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Securing world food through biotechnology

(L-R) ISAAA Director Randy Hautea, IRRI Director-General Robert Zeigler, DA Secretary Domingo Panganiban, ICRISAT Director-General William Dar, and BAR OIC Assistant Director Teodoro Solsoloy.

IN THIS ISSUE

Biotechnology or biotech has been a long debated issue among consumers all over the world. In the Philippines, biotech was earlier frowned upon by some sectors of society since it is popularly equated to transgenic crops or what is widely known as genetically modified organisms or GMO, believed to be harmful to humans. However, due to the economic improvement and benefits it brings to agriculture and the environment, biotech products such as genetically modified (GM) crops start to gain acceptance and recognition in the international trade.

High-level policy dialogue on biotechnology

To attest to the benefits of biotech to Philippine agriculture and gain new knowledge from the international perspective, Agriculture Secretary Domingo F. Panganiban and Dr. Teodoro S. Solsoloy, BAR OIC assistant director, attended the seminar on "High-level Policy Dialogue on Biotechnology for Food Security and Alleviation: Opportunities and Challenges" on 7-9 November 2005 in Bangkok, Thailand.

Among the main objectives of this meeting was to review and share country experiences regarding biotechnology's contribution to the economy, environment, and society. A critical component of the dialogue was the identification of gaps and needs in the policy and regulatory issues facing food security, sustainability, and bio-safety.

In the dialogue, biotech is seen as a powerful tool for improving overall productivity, nutritional status, and reducing input costs for the resource poor farmers especially with the rapid increase in population in the developing countries. The dialogue intended to make resolutions on the

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Diversified farming, the way to go—Eleazar

This is the essence of Bureau of Agricultural Research (BAR) Director Nicomedes P. Eleazar's speech during the "Competitive Research Grants Manual Orientation" held in Baguio City, 9 December 2005. In his message to the RIARC and RFRDC managers from Luzon (Regions 1, 2, 3, 4A, 4B, 5, and CAR) who attended the orientation, he stressed the importance of the "Diversified Farm Income and Market Development Project" in promoting rural growth in the country. He mentioned the timeliness and appropriateness of the project considering the declining competitiveness of Philippine agriculture. This project, according to him, does not only strengthen rural progress and empower our marginalized farmers, but it also encourages more investments particularly by the private sector.

He added that biological

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Crossing the technological divide

by Alvin Bernardo V. Divinagracia

As the year comes to an end, we often reflect on what transpired during the previous months and perhaps mull over the challenges that lie ahead for 2006. For us at BAR, we have seen a number of changes during the past year. We started the year with a new man at the helm of the agriculture and fisheries R&D management, an old guard of the Bureau as he has been with us for such a time. We have witnessed changes in the way we operate as a consequence of a change in organizational focus and resource availability. We entered into a new arena of technology commercialization to improve the utilization of the fruits of our investments in R&D.

Despite all our efforts, one thing remains, which leaves us a bleary feeling of hangover after a whirlwind night of booze—we seem unable to bridge the technological divide. This is evident in the inability of our farmers and fisherfolk to readily access and benefit from modern technologies coming from our R&D system.

The scientific revolution that started in the 16th century changed the world so much. We live in a reality that only a century ago was a dream and we owe this modernity through the application of science in our lives.

In the present context, farmers and fisherfolk who learn these technologies faster will prosper. Through the years, this technological divide still remains, a reality in the country.

So, where does the problem lie? A classic example is biotechnology. For so many years, it has gained leaps and bounds in producing an array of profitable and safe agricultural products. The science behind it has reach perfection to the point that it provided us with new tools, methods, and products for the sustainable use of our resource base. Yet, only a few of the world's farmers and fisherfolk are benefiting from this technology.

To get a glimpse on how to cross this technological divide, we are featuring our DA Secretary and BAR Assistant Director as they joined other officials from Asian countries in a dialogue to explore options in addressing this issue.

As we reflect on the events of 2005 and the ubiquitous technological divide, we are tempted to ask, what have I done to help? I don't want to enter 2006 and still face this same challenge.

Wishing you all the best of the coming year!!! ■

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diversity in farming system is an important goal of our farmers as inputs become more expensive and less available. Crop rotation or diversification plays a vital role in improving farm variety and minimizes the occurrence of pests and diseases. It also improves soil quality, reduces risk, and in some instances, increases yields. Diversity in cropping is particularly important from the pest control standpoint. Short rotation of crops with a uniform genetic base is particularly vulnerable to pest pressures.

Although beneficial, Eleazar mentioned that crop diversification is still considered by farmers as a nonstandard. And since most of them still practice monocropping, they have yet to develop new management skills to sustain diversity in farming. Moreover, the market for rotational crops is perceived to be uncertain and risky.

In conclusion, Eleazar hoped that through the diversified farming project that BAR is supporting, the Bureau is able to provide a good alternative to the farmers in generating employment and in increasing their income. He added that, R&D strategies should be premised on meeting the objectives of sustained employment and income generation for the small producers and transforming them into a modern-technology and science-based entrepreneur.

BAR is conducting this orientation activity on a zonal approach to brief RDE implementing agencies about the Competitive Research Grant Manual (CRGM) which will be the official guide of BAR in reviewing, approving, and monitoring projects to be funded.

The CRGM is one of the significant outputs of the "Diversified Farm Income and Market Development Project". This manual guides R&D implementers in identifying areas or fields that can still be improved. *(Rita T. dela Cruz)*

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Editorial direction: Alvin V. Divinagracia
Managing editor/Layout artist: Rita T. dela Cruz
Staff writers: Maria Lizbeth Severa J. Baroña, Rita T. dela Cruz, and Miko Jazmine J. Mojica
Contributing writers: Marlowe U. Aquino, Ph.D, Carmela B. Brion, Angela E. Obnial, and Katrina H. Borromeo
Print manager: Ricardo G. Bernardo
Circulation: Julia A. Lapitan and Victoria G. Ramos
Editorial consultant: Virginia A. Duldulao, Ph.D
Adviser: Dir. Nicomedes P. Eleazar, CESO IV

For subscription and questions, contact the:
Applied Communication Section
3/F RDMIC Bldg., Visayas Ave.,cor. Elliptical, Rd. Diliman, Q.C. Tel.no. 928-8505 local 2043
or e-mail at misd-acs@bar.gov.ph

Young Farmers Program complements the NTCP

Field visit to the Tamarind Scion Grove of the Pampanga Agricultural College, the source of quality tamarind planting material for the technology commercialization project in Region 3. In the photo are (L-R): Dr. Leopoldo Reyes, Dr. Marlowe Aquino, Ms.Virginia Agcopra, and Dr. Rudy Cosio.

The Bureau of Agricultural Research (BAR) received strong support from the Office of Senator Ramon Magsaysay, Jr. through its Young Farmers Program (YFP) in the implementation of the National Technology Commercialization Program (NTCP). Immediately after Senator Magsaysay's commitment and allocation of funds for the NTCP during the National Research Symposium in October 2005, the YFP was tasked to complement the activities of the NTCP.

By turning agriculture and fisheries graduates into entrepreneurs and viable partners in modernization, the YFP is an answer to the decreasing number of Filipinos engaged in agriculture and fishery. The YFP encourages young agriculture and fishery graduates of state universities and colleges (SUCs) to go into agribusiness. They should be nurtured to become entrepreneurs and strong partners in nation building. The program also provides an avenue for the enhancement and development of agribusiness and entrepreneurial skills of young (ages ranging from 18-39) agricultural enthusiasts. Furthermore, the YFP will select agri-based project proposals for funding from this group to encourage them to become farmer entrepreneurs. The financial support can be from Php 50,000 to Php 300,000.

Initially, the YFP is coordinated by the Pampanga Agricultural College (PAC) to jump start the sweet tamarind commercialization, a project funded by BAR. With the additional support to YFP, there is complementation, strong partnership, and teamwork with young farmer entrepreneurs as key players and stakeholders. A program briefing at PAC was conducted by Mr. Larry Villanueva and Ms. Virgie Agcopra of the Office of Senator Ramon Magsaysay, Jr.

In 2006, the program will be a continuing activity of BAR and the Office of Senator Ramon Magsaysay, Jr. It will target the young farmers of Cordillera, particularly in Benguet, for the technology commercialization of vegetable, root crops, and ornamental crops. *(Marlowe U. Aquino, Ph.D.)*

TechCom ends with program review and planning

The National Technology Commercialization Program (NTCP) was launched on April fools day. The Bureau of Agricultural Research (BAR) organized a consultation-meeting of bright minds in the fields of social sciences, crops, livestock, fisheries, and management to brainstorm a national technology commercialization program of the Department of Agriculture (DA).

After eight months of conceptualization, preparation, consultations, meetings, and briefings regarding the program a document was developed and operational guidelines were established.

Within the eight-month period implementation, three technology fora were conducted and participated in by members of the DA National Research and Development System in Agriculture and Fisheries (NaRDSAF) including private companies, farmer/fisherfolk groups and organizations; two technology fairs and exhibitions for the regional partners and staff bureaus and attached agencies of DA; evaluated 14 submitted project proposals; evaluated eight proposed projects for funding; and conducted several regional field visitations . In the process, BAR arranged and forged agreements with international and local organizations including the Asian Vegetable Research and Development Center (AVRDC) – The World Vegetable Center for vegetable crop testing, evaluation and commercialization, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) for sweet sorghum and

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Orientation on BAR's CRGM concludes in Baguio City

Participants and CRGM team from BAR headed by Dr. Carmencita V. Kagaoan (fifth from right, front row), head of the Programs Development Division, pose for a group photo session after the workshop.

The Bureau of Agricultural Research (BAR) concluded the fourth and last of its series of orientation-workshops on the *Competitive Research Grant Manual* (CRGM) on 9 December 2005, El Cielito Inn, Baguio City. The orientation workshop was for the Regional Integrated Agricultural Research Center (RIARC) and Regional Fisheries Research and Development Center (RFRDC) managers of Luzon (Regions 1, 2, 3, 4a, 4b, 5 and CAR). Also attending the activity were R&D staff of the Bureau of Postharvest Research and Extension (BPRE). BAR Director Nicomedes P. Eleazar, joined the team and delivered an inspirational message during the orientation.

Prior to this, BAR has already conducted the first three CRGM orientations. The first was attended by research chiefs from DA bureaus and attached agencies and held during the National Research Symposium in Quezon City and the second, held in Davao City in October 2005 was participated in by RIARC and RFRDC managers from Regions 9, 10, 11, 12, 13, and ARMM as well as representatives from BPI. The third was held in Bohol in November and was attended by RIARC and RFRDC managers from Regions 6, 7, and 8.

The CRGM contains the implementing guidelines of the "Diversified Farm Income and Market Development Project (DFIMDP)". This project aims to stimulate rural growth and incomes of farmers by enhancing the competitiveness of Philippine agriculture and fisheries and through market-oriented private sector-led investments. The CRGM intends to strengthen the system of coordination and monitoring and evaluation of research projects in agriculture and fisheries. It provides the guidelines, rules and procedures to access, use and implement the R&D projects. It also complements and enhances the processes, procedures and operational systems in agenda setting, proposal preparation and submission, evaluation, review, and monitoring of projects under the National R&D System for Agriculture and Fisheries (NaRDSAF) and in accordance with the unified R&D implementation specified in the Agriculture and Fisheries Modernization Act (AFMA).

The CRGM is a facilitating tool and a guide for project proponents as well as evaluators of R&D projects. It consists of three sections. The first section provides a brief overview of the Bureau of Agricultural Research; section two describes the national RDE agenda and program for agriculture and fisheries while section three discusses the RDE Grant System Implementing Guidelines. The last section includes the format and guidelines for project proposal preparation, application and approval process, and monitoring and evaluation of on-going R&D projects.

Conducting this series of orientation is a team headed by Dr. Carmencita V. Kagaoan, head of BAR's Programs Development Division (PDD). Her team is composed of staff from BAR and DA. Those from BAR include: Salvacion M. Ritual (PDD), Amadeo C. Macabeo (RCD), Dr. Andrea B. Agillon (RCD), Connie R. Fernando (PDD), Brenda Y. Bautista (PDD), Almira G. Magcawas (PDD), and Andressa D. Gutierrez (RCD) and those from DA are Isidro Reyes and Adamar Astrada. Aside from the contents of the manual, background of the DFIMD project was also presented during the orientation.

The team plans to conduct another series of orientation on CRGM to State Colleges and Universities (SCUs) next year. *(Almira G. Magcawas)*

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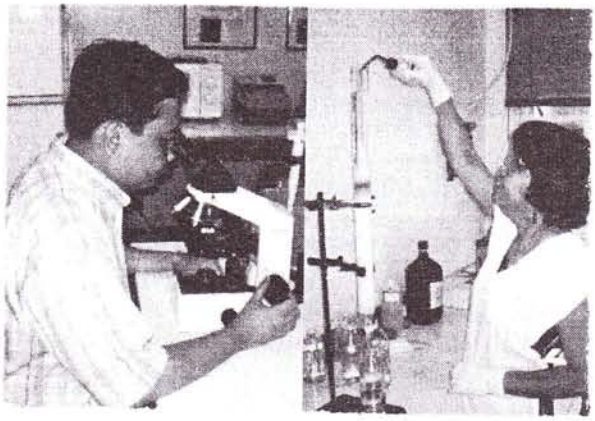
post, results of pesticide tests are not released quickly due to lack of equipment for monitoring.

However, explained BPI agriculture staff, Ms. Divina Jose, "once BPI has identified the farmers who are selling vegetables with high amount of pesticide, we usually call their attention and penalize them." She added that farmers are slowly grasping the concept of integrated pest management (IPM).

The La Trinidad trading post was established in July 1984 as a collaborative project between the Philippines and the United States of America. Three-fourths of the funding came from the United States Aid for International Development (USAID) and the rest came from the Philippine government through the local government of Benguet. *(Angela E. Obnial)*

BAR supports two postdoc researches



Dr. Windell L. Rivera and Dr. Florecita S. De Guzman of UP-NSRI conduct experiments on farm pests and parasites.

The Bureau of Agricultural Research (BAR) in cooperation with the University of the Philippines-Natural Sciences Research Institute (UP-NSRI) in Diliman, Quezon City recently awarded the Senior Scientist Fellowship Grant to two scientists, namely, Windell L. Rivera, Ph.D. and Florecita S. de Guzman, Ph.D.

Dr. Rivera, assistant professor of Microbiology at UP Diliman, conducts a study on, "Molecular and phylogenetic analysis of Philippine *Blatocystis* isolates from human and animal hosts". According to him, the information generated by this study will clarify the genetic diversity, speciation, and host specificity, if any, among the *Blastocystis* in the Philippines. *Blastocystis* is a waterborne protozoan parasite of medical and veterinary importance which is not yet fully explored in the country. Moreover, there are no reports concerning the phylogenetic analysis of isolates in the Philippines. The sequence analysis will help in understanding the transmission, pathogenicity, and biological information about the organism.

On the other hand, Dr. De Guzman, a professor of Chemistry also at UP Diliman, conducts a study on "Molluscicidal Metabolites from *Beauveria bassiana*". Dr. De Guzman states that the golden kuhol or golden apple snail, *Pomacea canaliculata,* is a major pest of rice. The molluscicides available in the market that are effective against golden *kuhol* kill several species of fish and other organisms. Hence, the study will seek a more effective molluscicide from *Beauveria bassiana,* an entomopathogenic fungus used presently as biocontrol agent against insects.

Both scientists started conducting their respective studies in November at the UP-NSRI in UP Diliman. They are expected to complete their studies on or before November next 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 access this website, www.bar.gov.ph./services.asp. (*Miko Jazmine J. Mojica)*

La Trinidad veggie trading post revisited

The establishment of the La Trinidad vegetable trading post in the early '80s made the vegetable industry in Benguet a very lucrative business and a dream come true for the local government of La Trinidad that supervises the vegetable venture.

Farmers and traders traverse Benguet roads to sell and buy produce from the vegetable trading post, making Benguet vegetables more popular. The produce does not only supply the northern part of the Philippines and the National Capital Region (NCR) but reach as far as Mindanao. Because of the influx of trading in the province, it contributed P8M annually to the municipal revenue, mainly coming from stall rental and maintenance fee collection.

Before the peak of its popularity, the trading post supplied nearby towns in Benguet and Divisoria in Manila only. From this barangay, vegetable vendors buy their stocks for the wet market. "The goal is to increase the market share of vegetables coming from Benguet," explained Mr. Dominador S. Dungla, market inspector in charge of the trading post. Time came when even buyers from high-end supermarkets in NCR go directly to the trading post to buy their supply of vegetables.

However, the vegetable trading post has not always been this way. At the start, farmers and traders did not welcome the idea of putting up stalls to sell their produce at the post. Local officials needed to invite farmers and traders to sell their goods to encourage a free zone market. Eventually, it acquired collective groups of farmers and traders, even direct buyers, to support this type of market arrangement.

Farmers were not organized at the time when vegetables from Benguet were slowly making way to the national market. Before the establishment of the post, farmers sell their vegetables to traders at low prices since they did not have any access to the existing market price outside their areas. They market

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DA, indigenous people team up for agribusiness

Panel of discussants include RTD Carlos Mendoza (third from left), SMIARC Manager Alfredo Cayabyab (standing), BAR's Research Coordination Head Rolando Labios (second from right), and datus from different tribes of Bagobo in Marahan, Marilog.

photo by Ana Ruth Mercado

How much can you earn from farming a 467-hectare hilly land?

"We target at least P50, 000 – P100, 000 per month," quips Mr. Noel Estellera, project leader of the newly established Department of Agriculture (DA) Research Satellite Station located at the base of Mt Apo, Marilog District, Davao City.

The station will serve not only be for research, development, and extension but for agribusiness as well. The vast hills of Marilog will have a stock farm of horses, cows, sheeps, and goats. There will be areas planted to vegetables, fruits, coffee, and watermelon. Some plants of dragon fruits already exist in the station. All the harvests will be sold at the *bangkerohan*, Davao's trading post and central market. The station's target is to earn at least P50, 000/month from hilly land farming.

Several DA researchers and field workers will be working with the Matigsalog tribe, one of the indigenous people (IP) in the area. There are at least 300 IPs surrounding the research station.

Five *datus* from the tribe: Datus Lario, Dalisay, Ansudo, Monico, and Masabanlay, spearheaded the program launching together with SMIARC Manager Alfredo Cayabyab, BAR's Research Coordination Head - Mr. Rolando Labios, the provincial agriculturist and several staff from the regional research station and BAR.

In his welcome remarks, Mr. Labios informed the audience that the station will become a venue to disseminate modern and manageable technologies that are appropriate to the region, with bio-organic fertilizer and composting as examples.

Mr. Labios emphasized that the objectives of the project will not be realized without the help of the IPs. He further stressed that the tribe's indigenous knowledge on farming shall be studied and will be treated with utmost respect. Some of the tribe's farming practices and rituals such as scattering sand to the area to drive away bad spirits, slaughtering chicken before planting, and gathering together to pray and ask for Almighty's guidance are tolerated. *(Carmela B. Brion)*

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their vegetables at roadsides to whoever buys them. Vegetable trimmings were strewn anywhere, beside and along the roads where tourists passed by. At the time, the local government saw these as problems that needed to be addressed.

The trading post was also seen as a revenue making activity for La Trinidad. Local officials felt that Baguio City market could not accommodate the vegetables from all over Benguet. They decided that to save the vegetable industry in the province, farmers needed to be organized and work together to market their vegetables and demand a fairer price.

"The peak of the vegetable industry here in Benguet came after the July 1990 earthquake which devastated certain parts of Luzon, even Baguio City," explained Mr. Dungla. Even after the earthquake, farmers and traders from all over the country still bought vegetables directly from the trading post. The demand for vegetables went up, increasing farmers' produce and expanding their planting areas. Even rice farmers in Benguet shifted to vegetable growing.

And the rest, they say, is history.

To date, the Farmers Federation of Benguet, an organization of farmers and local officials in Benguet, tries to answer issues that plague the vegetable industry in the province. The issue on importation of vegetables from China and other countries which continue to "invade" NCR markets is one of the most recent problems the Federation tries to settle. At the same time, there are traders who take advantage of vegetable farmers not selling their produce at the trading post.

"One of the more serious problems that should be addressed is the pesticide monitoring system of Benguet vegetables," stressed Mr. Dungla. Although the Bureau of Plant Industry (BPI) – Baguio City conducts monthly monitoring of pesticide application in the trading

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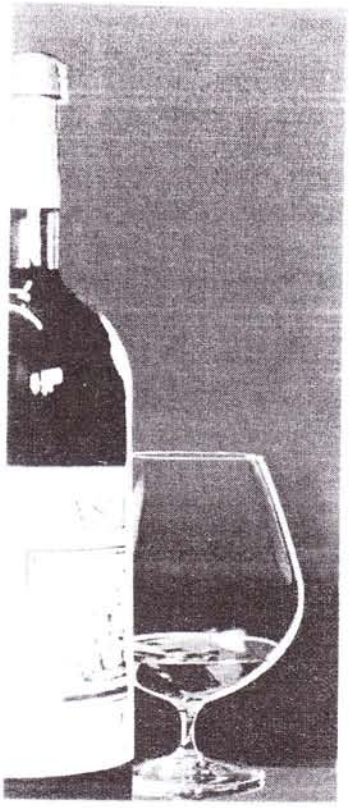

Banana wine, anyone?

by KATRINA H. BORROMEO

Communication Associate
International Network for the Improvement of Banana and Plantain Asia Pacific Regional Office
k.borromeo@cgiar.org

Banana wine is one of the latest processed products of banana to enter the market. Like any new product, finding a niche market for banana wine is a challenge—but not in Malawi, where the large Catholic community has proven to be a very lucrative market.

"After we processed the banana wine, we were thinking who would buy it, and then we observed that the wine is used during Catholic mass, and so we thought, why not sell it to the church people?" Victor Mshani, a banana researcher in Malawi shared during the First Global Banana Uses Enterprise Workshop and Technology Fair held recently in the Philippines.

Malawi is not alone, nor is it unique. Elsewhere in Africa and in some parts of Asia and Latin America, 30% of the harvested banana fruits are squeezed to produce juice that can be taken fresh or fermented with sorghum flour to make banana beer and wine. In Tanzania, banana beer can be further distilled into a liquor called 'gongo'. 'Gongo' has a high demand, unfortunately though, the government declared it illegal as it is perceived to contain poisonous ingredients.

"The illegality of 'gongo' production needs to be revised. The livelihood of many small-scale rural farmers depends on this wine," Mgenzi Byabachewezi, one of the participants in the workshop and technology fair addressed this concern during his presentation of the status of banana processing business and its support environment in Tanzania.

Case studies, initiated by the International Network for the Improvement of Banana and Plantain (INIBAP), with funding from the Common Fund for Commodities and Rockefeller Foundation, were conducted in nine countries - Malawi, Tanzania, Cameroon, Nigeria. Nicaragua, Costa Rica, Philippines, Malaysia and India – with each country presenting the strengths and challenges of the different types of businesses that process bananas and of the service providers that support the processing businesses.

India exhibited the widest range of products out of banana—banana paper, clothes, slippers, bags, baby food, puree, juice, wine, chips, banana halva, bajji, figs—name it, and the product development unit of the National Research Centre for Banana has tried producing it.

"I was very impressed with the innovative products from India", commented one observer at the First Banana Techno-fair held at the Cavite State University in the Philippines. Brazil also brought a lot of interesting products, including pasta made from banana flour." The techno-fair showcased the unique products of each country and promoted information exchange among the countries.

What happens next?

Given the wide range of products that could be produced out of bananas, the questions: "which products are marketable, who will produce these and for whom?" quickly came to mind.

In most countries where the case study was conducted, banana chips surfaced as the most marketable product. This product is processed in small scale by rural households and sold in the local market. "For the chips to penetrate into the export market, aside from packaging, the nutritional quality must be improved, especially if you want to export it to European countries where there are rigid nutritional requirements," advised Max Reynes, a food technologist of the Centre de coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), France.

According to Reynes, most banana chips have oil content higher than 0.5%. This can be decreased by choosing the right cooking material, limiting frying time and selecting appropriate varieties, taking into account the asparagin content.

In the Philippines, the Department of Trade and Industry extends assistance to small and medium enterprises of banana chips, not only by regulating the quality and nutritional aspect, but also by promoting packaging technologies. The same is true in other countries.

However, for products other than chips, there is no defined marketing system and hence, product wastage is common.

Handicrafts, for instance, are only attractive to some tourists, but not among the local people. A support service is thus needed for these businesses to flourish.

Francois Mazaud of FAO presented another problem. He said that in most research institutions, for instance Food and Agriculture Organization (FAO), only a very low percentage of the staff is working on postharvest technologies, and therefore there is less assistance extended to processors.

Developing relevant, easily understood and readily available information was seen as the key to solving this problem. Information should be published in a guide and in a website, and

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grouped according to raw materials, type of processing technology, new product development, and support services available.

Other problems

At the end of the workshop, one question remains. What will be the contribution of the processing businesses to rural development?

In India, a single small business is providing employment to at least 3-4 persons in a village, with each village having at least one business unit. With more than 8000 business units in over two states, banana chips business is the largest employment provider in the processing business. Chips business is also a source of income for several other business establishments like department stores, petty shops, sweet shops and bakeries.

Once a worker gets a few years of experience, usually he starts his own business and spreads out.

"This is where the concept of business development comes in. For a business to succeed, no matter how small it is, there has to be a business plan," Martha Istambuli, a business development specialist from Nigeria commented.

A highly perishable fruit like banana could be converted into shelf stable products and convenience foods such as chips and wine through research and development. With changing habits and new trade regimen, market reach could be wide and open. By increasing the processing of banana, not only the postharvest losses can be reduced, but more so, revenue and employment can be generated, paving way to rural development.

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The mission of the INIBAP is to sustainably increase the productivity of banana and plantain grown on smallholdings for domestic consumption and for local and export markets. INIBAP is a network of the International Plant Genetic Resources Institute (IPGRI), a Future Harvest centre.

AVRDC visits promising vegetable trial sites

A series of site visitations was conducted from 12 – 18 December 2005 with the Asian Vegetable Research Development Center (AVRDC) – The World Vegetable Center (AVRDC) mission, led by Dr. George Kuo, AVRDC plant physiologist and director for International Cooperation, and DA-BAR National Technology Commercialization Program (NTCP) Coordinator for Crops, Ms. Digna Sandoval. The four on-site testing of promising vegetable seedlings are being conducted at the Department of Agriculture (DA) centers in Tiaong, Quezon; Los Baños, Laguna; Cagayan de Oro City; and Baguio City.

The AVRDC mission was an offshoot of the two-week AVRDC training in Taiwan last September, where the Philippine participants were expected to conduct field trial of promising vegetable varieties on tomato, eggplant, lettuce and hot and sweet pepper.

The mission's first stop was at Quezon Agricultural Experiment Station (QAES), in Tiaong, Quezon. This is a station of the Department of Agriculture Regional Field Unit IVa (DA-RFU IVa) Southern Tagalog Integrated Agricultural Research Center (STIARC). The group met with DA- Region IVA STIARC Head, Ms. Digna Narvacan; QAES Research Outreach Station (ROS) Head, Dr. Concepcion Amat; and QAES staff. "The QAES site is the only one that conducted on-farm research (among the four trial sites)," explained QAES senior technical staff Dr. Estela Taño, who managed the site.

The group also visited DA-Bureau of Plant Industry (BPI)-Los Baños National Crops Research and Development Center (NCRDC). One of BPI-LB staff, Ms. Eugenia M. Buctuanon, was one of the Philippine participants in the two-week AVRDC training. BPI-Los Baños specializes on different varieties of high value crops, specifically lowland vegetables as explained by its station head, Mr. Dennis Eusebio.

In Cagayan de Oro, the third stop for the mission, the group visited the trial site at the DA-Regional Field Unit X- Northern Mindanao Integrated Agriculture Research Center (NOMIARC), in Malaybalay, Bukidnon. NOMIARC OIC Manager Constancio Maghanoy was also one of the participants in the AVRDC training. The seeds of the different vegetable crops were sown in "lukong" using banana leaves as individual cell/plug for each transplant. This practice is an innovation in this site.

The last stop is Baguio City, where the mission visited DA-Cordillera Integrated Agricultural Research Center (DA-CIARC), in Sto. Tomas, Baguio City. The group was briefed by Dr. Magdalena Wanawan, DA-CIARC manager, on the different R&D programs and projects implemented by the center.

The group also visited the on-site trial done by Dr. Divina Jose, Bureau of Plant Industry (BPI)-Baguio National Crop Research and Development Center (BNCRDC) technical staff who also attended the AVRDC training. Dr. Jesus Aspuria, BPI-BNCRDC head, explained that the station focuses on semi-temperate vegetables and fruits.

The four sites reported almost 100% germination of the seeds except for one line of tomato and sweet pepper which usually reached about 25-30% germination rate. All four sites also reported healthy crops of the promising vegetables.

The AVRDC officials lauded the successful trials conducted by the Philippine participants. The group also expressed its gratitude to DA-BAR as host in their Philippine visit. According to Dr. Kuo, "AVRDC aims to promote vegetable growing in Asia that is why it establishes partnerships in vegetable growing within the Asian region. *(Angela E. Obnial)*

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glaring technological divide that prevents access of marginal farmers to modern biotech such as regulatory procedures, intellectual property rights (IPR), efficient marketing systems, and plant breeding capacity.

The participants in the dialogue included agriculture ministers/policy makers, research managers, members of international organizations, private sector and non-government organization (NGO) representatives, and farmers from the Asia-Pacific region. The event was divided into six sessions wherein the following subject matters were discussed: 1) Status of agricultural biotechnology; 2) Issues on biosafety, bioethics, IPR, and regulatory measures; 3) Ministerial round table on national developments; 4) Biotechnology for international public goods; 5) Global/ regional partnership initiatives; and 6) Brainstorming on future strategies.

Biotech: working its way in Philippine agriculture

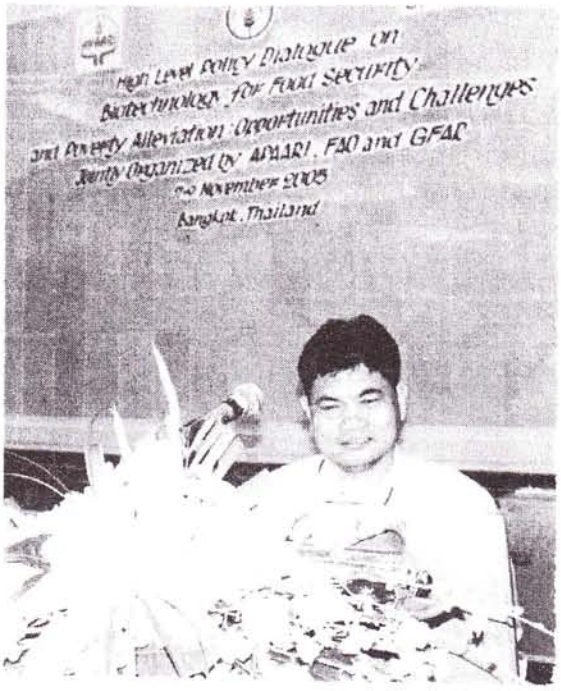
In the report on the global status of GM crops made by the Food and Agriculture Organization (FAO) regional office for Asia and the Pacific based in Bangkok, Thailand, the Philippines is recognized as among the 14 "mega biotech countries" which produces at least 50,000 hectares of GM crops. The Philippines ranks 14th with our 0.1 M ha of Bt corn production, China 5th with its 3.7 M ha of *Bt* cotton and India 7th with its 0.5 M ha of *Bt* cotton.

During the dialogue, Secretary Panganiban presented a report on the status of biotech in Philippine agriculture.

He reported on the Department of Agriculture's (DA) Biotech Program, which provides "enhanced policy environment for biotech applications in agriculture through an integrated approach on policy research and advocacy, biotech research, institutional capacity enhancement, and public awareness".

Moreover, he identified the country's policies and regulations on biosafety as well as the development and commercialization of relevant technologies such as the Bt corn, rice enriched with Vitamins A, E, iron, and zinc, delayed ripening of mango, coconut with high lauric acid, disease resistant rice, and GM cotton, abaca, banana, and sweet potatoes. He said that, "biotech is a better option for agricultural development...and food security and poverty alleviation for a better quality of life".

The report presented the current scenario of Bt corn commercialization in the Philippines and the country's experiences over the past few years regarding its implementation. It particularly tackled the DA's approval of the importation and cultivation of Bt corn MON 810 in 2002 and Bt corn impact studies on the economy and society. Further, it discussed the greenhouse experiments, field trials, and cultivation of Bt corn in the farmers' fields, increase in Bt corn production and the farmers' awareness of the technology.



Dr. Teodoro Solsoloy presents a paper during the "High-level Policy Dialogue in Bangkok, Thailand.

International efforts to intensify biotech in agriculture

The high-level policy dialogue was organized by three international organizations of which the Philippines is a member, namely, Food and Agriculture Organization (FAO), Asia-Pacific Association of Agricultural Research Institutions (APAARI), and the Global Forum on Agricultural Research (GFAR).

The FAO recognizes that biotech could significantly contribute to agricultural production but since it is a big investment, it requires demand-driven technologies and efficient priority setting that should involve all stakeholders and should consider national development policies and market opportunities.

On the other hand, GFAR pushes for the implementation of a global partnership program (GPP) focused on food security, poverty alleviation, and environmental stability; adoption of an integrated approach that covers not only research activities but also postharvest and marketing development efforts or policy framework that promotes impact; and the development of a coordinating mechanism that facilitates dialogue among stakeholders and donors for the development of the program.

APAARI was identified to take the lead in fostering partnerships in the use of biotechnologies to find solutions to the triple scourge of poverty, food insecurity, and the degradation of our natural resource base.

It was also during this activity that the publication, "Commercialization of Bt corn in the Philippines: A status report," was launched through the Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB). This consortium is based in New Delhi, India. Established in 2003, it "harnesses the benefits of agricultural biotechnology for human and animal welfare through the application of latest scientific technologies while safeguarding the environment for the advancement of society in the Asia-Pacific region". *(Miko Jazmine J. Mojica)*

Lessons from Thailand agriculture: A study visit

by RITA T. DELA CRUZ

Participants from Bangladesh, Malaysia, and Philippines pose for their official photo during the seminar cum study visit on "Rural Agribusiness Development and Management" held at AIT Extension, Thailand. Mr. Joell H. Lales (third from right, back row), Mr. Jude Ray P. Laguna (second from right, back row), and Ms. Rita T. dela Cruz (second from right, front row) are the representatives from the Philippines.

For a country like the Philippines, words like "poverty" and "agriculture" have become indistinguishable because of their inevitable connections. Poverty is essentially a rural phenomenon where agriculture serves as the economic base. And because agriculture plays a major role in the generation of incomes and employment in the countryside, the advancement of this sector is essential to any antipoverty program of the government. However, agricultural production still has to make an impact on rural poverty and agricultural productivity improvements have to be sufficient to reduce prices of food at all levels.

With these initiatives, the government is injecting the "agribusiness approach" to fast track not only rural development but also boost the overall growth of the Philippine economy. A holistic approach is needed to reduce rural poverty and to address the production bottlenecks in agriculture including its inherent vulnerabilities. The basic strategy is to develop hectares of land for agribusiness and at the same time improve the employment rate in the countryside. This is Goal 1 of the Department of Agriculture's (DA) twin goals for development.

At the Bureau of Agricultural Research's (BAR) end, agribusiness is part of its eight-point research and development (R&D) strategy under Dir. Nicomedes P. Eleazar's administration. BAR supports R&D projects that have direct bearing on the development of small and medium enterprises (SMEs) and more importantly, on the income-generating capabilities of resource-poor farmers and fisherfolk.

Learning from the Thais

"The Filipinos have a lot to learn from the Thais," is the general reaction of three BAR staff, Joell H. Lales, Jude Ray P. Laguna, and Rita T. dela Cruz, who recently attended a seminar *cum* study visit in Thailand, specifically on "Rural Agribusiness Development and Management" from 21 November to 2 December 2005. Participants were exposed to various types of agribusiness that can be developed in the countryside so they can make a critical analysis of their country's own development and management. Through this exposure, the participants gained a wider perspective on how to initiate similar programs in their own countries. Other representatives came from Bangladesh and Malaysia.

Thailand like the Philippines is an agricultural country and the growth of its economy is greatly attributed to the effective management of agriculture which their government has given high priority. But unlike the Philippines, the Thai economy is self-sufficient. Although the Philippines has a higher average rice yield than Thailand (3.2MT/ha vs. 2.4MT/ha), its

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rice postharvest losses reach as high as 34% while Thailand's is around 15 %. The high postharvest losses incurred by the country is due mainly to inadequate equipment, infrastructure, and poor postharvest handling practices.

Strategic approaches in rural agribusiness

Through visits to the fields the participants were subjected to a learning environment where they could closely observe the operations of various agribusinesses implemented both by the government and private sectors. The study tour also provided an opportunity for the participants to exchange experiences on agribusiness development and management, specifically in relation to government policies and different agribusiness strategies and approaches.

For the participants, the ultimate goal of the visit is to learn the strategic approaches used by the Thai government to initiate and promote small agribusiness. One of the resource persons, Dr. Boonjit Titapiwatanakun, associate professor at the Faculty of Business Administration, Kasetsart University, stressed that although participants may not be able to fully copy what the Thais have done, at least, they maybe able to get basic ideas and apply these in their own countries. He added that basically, Thailand is not different from other Asian countries in terms of land resource and weather condition.

After the two-week training, the BAR staff that joined the study tour concluded that expanding the production base must involve breaking away from the subsistence level of agriculture by increasing and diversifying the marketable surplus of the farm to further increase price and quality competitiveness of the agricultural products. The Thais have set a good example on how to expand their country's production base through the implementation of the "One *Tambon* (village) One Product" or OTOP. This is the government's initiative to strengthen their grassroot economy through the promotion of one potential and marketable product from each village and ultimately gain international recognition through its quality and unique local characteristics. The Philippine government could well be inspired by the idea of the OTOP to promote its own local products since the Philippines itself is a country rich with culture, tradition, and natural resources.

The BAR participants also learned that production and productivity improvements will have to go hand-in-hand with effective government policies and institutional reforms to ensure that production and efficiency gains will indeed result in appropriate farmer and consumer welfare benefits.

Mr. Joell Lales and Mr. Jude Ray Laguna of BAR presenting the action plan on Community-based Participatory Action Research.

(R-L) Ms. Rita dela Cruz of BAR, Mr. Zainal Abidin bin Aala of Malaysia, Dr. Sornthep Tumwasorn of Thailand's Kasetsart University, Mr. Jude Ray Laguna of BAR, and Mr. Saleh Bin Sums of Bangladesh during the site visit to OTOP One Stop Service in Chiang Mai, Thailand.

Lessons learned

On a deeper perspective, the three participants learned the value of adapting to great challenges. As emphasized in their recommendations, given today's budget constraint in the government, like the philosophy of the Thais, it is high time that Filipinos become more proactive and depend less on the government. The government is there to help and not provide for them forever. Over dependency and the inability to sustain what has been started continue to be an undermining flaw in the system. This is the reason why a lot of projects (particularly those initiated by the government) fail because there is no sustainability.

Meanwhile, in terms of agribusiness, customizing products to the tastes of consumers both local and abroad has been a problem. Many farmers just produce what they think will sell or what extension workers tell them to produce. One of the speakers in the study visit emphasized in his lecture that we should produce what is possible, not what is ideal. R&D should not just work closely with R&D institutions but with the local government units (LGUs) and private agribusiness ventures to create a total system not just livelihoods but also a complete marketing channel for farm products.

In essence, what was learned during the study tour will be insufficient and futile if these important ideas are not transformed into workable programs. As the great Henry Ward Beecher once said, "The ability to convert ideas to things is the secret of outward success."

The study visit was organized and facilitated by the Asian Institute of Technology (AIT) Extension based in Pathumthani, Thailand. ■

Mindanao partners get writers' training

Ms. Julia Lapitan of BAR (second from left, back row) and resource speakers, Mr. Rudy Fernandez (fifth from left, front row) and Mr. Delfin Laforteza (sixth from left, front row) pose with the participants during the Mindanao Writers' Training in Davao City.

Information officers of the Department of Agriculture's Regional Integrated Agricultural Research Centers (DA-RIARCs) in Mindanao were trained on research and development news and features writing.

The workshop, sponsored by the Bureau of Agricultural Research, was held at the Paterno's Restaurant Conference Room in Davao City, 7-9 December 2005.

Agricultural media practitioners were the resource speakers for the different training modules. Mr. Zacarias Sarian, editor of the Manila Bulletin Agriculture Section, lectured on "How to get R&D news and features published", Mr. Rudy Fernandez, a contributor for the Philippine Star, on "Clear and effective writing" and editing and sharpening news and features articles", Mr. Delfin Laforteza, a freelance professional photographer and former faculty member of the College of Development Communication, UPLB, on "Photography and photo composition", and Regional Technical Director Romy Palcon of the DA-Regional Field Unit-11 on "Disseminating R&D news through radio and television".

The workshop focused on identification of events that make R&D news, news gathering, clear and effective writing, angling R&D newsfeatures, writing news and features out of research reports, editing and sharpening of news and feature articles, disseminating R&D news through radio and television, maintaining working relationship with the media, and getting R&D news and features published.

The participants, expressed gratitude to BAR for its initiative to strengthen the DA family's capability in knowledge management. *(Maria Lizbeth Severa J. Baroña)*

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pigeon pea testing, evaluation and commercialization; the Philippine Carabao Center (PCC) for its reproduction technology using in-vitro production and embryo production techniques for water buffaloes, and the Pampanga Agricultural College (PAC) for the commercialization of sweet tamarind.

The PCC and PAC projects, supported by the Young Farmers Program (YFP) of the Office of Senator Ramon Magsaysay, Jr. are implemented in Zambales and neighboring provinces.

In 2006, the NCTP and the YFP will be expanded to include vegetables, plantation crops, rootcrops, ornamental crops, fisheries, and livestock. Furthermore, trainings on technology assessment, packaging, promotion, agribusiness and market development and community development are all planned for implementation. These trainings will be supported by specific study visits to enhance learning and exposure to state-of-the-art and up-to-date technologies in areas where technology commercialization is in full blast. This will give a better chance to maintain strong partnership with people organizations and non-government organizations. All these activities will strengthen the capability and capacity of NaRDSAF member agencies as well as key players and stakeholders. *(Marlowe U. Aquino, Ph.D.)*

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