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# BAR participates in 1st ARMMIARC R&D celebration

photo by NDELROSARIO

*Present at the VIP table are: (L-R) ARMMIARC Manager Siya B. Belongan, BAR Asst. Dir. Teodoro S. Solsoloy, DA Regional Secretary Sajid S. Druz Ali, Al-Haj; Maguindanao Municipal Secretary Datu Quirin Udasan; Asst. Regional Secretary Datu Haron U. Bandila, Al-Haj; and PAO OIC Daud K. Lagasi during the opening ceremony of the 1st ARMMIARC R&D Week held in Sultan Kudarat, Maguindanao.*

Staff of the Bureau of Agricultural Research (BAR) led by Asst. Dir. Teodoro S. Solsoloy participated in the 1st Research and Development (R&D) Week of the Autonomous Region in Muslim Mindanao Integrated Agricultural Research Center (ARMMIARC) on 11-12 December 2006 at Simuay, Sultan Kudarat, Maguindanao.

The R&D Week celebration was marked by two major events one for the R&D practioners and another specifically for the farmers and students. Activities were conducted mainly to highlight the different technologies developed by ARMMIARC and to create a better appreciation and awareness on the significant role the R&D plays in the region.

The first day kicked off with a parade of street dancers from the Maguindanaoan Cultural Dance Troupe and staff from ARMMIARC, BAR, DA-Research Station (ROS), representatives from private sectors, farmers, and students. This was followed by the opening of the booth exhibits and a ceremonial tree planting at the front of the ARMMIARC building led by DA Regional Secretary Sajid S. Druz Ali, Al-Haj and BAR Asst. Dir. Teodoro S. Solsoloy.

Regional Sec. Druz Ali gave an inspirational message while Asst. Dir. Solsoloy keynoted the occasion. In his message he commended the ARMMIARC under the leadership of Manager Siya B. Belongan, and the Center's efforts to highlight the importance of R&D and how its results could benefit those at the grassroots level.

Solsoloy emphasized that the occasion provided an opportunity for the farmers and the students a special appreciation and awareness of R&D motivating them to do what they can to improve the lives of their people. He also mentioned that such activities brought together people from different backgrounds to share their knowledge and experiences resulting to a strong collaboration not only with the government and private sectors, but with the farmers and the youths as well.

His speech stressed two key points: 1) agricultural technologies as mirror of growth and how they could pave the way to the economic growth of a

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**BAR Chronicle** is the official monthly publication of the Bureau of Agricultural Research (BAR) of the Department of Agriculture (DA), which is mandated to ensure that all agricultural research is coordinated and undertaken for maximum utility to agriculture.

It provides regular updates on BAR's activities as national R&D coordinator for agriculture and fisheries and features technologies developed by concern NaRDSAF-member institutions.

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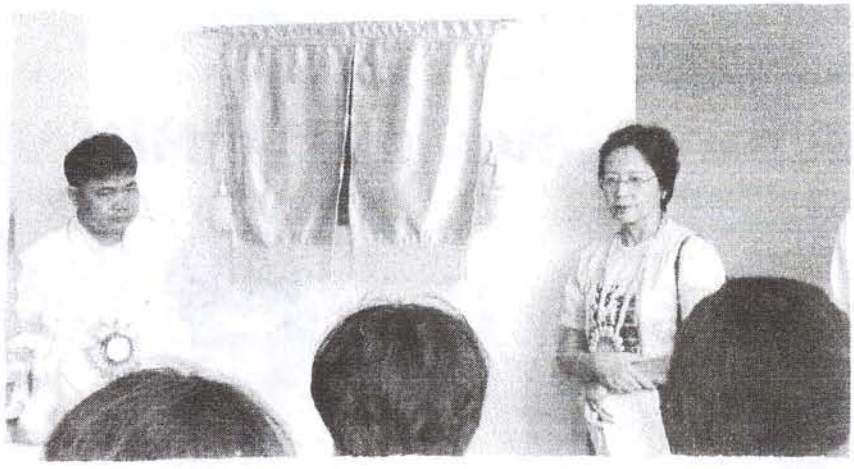
# URS *Makapuno* Embryo Culture Lab inaugurated

photo courtesy of FGAPIDO



*BAR Asst Dir Teodoro S. Solsoloy and URS Dean of the College of Agriculture Eulenia V. Solano lead the unveiling of the marker for the Makapuno Embryo Culture Laboratory.*

The University of Rizal System (URS) inaugurated the newly renovated Makapuno Embryo Culture Laboratory located at the University in Tanay, Rizal, 06 Dec. 2006. The renovation and acquisition of new laboratory equipment was funded by the Bureau of Agricultural Research (BAR) early this year. BAR Asst. Dir. Teodoro Solsoloy graced the event.

According to Dr. Florie B. Gapido, professor of agriculture at the University of Rizal System, the laboratory started with 300 pieces of makapuno nuts which she bought at the Zamboanga Coconut Experimental Station at a minimal cost. The laboratory was established to produce clean and disease-free planting materials for technology transfer and distribution to the community of Rizal especially to indigenous peoples (IPs) and farmers.

The proponents of the project are URS professors, Dr. Gapido and Dr. Dorothy C. Solano; and Mr. Fernando Ablaza of DOST with guidance from URS President Olivia F. De Leon and DOST Region IV Director Alex R. Madrigal.

Ms. Erlinda Rillo, makapuno embryo culture expert from the Philippine Coconut Authority, is tapped to train personnel who will be directly involved in the project.

The team is also looking at the possibility of getting into banana tissue culture to fill in the long interval from the makapuno embryo culture up to the time its fruits can be harvested. *(Florie B. Gapido, Ph.D.)*

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identification of appropriate production and management system, 5) carrying-out of Information, Education and Communication (IEC) campaign, 6) "Think Global, Act Local", 7) technology governance; and 8) geographical clustering for agribusiness.

Given these activities, the role played by various stakeholders in the technology commercialization process determines the mode on how technologies will ultimately reach the market and become responsive to global competitiveness. The institutional mechanism supporting technology commercialization has to define the role of stakeholders in coordination and management set-up including information exchange and knowledge management supported by appropriate research and development. *(Marlowe U. Aquino, Ph.D.)*

# BAR scholar bags TOYM award

Dr. Windell L. Rivera, BAR scholar, emerged as one of the prestigious Ten Outstanding Young Men (TOYM) of 2006 for his significant contribution in the field of microbiology. He received a medal and trophy from President Gloria Macapagal-Arroyo during a formal ceremony in Malacañan on 6 December 2006.

Last year, the Bureau of Agricultural Research (BAR) in cooperation with the University of the Philippines-Natural Sciences Research Institute (UP-NSRI) in Diliman, Quezon City awarded Dr. Rivera the Senior Scientist Fellowship Grant. Dr. Rivera, assistant professor of Microbiology at UP Diliman, conducted the study, "Molecular and phylogenetic analysis of Philippine *Blatocystis* isolates from human and animal hosts".

During an interview inside his laboratory when he was still starting to conduct the study, he said that the results of the study could clarify the genetic diversity, speciation, and host specificity among the *Blastocystis* in the Philippines. He said that, *Blastocystis* is a waterborne protozoan parasite of medical and veterinary importance is not yet fully explored in the country. The result of this study was part of his success in the development of a diagnostic tool that accurately detects the causes of gastrointestinal disorders from parasites. This success paved the way for his TOYM award.

In October 4, during BAR's National Research Symposium, Dr. Rivera was awarded a Certificate of Recognition for his contribution to agricultural development through the conduct of quality research as BAR-UPNSRI doctoral fellow and for being recognized by the National Academy of Science and Technology (NAST) as one of the Outstanding Young Scientists of the Year.

The UP-NSRI serves as the national center of excellence for the advancement, dissemination, and application of knowledge in Biology, Chemistry, Environmental Sciences, Mathematics, and Meteorology/ Oceanography. BAR has been granting fellowships to UP-NSRI for the past few years. Interested parties who want to avail of BAR scholarship grants may contact Dr. Carmencita V. Kagaoan, Program Development Division (PDD) head, Bureau of Agricultural Research, Elliptical Rd., cor. Visayas Ave., Diliman, Quezon City, Tel. No. 928-8505. You may also visit *http://www.bar.gov.ph* for more details. *(Miko Jazmine J. Mojica)*

photo courtesy of WRIVERA

# 2006 A/F commercialization activities ends with a focused vision

After barely two years of implementation, the Department of Agriculture – National Technology Commercialization Program (DA-NTCP) being coordinated and managed by the Bureau of Agricultural Research (BAR) can finally be described as focused and committed towards enterprise development and agribusiness ventures. This was revealed in the 2006 three National Agriculture and Fisheries Technology Forums and five Regional Clustered Technology Forums conducted in strategic locations of the country.

Collectively, the DA-NTCP proved its maiden activities to be proactive and dynamic to the challenging trends in global and domestic agriculture and fisheries development. Supported by international and national partnerships through linkage and networking with private and public R&D institutions and organizations, BAR was able to place its efforts in commercialization on top of the priority lists and will be further supported in the coming years.

The DA-NTCP 2007 Plans and Programs are now prepared and proposed with more interactive and sustainable projects to be implemented by the different stakeholders. All proposed projects support the professionalism of enterprise development and management and agribusiness venture through the enhancement of competitive attitude.

The translation of the working philosophy of DA-NTCP, "*Making technology work for agriculture, fisheries, people, industries and communities*" into an output and development-oriented initiatives is the basis for the focused vision, "*A more competitive attitude to make agriculture and fisheries technology application and utilization.*" This vision is done as identified in the series of 2006 NTCP activities through the following: 1) technology evaluation and assessment, 2) technology refinements, 3) linking financial sources and market, 4)

*see 2007 A/F...page 2*

# Reviewed USM projects show potential for IPR

photo by MHERNANDEZ

*(L-R) BAR-TCU Head Marlowe Aquino, Dr. Roberto Rañolla of UPLB, Dr. Louie Divinagracia of DLSU, and Ms. Nemelita Sungcaya (extreme right) of DA-AMAS review completed BAR-funded projects implemented by USM.*

The Bureau of Agricultural Research (BAR) conducted the review of completed BAR-funded projects implemented by the University of Southern Mindanao (USM) last 4-6 December 2006 at the USM, Kabacan, Cotabato City.

Dr. Marlowe U. Aquino, overall coordinator of the National Technology Commercialization Program (NTCP) and head of BAR-Technology Commercialization Unit (BAR-TCU), welcomed the participants and briefly discussed the rationale of the activity. The activity identified new technologies, products, systems, improved process and information with commerciable potentials. Furthermore, the review aimed at identifying patentable technologies or outputs that should be given Intellectual Property Rights (IPR) protection.

Twelve BAR-funded projects were reviewed, namely: (1) Development of High Yielding White Corn Cultivars with Resistance to Downy Mildew, Stalk and Ear Rot; (2) Marker-Assisted Selection for High Quality Maize Improvement in the Philippines; (3) Management of *Phytophthora* on Rubber in Mindanao; (4) Identification of Host Range and Control of Major Diseases and Other Maladies in Rubber; (5) Population Dynamics and Life History of Major Foliar Pests of Durian; (6) Development of Community-Based Nurseries for Durian; (7) Identification, Production of Quality Planting Materials and Rehabilitation of Plantation Crops – Rubber, Cacao, Coffee; (8) Development of High Timber and Latex Yielding Clones of Rubber for Local and Export Market; (9) Socio-Economic, Marketing, and Policy Studies on Rubber; (10) Targeting Technology Intervention for Food Security in the Philippines: A GIS Application for Agricultural Research Prioritization – Phase I and II; (11) Crop Improvement of Cacao with Emphasis in Criollo: Development of High Yielding Cacao Clones/Hybrids with Good Quality (Aroma and Flavor) and Resistance to Major Pests and Diseases; and (12) A Comprehensive Assessment of the Philippine Agricultural Extension System - Phase I and II.

It was observed that most of the projects show good potential IPR material and the publication of IEC materials is necessary for information dissemination.

The evaluators recommended follow-thru activities for maximum utilization of the matured technologies. Evaluators laid down their respective recommendations on each project. They also suggested that the researcher must be guided by the advantages and things to consider on IPR matter (i.e. publication vs. registration for IP) since potential IPR might be missed. There should be more publications in more widely read publications, and the articles should be translated into the local dialects.

The panel of evaluators was composed of Dr. Rodel Maghirang (DA-HVCC), Dr. Robert F. Rañolla (UPLB), Dr. Louie A. Divinagracia (DLSU), Ms. Nemelita G. Sungcaya (DA-AMAS) and staff from BAR, namely: Dr. Aquino, Dr. Andrea B. Agillon, Mr. Amador C. Macabeo, and Ms. Leoncia B. del Mar. *(Ma. Eloisa E. Hernandez)*

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the concentration without evaporation, pasteurization without heating, demineralization without distillation, fractionation without chemistry. Possible research applications include: (1) prevention of rapid fermentation of coconut sap and buko juice; (2) separation of beta monolaurin from reaction solutions; (3) concentration of fruit juices; and (4) extraction of active ingredients from plants and herbs. Another researchable area raised is the use of heat pumps, by itself or in combination with heat pipes or with fluidized bed dryers, for drying at low temperatures. This is used for grains, fruits, and vegetables drying.

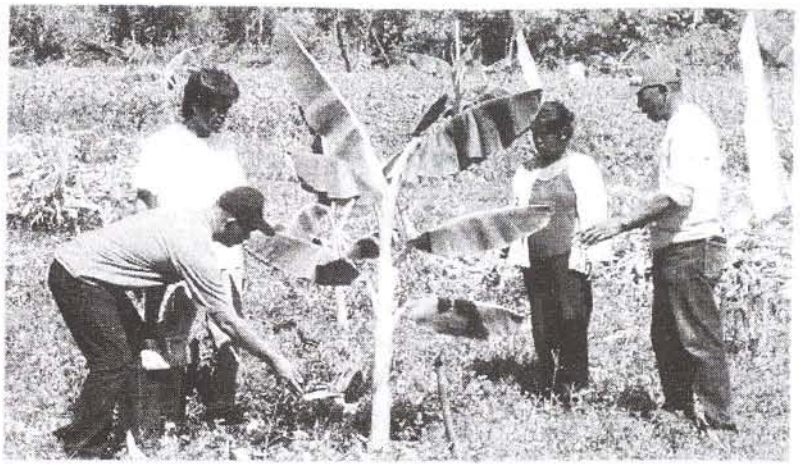
Mr. Amante also mentioned the adoption of nanotechnology in agriculture developed through the use of colloidal chemistry, is the use of ensiling technology for feeds production and use of more locally grown feeds raw materials, ensiled camote and gabi roots and leaves, sugar cane juice and malungay .

Enzymes, serving as value-adding for tubers and cereals, can also be produced and utilized for detoxification and for processing of legumes and vegetable oils. He cited biofuel technologies like biodiesel, bio-ethanol and bio-butanol as examples.

The private sector's perspective served as a guide to the different sectors in identifying the emerging issues in the agriculture and fisheries sector, and also to come up with an updated R&D agenda and problems for 2006-2010. *(Ma. Eloisa E. Hernandez)*

# BAR's CPAR project on integrated farming enhances entrepreneurial capability of small farmers in ARMM

by RITA T. DELA CRUZ

photos by RDELACRUZ

*(Left photo) Signage of the CPAR project located along the highway of Brgy Pinguiaman, Datu Odin Sinsuat. (Right photo) ARMM Coordinator Ricarte Castro (left) and Project Leader Mohmin Sulaik (right) inspect a banana plant produced from tissue culture. With them are two farmer-cooperators of the CPAR project.*

Barely five months after the project started in June 2006, the Community-based Participatory Action Research (CPAR) project, *Enhancing Entrepreneurial Capability of Small Landholder for an Integrated Crop-Livestock Module in ARMM"*, is slowly reaping fruits for the people of Brgy. Pinguiaman, Datu Odin Sinsuat, Maguindanao at the Autonomous Region in Muslim Mindanao (ARMM). This is the general observation of the staff of the Bureau of Agricultural Research (BAR) led by ARMM Coordinator Ricarte V. Castro who went to the Autonomous Region of Muslim Mindanao Integrated Agricultural Research Center (ARMMIARC) who conducted a group field visit evaluation on 13 December 2008.

The project site is on a 6-ha land in Brgy. Pinguiaman. This CPAR project is implemented by ARMMIARC, headed by Manager Siya Belongan. Asst. Manager Mohmin Sulaik is the leader and researcher of the CPAR project.

According to ARMMIARC Manager Siya Belongan, the major aim of this CPAR project is to develop the entrepreneurial skills of small landholders in the barangay by promoting a technology on integrated farming, specifically following the crop-livestock module, which the researchers in the station have developed.

He further said that, like any integrated farming technology, the idea behind the project is to achieve total farm productivity. The module that the farmers follow is an economically-viable farming system that integrates grain cash farming with livestock and poultry production. This aims to increase the net returns of farmers without reducing their main produce. The system is concerned more on developing the totality of the farm rather than extending land holdings for better productivity.

Meanwhile, Project Leader and ARMMIARC Asst. Manager Mohmin Sulaik stressed that the 6-ha CPAR project consists of seven components, namely: corn, banana, forage, legumes, vegetables, goat, and chicken.

When the group of BAR evaluators went to the CPAR site, most of the corns were already harvested December 2. Mr. Sulaik mentioned that the farmer-cooperators were able to gain a net income of P4,800. He added that the farmers were also able to earn P1,800 from the vegetables that were harvested recently.

Meanwhile, the 0.5-ha of land planted with legumes on October 24 will be harvested in January 2007. The banana (Giant cardava) produced from tissue culture was already established and integrated in the 6-ha land and the fruit will be harvested during the first week of September 2007.

Mr. Sulaik explained that since the project has only been on its fifth month, the poultry and livestock component is yet to be established in the coming months. The poultry and livestock component will consist of 20 chickens (native x improved breed) and 10 goats (upgraded breed).

When asked about the benefits of this CPAR project to the local farmers of Brgy. Pinguiaman, Mr. Sulaik was happy to enumerate some of them. He said, "Ultimately, after one year of its implementation, we expect that we have somehow improved the living conditions of our local farmers. By then, our farmers have established a sustainable source of income for their family and hopefully other farmers will follow."

Other outcomes of the projects according to Mr. Sulaik include: 1) farmers learn the technique of integrated farming system towards total maximum productivity; 2) generate continuous income for the family; 3) CPAR site serves as model farm for other municipalities to follow; 4) high adoption of technology, thus encouraging other farmers to join; and 5) establish a farmers' organization (FA), which is a first in the barangay.●

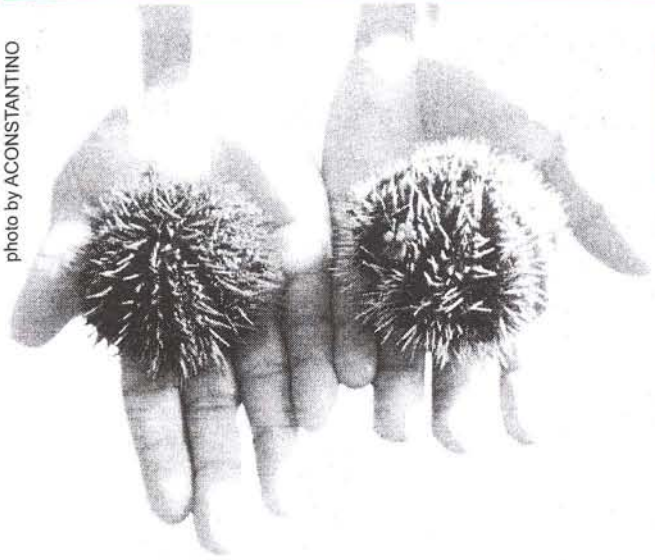


photo by ACONSTANTINO

# Maritangtang:

# Gift of marine biodiversity

by MIKO JAZMINE J. MOJICA

For Pinoys, here is something new to brag about: The Philippines is proclaimed the "center of marine fish biodiversity and the home of the most diverse marine ecosystem in the world" for 2005 based on a 10-year multi-disciplinary study conducted for the Food and Agriculture and Organization (FAO) by two American biologists.

Surely, we are entitled to the bragging right, but could this right be the same way in the not so distant future? The report, "The Center of the Marine Shore Fish Diversity: The Philippine Islands," by Kent Carpenter and Victor Springer also forewarned about the vulnerability of the country's natural resources to exploitation, thus, the need for its people to pay serious attention on conservation.

**An answer to exploitation**

A case in point is the need to culture sea urchins or *Maritangtang* to aid in the recovery of depleted population of a particular species of sea urchins widely exploited in the country. The University of the Philippines' Marine Science Institute (UP-MSI) in Diliman, Quezon City developed the grow-out culture technology of sea urchin as a coastal resource management tool for local sea urchin fisheries.

In 2001, UP-MSI researchers Marie Antonette Juinio-Meñez, Ma. Cecilia D. Malay, and Helen Grace P. Bangi published a concise manual detailing the general consideration, grow-out procedure, and model for management and culture of sea urchins which could be used by interested fish farmers.

**Worldwide demand**

Why sea urchin? This species is described as "belonging to the family of echinoderms or 'spiny skinned' animals, and related to sea cucumbers and starfish. It has a radial body structure in five segments and thrive in the rocky shallows of the sea." In Dr. Juinio-Meñez's paper presentation during the Industry-Academe Conference on Biotechnology at the University of the Philippines Los Baños (UPLB), Laguna on Sept. 7, 2001, she reported that the sea urchins are a valuable fishery resource because their roe or gonads (edible part of urchins) are a high value local and export product. "The major export markets are Japan, France, and Korea. Annual Japanese import of sea urchin gonads rose from 6,835 mt (equivalent to 50- 600,000 mt fresh weight) in 1995 to 12,971 mt in 1999.

The increasing demand in the Japanese market alone cannot be met by the declining world fisheries production. Fresh sea urchin roe is among the most expensive marine products in the Tokyo central wholesale market in 2000," Dr. Juinio-Meñez reported. These facts, according to her, which show the high demand and economic value of sea urchin roe provided the impetus for the growing interest in the culture of sea urchins worldwide.

According to the UP-MSI study, *Tripneustes gratilla*, locally known as 'maritangtang', 'swaki', 'santol-santolan', and 'kuden-kuden', is the most commercially exploited sea urchin species in the Philippines. "Its fishery is a major source of livelihood in many coastal villages, particularly in the Ilocos and Bicol regions," the study reported.

**Mass producing sea urchin**

The UP-MSI enumerated three ways of obtaining sea urchin seedstock for grow-out as follows: 1) the simplest and best option is to collect natural or "wild" seedstock; 2) get cultured seed from UP-MSI Bolinao Marine Laboratory, Pangasinan which is available for northwestern Luzon areas; and 3) set up a hatchery to produce them which is only advisable to those considering commercial operations as this takes time and requires bigger investments.

The researchers said that since sea urchins are free-spawning, they are capable of reproducing year-round and spawn many times in their two- to three-year lifespan. "In localities where sea urchins are found very few and widely distributed, chances of successful fertilization are very low. Sea urchin populations are sensitive to overfishing. But unlike fast-swimming fishes, sea urchins are easy to harvest. However, when stocks are subjected to intense and continuous fishing pressure, collapse of entire populations is imminent," explained UP-MSI.

The grow-out culture of sea urchins, according to the UP-MSI, is widely practiced in Nalvo, Sta. Maria, Ilocos Sur where sea urchins are a valued delicacy. They said that sea urchins are collected and raised to marketable size in bamboo pens installed on the reef flat. When harvested, these are commonly sold whole in the local market, with the bigger urchins commanding a better price. Hence, the

*see next page...*

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report stressed, only the biggest urchins are harvested.

**The grow-out process**

There are several considerations to take note of before one engages in sea urchin grow-out as pointed out by UP-MSI. They warned that exposure to very low salinities is very stressful to sea urchins and may result in mass mortalities. The ideal cages should be situated in a sheltered area and the site should never be near river mouths and other freshwater sources. They added, "Areas prone to water poison or 'kulaba' may not be ideal for sea urchin grow-out culture. The combination of low dissolved oxygen due to warm stagnant waters and the subsequent drop in salinity, stress the organisms living in the reef flat and cause massive die-offs of both fish and invertebrate species."

For beginners, the UP-MSI recommends to start with about three to four grow-out cages, each with approximately 1,000-1,500 seedstock species (about 250-500 individuals per square meter). An initial stocking density of 500 urchins per square meter is also recommended. The grow-out period lasts approximately 7-8 months (if the seedstocks are 1.0-2.0cm) or until the urchins have test diameters of about 7cm. Feeding should also be done once or twice a week, preferably with *Sargassum* (brown algae) or 'aragan'.

According to UP-MSI, monitoring is not essential in grow-out culture but is useful to periodically check on the growth performance of the sea urchins. "Growth rates are very rapid while the urchins are small (about 1 cm per month) but gradually tapers off as the they become larger. If growth is slow and mortalities are high, it is possible that the urchins are underfed or the site is not suited for grow-out culture," it explained.

**Extra concerns**

What about diseases? The UP-MSI reported that at present, known parasitic sea urchin diseases are few and not well studied. However, they were able to identify two of them but could not tell the known cause or cure for their occurrence. These are: 1) bald sea urchin disease or spotting disease – a bacterial infection where diseased urchins develop necrotic lesions or bald (spineless) spots; and 2) nematode infestations – roundworm internal parasites have been discovered living inside the body cavities of sea urchins in northern Norway.

When is the right time to harvest? The UP-MSI recommends that urchins are harvested upon reaching test diameters of 7-8 cm. "They can be sold fresh, packed in brine, or in the form of paste. Bright orange roe with a firm texture is preferred, while milky gonads with pale or brownish color are considered low quality sea urchins."

**Government efforts**

Present efforts made by the national and local governments in the country regarding sea urchin culture are supported by the Departments of Agriculture (DA), Trade and Industry (DTI), Environment and Natural Resources (DENR), and Tourism (DOT). Among the current initiatives is the reseeding of five thousand sea urchin breeders at the Hundred Islands National Park (HINP) in Alaminos, Pangasinan led by the local government unit (LGU), DA, and UP-MSI; and the promotion of sea urchin in San Esteban, Nueva Ecija as a valued commodity for the One Town One Product (OTOP) Program of DTI in Region III.

The prospects for sea urchins are great but its sustainability, foremost of which is environment preservation is on issues to contend with. A well-studied policy agenda coupled with timely dissemination of research results could help a lot in the success of this potential industry in the country.

The UP-MSI study on sea urchin grow-out culture is funded by the DA's Bureau of Agricultural Research (BAR) and The Royal Netherlands Embassy, Makati City. •

photo by RDELACRUZ

# "Research should be demand-oriented" - Amante

"Research should be demand-oriented in the same manner that production should be market-oriented". This is the first line of Mr. Victorio M. Amante, Trustee of the National Agribusiness Development Center Foundation, Inc., when he talked as one of the honored guests during BAR's *Updating of the R&D Agenda and Programs for 2006-2010* on 23-24 November 2006 at the Tagaytay Country Hotel, Tagaytay City.

Mr. Amante discussed the private sector's perspective on agriculture and fisheries R&D. In his presentation, he enumerated the general observations and recommendations from the private sector's point of view.

Research work, mostly published in scientific journals, should also be for practical and commercial applications. Policies and practices regarding intellectual property rights should be reexamined. Participative research is of utmost importance as R&D work will be eventually used and implemented by farmers and fisherfolk.

Several areas for research were enumerated. One of this is the application of membrane separation technology specifically on

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# R&D for corn presented in year-end review

Committed to its mandate to continuously support R&D activities for the promotion and advancement of scientific technologies and breakthroughs, the Bureau of Agricultural Research (BAR) represented by Ms. Ethyl G. Bulao of the Project Evaluation Section, participated in the GMA Corn Program Year-end Review from 29 November to 2 December 2006, Crown Regency Suites, Mactan, Cebu.

Dir. Jesus S. Binamira, national coordinator of the GMA Corn Program, presented the current issues and CY 2007 thrust and outlook of the GMA Corn Program. Dir. Binamira stressed the corn sector's goal to attain adequate production of cost quality, competitive corn for food and feed. He enumerated the current threats in the corn sector, namely: (1) rising production cost; (2) increasing postharvest losses; and (3) decreasing farm income. Opportunities for corn include higher yields through hybrids, greater corn demand and increase in exportation of corn.

Representatives from the DA bureaus and attached agencies presented their respective updates on the program funded under the GMA-Corn program. Presentations include: (1) El Niño Phenomenon (Ms. Bess Lim, DA-FOS); (2) Postharvest Processing and Trading Center (Ms. Ruby Boligor, NABCOR); (3) Fuel Drier Conversion to Biomass Furnace (Dr. Manolito Bulaong, BPRE); (4) Bio-N (Ms. Constancia Mangao, BSWM); (5) GMA Corn-NFA Advocacy Campaign (Atty. Judy Carol Dansal, NFA); (6) Updates on Waya-Waya (Ms. Wilma Cuatermo, BPI); (7) OPV Production (Ms. Norma Malimban, BPI); (7) Lending Program for Corn Farmer (QUEDANCOR); (8) ITCAF Action Plan relative to GMA Corn Program (Mr. Honorio Flameño, DA-ITCAF); (9) Corn for Health Program and Corn Standardization, BAFPS); and Updates on R&D for Corn (Ms. Ethyl Bulao, DA-BAR).

The Corn R&D framework as presented by Ms. Bulao was an output of the workshop, *Updating of the R&D Agenda and Programs for 2006-2010* facilitated by BAR on 23-24 November 2006 at Tagaytay Country Hotel, Tagaytay City. The group came up with the goal of increasing farmers' income through increase of productivity and reduction of production cost. Thematic areas enumerated were: (1) reduction of damage due to biotic stresses (pests and diseases); (2) reduction of damage due to abiotic stresses (drought, acidity, salinity, low-N); (3) increase in productivity (varietal development and testing, integrated pest management, integrated nutrient management); and (4) postharvest efficiency (control of post-production pests, post-harvest mechanization).

On the 3rd day, the regional corn coordinators presented their respective accomplishments. The workshop proper held in the afternoon discussed the plans and strategies for the Goal 1 Program, Hunger Mitigation Program, Postharvest Processing & Trading Center, El Niño Mitigation Program, Corn Planting 2007-2010 including the budget status.

Members of the Corn Program Technical Working Group (TWG) from the DA bureaus and attached agencies and the regional corn coordinators participated in this year-end review. *(Ma. Eloisa E. Hernandez)*

***ARMMIARC**...from page 1*

photo by RDELACRUZ

*BAR exhibit during the DA-ARMMIARC R&D Week held in Sultan Kudarat, Maguindanao.*

country; and 2) putting forth ARMM as the strong arm of R&D in the South.

Other distinguished guests during the opening program include Asst. Dir Sec. Datu Haron U. Bandila, Al-Haj; Director for R&D Salik B. Panalunsong; and OIC PAO of Maguindanao Daud K. Lagasi.

The opening program was followed by the inauguration of the Germplasm Nursery Complex and visits to various ARMMIARC projects, namely: Goat Project, JICA Vegetable Nursery Project, Sloping Agricultural Land Technology (SALT); and ARMMIARC-BAR Agribusiness Development Project (ADP). The day's activity was concluded with five lecture presentations on: 1) PhilRice's Rice-based Farming System; 2) Bioseeds' *Bt* Corn and Aflatoxin; 3) Establishment and Management of Budwood Garden; 4) Livestock and Poultry Halal; and 5) Aspects of Halal Certification.

The second day of the R&D Week was consummated with a brief opening ceremony to welcome students from different schools around Maguindanao; and a display of talents and fun with the Agri-Literary Musical (quiz bowl challenge and star icon singing contest). The day's activity closed with the awarding of prizes and a closing message from ARMMIARC Manager Siya Belongan. *(Rita T. dela Cruz)*

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