry skills of Nieva Josefina M. Marcelino and Jonnah Laine V. Toy for their winning recipe, *malunggay combo with malunggay and carrot juice*.

The winning recipe was prepared by the students from Florentino Torres High School in Tondo, Manila. It includes malunggay leaves and fruit as main ingredients due to their nutritional value together with sweet potato, carrot pulp and milk, butter, onions, garlic and sugar to taste. For the juice, a combination of malunggay, carrot juice and calamansi with sugar were blended to complement the combo.

The *vegetable jardenera* recipe prepared by Joanne Cammille De Luna and Ma. Vanilyn Bilbao of Pasay South High School won the first runner-up and the *malunggay California maki* recipe by Rowena M. Anislagon and Edgelyn M. Garcia of the Holy Spirit National High School of Quezon City.

Winners were annouced during the awarding of the O! May Gulay Cooking Contest on 6 October 2007 during the AgriLink/AquaLink/FoodLink celebration at the World Trade Center, Metro Manila.

The grand winner received Php 20,000 plus an exposure trip to Baguio for the whole class, a trophy and some special awards.

The first and second runners-up received Php 15,000 plus an exposure trip to Tagaytay for the whole class, and a trophy; and Php 10,000 and a trophy, respectively.

Department of Agriculture Secretary Arthur C. Yap awarded the cash prices and personally congratulated the winners. (*Dr. Marlowe U. Aquino*)

Food company eyes the potential of malunggay for biofortification

photo courtesy of delhiplanet.com

Malunggay-fortified noodles

A noodle company is eyeing malunggay for the biofortification of noodles as part of its commitment to support the program to fight malnutrition which is prevalent in the countryside, said Director Alice Ilaga of the Biotechnology Program Office (BPO) of the Department of Agriculture (DA).

Given the nutritional value of malunggay, it can also be used in fortifying other products including sauces, juices, milk, and bread.

Fortification of food is just one of the many marketing potentials of malunggay that the private sector could tap and adopt given that the Department is strategically positioning itself to boost its commercial production.

Although currently, the Philippines is still in the midst of developing the local market for malunggay and its various product lines, the industry is slowly on its way to become a global competitor with the help of DA's Biotechnology Program.

Biofortification of food crops is one of the most promising new tools of science today to fight malnutrition and save lives.

This approach is a new paradigm in the field of agriculture, the results of which focus on providing better food to poor people and not just providing them with bulk.

This approach is in sync with the millennium development goals that are being implemented by agricultural organizations all over the world—eradicating hunger, reducing child mortality, and improving maternal health.

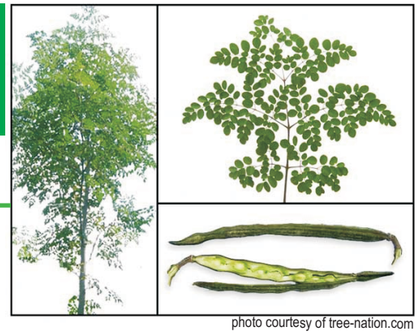

photo courtesy of tree-nation.com

Essentially, biofortification is the process of breeding food crops that are rich in bioavailable micronutrients. In other words, these crops are being "loaded" with high levels of minerals and vitamins in their seeds and roots, which are then harvested and eaten.

Through biofortification, farmers are provided with crop varieties that naturally reduce nutrition-related health problems. *(Rita T. dela Cruz with reports from Biolife)*

Beverage from malunggay

Here's a new refreshing way of consuming the lowly malunggay vegetable.

Following the massive campaign of the several health benefits from malunggay, a line of malunggay-based products have been released in the market. There is the malunggay oil for cooking, which can be used as an alternative to olive oil; the malunggay powder that can be used as flavoring or additive to pre-processed food products such as noodles and pandesal; malunggay tablets are also made as a health supplement.

Still, the list of malunggay-based products is growing because of the nutrients that can be derived from the vegetable, hence the innovation of refreshments from malunggay.

After the discovery of a Japanese businessman on the health benefits from malunggay, Mr. Mitsuo Shoji developed the malunggay tea, which he claims can cure many human diseases. Malunggay in tea bags are now widely sold in the market, which are developed by Mr. Shoji's company and other companies in the private sector

Meanwhile, Dr. Edwin Balbarino of the Visayas Stae University reported that malunggay juice is extracted from the leaves of the vegetable in Leyte. The extract is mixed with lemonsito juice to produce iced candies or cold drinks for children who normally do not like eating vegetables.

The malunggay, also termed as moringa, is a vitamin rich vegetable, and contains protein, iron and potassium. It contains anti-oxidants that suppress the activities of free-radicals, which causes cell death.

As part of its campaign to combat poverty, malnutrition and other health disorders, the Department of Agriculture (DA) promotes the planting and consumption of moringa.

photo courtesy of static.flickr.com

Malunggay can be planted using seeds and cuttings. The development of malunggay-based products and its commercialization is likewise promoted by DA. *(Ellaine Grace E. Nagpala)*

photo by RITA DELA CRUZ

Dr. Evelyn B. Rodriguez of UPLB lectures nutraceuticals and cosmeceuticals from food crops.

BAR promotes nutraceuticals and cosmeceuticals derived from food crops

Consider these the "in thing" for health and wellness, the nutraceuticals and cosmeceuticals derived from food crops are here to stay.

This was revealed by Dr. Evelyn B. Rodriguez of the Institute of Chemistry, University of the Philippines Los Baños (UPLB) who has been researching on specific crops for this purpose.

Presented during the opening ceremony of the 19th National Research Symposium (NRS) at the Bureau of Agricultural Research (BAR), the nutraceuticals and cosmeceuticals could help enhance beauty and wellness.

In her presentation, Dr. Rodriguez defined nutraceuticals as food substances or a part of a food that provides medical or health benefits including the prevention and treatment of diseases.

Meanwhile, cosmeceuticals are intended to enhance beauty because these are ingredients present in fruits (exfoliate and improve circulation), chamomile flower (anti-inflammatory, anti-bacterials and calms irritated skin), green tea and vegetables (anti-oxidant), tamarind (immunostimulation), coconut (moisturize, repairs rough and dry skin, heals wound).

To support these claims, one of the studies conducted by Dr. Rodriguez showed that rice bran and rice bran oil are among the most important sources of functional components of nutraceuticals and cosmeceuticals. Although rice bran has been propagated worldwide, this is underutilized and poorly used for human consumption.

Rice bran and rice bran oil contain γ-*Oryzanol* which is claimed to prevent bone loss, serves as antioxidant, and promotes skin capillary circulation. It also contains phytic acid, *Myo*-Inositol which has anti-cancer, antioxidant, properties for blood regulation and stimulation, regeneration of the liver cell, and management of kidney and gall bladder stones.

Furthermore, yellow flower from squash is said to be rich in lutein.

Lutein is a substance that helps maintain good eyesight and functions to filter high energy blue light which lowers the risk for cataract development and prevent muscular degeneration, the principal cause of irreversible blindness in the elderly, she added. *(Dr. Marlowe U. Aquino)*