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## "Develop a culture of excellence to be globally competitive"- Ponce



**W**e cannot be globally competitive unless we develop a culture of excellence."

This is just one of the major points underscored by Bureau of Agricultural Research (BAR) Director Eliseo R. Ponce as he challenged a pool of young and

talented academic awardees in the baccalaureate degree during the 56th Tarlac College of Agriculture (TCA) Recognition Day. The recognition day, which ushered the TCA 56th Commencement Exercises, was held at the TCA Gymnasium, Camiling, Tarlac on 8 April 2002.

Focusing on the recognition day's theme "TCA, Responding to the Challenges of Universityhood Amidst Globalization," Dr. Ponce cited the pivotal role of universities in producing talented graduates equipped with technical and competitive skills ready to join a highly globalized society.

He emphasized that improving the quality of governance among social institutions is the ultimate key for our country to move forward in all aspects of development.

Recognizing the role of state colleges and universities as institutions of higher learning in

research development, and extension (RDE), Dr. Ponce identified four important points: develop a collective mind among Filipinos based on scientific approach; build a society anchored on positive values as Filipino people; a need to build a country based on true essence of peace and development; and living on the values of effective governance in public service and trust.

Dr. Ponce summed up his speech by acknowledging the TCA as a center of academic excellence in the region for having a strong faculty and vibrant student population.

Aside from baccalaureate degree, TCA offers other academic programs, which include vocational agricultural high school and graduate degrees (masteral and doctoral). Moreover, the College actively undertakes research, extension, and development programs with focus on forestry, fruits, rice, and sweet potato. (Mary Charlotte O. Fresco)

## 1st nat'l confab on capture fisheries; call for papers

**T**he National Capture Fisheries RDE Network is calling on all fishery scientists and researchers from government agencies, non-government organizations, state colleges and universities, students, and locally-based regional institutions to submit papers for presentation during the "First National Conference on Capture Fisheries" this December 2002 to be held at the

University of the Philippines Visayas (UPV), Miag-ao, Iloilo.

Co-sponsored by the Bureau of Agricultural Research, the event will tackle pressing issues currently surrounding the capture fisheries industry such as resource depletion, marine ecosystems degradation, and dangers posed to biodiversity.

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## Developing awareness on biotechnology

One of the reasons identified for the non adoption of an agricultural technology or innovation by the farmers is their insufficient knowledge about the innovation. This could be nonchalance on their part for not seeking the information or disinterest because they do not have the inputs anyway for the new practice. It could also be that they gained prior knowledge that is negative from those who have tried the technology and were not satisfied. Furthermore, the farmer may be the type who has no change agent contact and never exert effort to have one or plainly he is a recalcitrant individual. These reasons are at the receiving end but how about on the part of the givers or passers of technology called agents of change?

When the scientist comes out with his research results, he presents these in a scientific forum or publishes them in a journal. If the study is downstream or applied, it is understood that the result is to solve a current problem, i.e. recurring pests and diseases or soil deficiency. There are strategies for the research results to reach the end-users such as the pilot farm, techno demo farm, on-farm research and the community participatory action research. These are effective means of making the farmers aware that there is a technology which can help them improve their production. They actually see how the technology is done and can interact immediately with the farmer doing

the demonstration and the researchers assisting the farmer. In such strategies, there is no way for the farmers to be influenced negatively. As the crop grows, so is the interest of the farmer which could be easily satisfied because the sources of information are at his disposal. But what percent of the farmers are able to see these demonstrations of a technology?

How about biotechnology, an old knowledge to the science community but new to many especially the farmers? If they do not understand what it is all about, then there is great difficulty in promoting it and convincing the farmers to adopt Bt corn or whatever technologies or products that come out of the process.

Last week, Dr. Nina Halos, BAR technical consultant and one of the proponents of biotechnology in the country, was invited by the Ilocos Integrated Agriculture and Resources Research Consortium (ILIARRC) and the Mariano Marcos State University (MMSU) in Batac, Ilocos Norte as speaker in a biotechnology forum. She, too, invited me being one from the place. I went with her and the Monsanto, Philippines group on condition that I would also be a speaker and I volunteered to discuss the pros and cons of biotechnology having read and written much about it. What we did not expect was the organized flow of our presentations having just met with the other speakers from the University and the Consortium the afternoon before the forum.

Dr. Miriam Pascua, MMSU College of Agriculture dean, discussed what biotechnology is all about, a short

background, and the advances in the field. I was the next speaker with the pros and cons of biotechnology. Dr. Aida Solsoloy from the Cotton Development Authority followed with her topic on biosafety and the process of getting approval for a biotech product before it is released. Dr. Halos was the last speaker with her topic on technology options for existing biotechnology products. In the second day, Dr. Stanley Malab, the Consortium director, joined the group and discussed indigenous crops and Bt corn that farmers could develop for the global market.

Simplifying biotechnology to the understanding of ordinary people is difficult, thus the need to limit the number of people attending a discussion forum. The venue for the first forum was open with about 300 heterogeneous participants. During the presentations, one by one left and there was no way to stop them. The second group was about 30 farmers in one small room. There was better interaction between the speakers and the participants and

→ see *Sciencescoping*, page 8

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## National Programs

## National team leaders plan for their networks

(5th of a series)

by: Maria Rowena S.A. Briones

**T**he team leaders of research, development and extension (RDE) networks for each commodity and discipline plan and orchestrate research programs, and delegate and monitor research efforts and functions.

This is a part of a series that features the plans, goals, and challenges faced by the National Team Leaders (NTLs) of the 21 RDE networks so that the public may know what the NTLs hope to achieve. This article is culled from my interviews with them.

**Mr. Ceferino Baniqued**  
*Plant Genetic Resources for Food and Agriculture*

We hope we can have funding from international agencies so that we can augment our network funds. We are preparing a proposal for the United Nations Development Program to fund our project on conservation of our indigenous plant genetic resources.

We have requested the Food and Agriculture Organization to fund the training of the staff of DA research centers all over the country on how to conduct inventory and collection of our plant genetic resources (PGR). We hope the Philippines can be the lead country in the conduct of such trainings in Southeast Asia.

Presently, there are 25 research stations actively collecting PGR in their areas. We hope we can provide for the needs of these research stations while they are doing the collection and inventory.

The network is composed of BPI agencies and DA research centers all over the country. We are also working with our agricultural state colleges and universities. It is important that we work on

strengthening the network by holding a meeting at least twice a year and releasing a monthly newsletter. This can help us form a healthy working relationship with each other. The meetings are necessary avenues for discussion and presentation of the results of our activities, in this case, the PGR inventory that we are doing.

We hope to finish our nationwide inventory this year. The inventory will help our plant breeders in accessing good qualities of plants such as resistance to pests and disease, drought, and acidity.

We are renovating the Plant Genetic Resources Laboratory in UP Los Banos to house the PGR collections that we are able to gather. The Bureau of Plant Industry is in charge of the documentation of the collections. We hope that we can improve our capability as the host agency.

We are facing an enormous challenge of retrieving our indigenous plant species that have been pirated from us by foreign countries. We also have to replenish and rehabilitate our plant species especially those under the threat of extinction.

We really need money for training the people who will handle the collection and inventory of our PGR. We also hope to provide their stations with computers so they can be linked together through the use information technology.

But I am glad that even if we do not have enough funds for the projects we have in mind, the network members have a healthy working relationship with each other. I guess this is the most important thing before the network will be able to achieve anything.



**Ms. Cecilia Gloria Soriano**  
*Fiber Crops*

This year, we intend to visit all the sites of our high impact projects and collaborate with other agencies especially those in Mindanao. Two of our high-impact projects are slated to be concluded this year. One is on the mechanization of the extraction and twining of fibers. The other focuses on the genetics of fiber crops—tissue culture, DNA finger printing, and disease indexing.

In November, we will hold the "Abaca Congress". This is the avenue for us to assess how we have addressed the problems of the industry through the years. We will identify the most pressing problems and pool our resources to really address this effectively and efficiently next year.

The abaca industry is performing well, in the sense that it is stable. We expect the industry to remain stable in the next five years. However, the industry could do better if they can increase their productivity levels, improve their planting materials and disease management. The thrusts of the network address these needs.

We try to accommodate the concerns of the whole industry. But with the limited funds that we have, we can only do so much. It is a challenge for us to bring everyone's efforts together. I hope that our system for funds allocation will be

➤ see NTLs, page 8



## Regional Programs

# Region 7 researchers' capability strengthened

**T**he Central Visayas Integrated Agricultural Research Center (CENVIARC) recently concluded a training course on "Strengthening the Socio-economic Research Capability of Region 7 Research, Development, and Extension (RDE) Network" at Bohol Agricultural Promotion Center, Tagbilaran City.

Some 20 researchers from the provincial agriculturist's and veterinarian's offices, state colleges and universities, and Department of Agriculture (DA) Region 7 participated in the said training. Social scientists from Leyte State

University, headed by Dr. Belita Vega, served as resource persons.

During the opening program, DA-7 Regional Technical Director for RDE Eduardo Alama said that the training was designed to strengthen the capabilities of researchers in understanding the social and economic conditions of the farmers. He added that low farm productivity is not simply solved by merely providing technical assistance, but also by understanding the farmer's situation.

According to CENVIARC Manager Tomasita Cadungog, the training likewise enabled the

participants to identify the appropriate technologies that could be adopted by the farmers

Included in the two-week training course are the various aspects and approaches, and actual field practices in conducting RDE. Participants' research outputs were also presented for critiquing and evaluation.

The training was a collaborative activity of the Bureau of Agricultural Research, Region 7 RDE Network, and Institute for Strategic Research and Development Studies of Leyte State University. (CENVIARC press release)

## Project Development Unit

# Project gets nod from external review team



development effort, the Rural Intensification and Diversification Project. Varying the production systems and expanding the farmers options for income sources are the main goals of the project.

BAR commissioned the Multi-Sectoral Consultants Multi-Purpose Cooperative (MSCmpc) to conduct a pre-feasibility study (FS), for a period of seven months. Leading the team consisting of specialists in agribusiness, economics, farming systems, extension, and social development, MSCmpc started the pre-FS in October 2001.

The team visited selected areas in Iloilo, Capiz, Bukidnon, Aklan, Misamis Oriental, and Leyte to identify ways for subsistence farmers to improve their life. On April 10, 2002, Mr. Johnson Mercader, team leader of the FS, made a pre-FS presentation to BAR Director Eliseo Ponce and the External Review Team composed of Drs. Ponciano Intal and Corazon Lamug, Director Salvador Salacup,

and representatives of various DA agencies. Among the issues and recommendations raised for project improvement were the following:

- ❑ Creating economic, social and political stratification of the target communities. The aggregate experiences of these communities shall serve as the baseline for development efforts.
- ❑ Credit and infrastructure support for the farmers are critical components of the project.
- ❑ Value-adding activities of farm and fisheries products shall be demonstrated to farming communities.
- ❑ Para-technicians shall be deployed to areas unexplored by extension workers.
- ❑ Subsistence farmers are to be linked with agricultural cooperatives for mechanized production agreements.
- ❑ Progressive farmers shall be encouraged to assist the subsistence farmers by giving them

☞ see Project, page 8

**L**ow income due to poor farm productivity, inadequate infrastructure, and inefficient delivery of agricultural services are problems of the subsistence farmers. The plight of these farmers is not new to the Bureau of Agricultural Research (BAR). In fact, the Bureau initiated another



# Prune and have more fruits

by: Mary Charlotte O. Fresco

**H**ow about a fresh look at the cultivation and proper care of the mango tree?

Mango is believed to be "plant-it-and-let it grow" tree as it is self-sufficient and capable of producing fruits without any interventions. However, the tree's complex and compact structure require proper attention especially during vegetative stage, wherein overcrowding and overlapping of branches directly affect the tree's yield performance. This is where pruning plays a vital role.

Pruning is part of cultural management done mainly to eliminate weak, diseased, overcrowded, and acutely angled space branches.

Dr. Hernani Golez, Bureau of Agricultural Research (BAR) national team leader for fruits RDE, said that pruning is one of mango production technologies practiced to increase yield and to produce better quality fruits. Dr. Golez emphasized that there are many types of pruning techniques suited to different crops and their effects on yield efficiency need to be investigated.

To address this concern, agriculturists from DA-Southern Mindanao Integrated Agricultural Research Center (SMIARC), Bago Oshiro, Davao City conducted a study on the effect of different pruning techniques on the productivity of grafted mango.

To determine which type of pruning is best applied to increase mango yield, fruit experts tested three types of pruning. For ease in comparison, researchers assigned the following codes: T2 (1 primary, 2 secondary, 3 tertiary, 3 quaternary branches); T3 (1 primary, 2 secondary, 3 tertiary, 4 quaternary branches); T4 (1 primary, 3 secondary, 3, tertiary, 4 quaternary branches).

T1 served as the control, which means that no pruning was

done. The numbers enclosed in parenthesis indicate the type and number of branches that need to be left untrimmed in the tree.

The researchers worked on an experimental farm, about a hectare, planted with 16 grafted carabao mango seedlings. They first pruned the mango seedlings three months (about six-month old) after they were transplanted in the field. The succeeding prunings were done every three months or before flushing (sprouting of young leaves) until the target number of branches was attained. The seedlings were nurtured with necessary care and maintenance they need like applying organic fertilizers every six months; pest and disease prevention at least once a month; and weeding, which was done regularly. Researchers applied flower inducer (which is normally applied during flowering season) to the trees on the fourth year.

The researchers observed the effect of different pruning techniques on the growth and yield performance of the mango trees for six years (October 1994 to May 2000). They found that mango trees pruned using T4 technique with 1 primary, 3 secondary, 3 tertiary, and 4 quaternary branches, were observed to have the widest canopy of 303.9 cm during their vegetative stage and 580.47 cm at their productive or fruit bearing stage.

More importantly, mango



trees pruned using T4 produced more fruiting terminals with an average of 966. The least number of fruiting terminals was noted in T2 pruned trees with 782, which is similar to the unpruned (control) trees with 807 fruiting terminals.

In view of these results, the researchers attributed the increased number of fruiting terminals to the capability of the tree to produce more fruits. They observed that T4 trees bore more fruits (154 fruits/tree) compared to T2 and control trees, which produced only 89 and 108 fruits per tree, respectively. They added that pruning the plants in its early stage of growth helps maintain the desired number of strong and healthy branches.

Also, researchers discovered that proper pruning helps increase the panicle length, which influences the yield efficiency in mango. The longest panicle was observed in T4 pruned trees (33.70 cm).

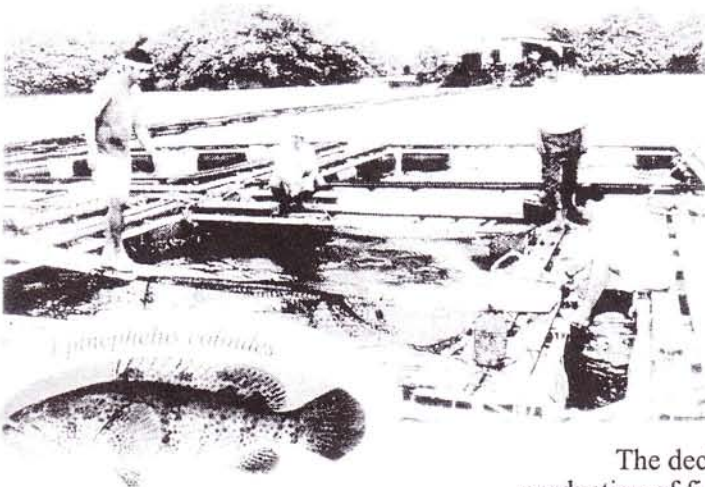
Experts recommend the pruning of the mango trees using T4 for bigger and overcrowded orchards and farms.

*For more information, please contact: Mr. Noel T. Estrellana and Rufino C. Odtojon, DA-SMIARC, Bago Oshiro, Davao City at telephone number (082) 903-2869.*



# A cheap way to fatten *lapu-lapu*

by Rita T. dela Cruz



Life becomes more difficult each day. People are into cost-cutting and penny-pinching, looking for the best means to lessen the cost of production without compromising the quality and value of their produce.

One of the main concerns of those who are into grouper or *lapu-lapu* (*Epinephelus coioides*) culture, is the limited supply of trash fish, the

main feed source for grouper. Trash fish are those litters and scraps from fishes that are not used for human consumption. It is the main ingredient in fish meal, the protein source in aquafeeds.

The decline in the global production of fish meal is due to the competitive demand for marine protein sources both by man and livestock. The demand increases while the production continues to be at the substantial level. The increasing demand vis-à-vis low production resulted to the increased price of fish meal.

With this problem, fish farming is in great peril. The industry, therefore, has to look for a dependable supply of alternative sources of protein

which are cheaper and from a non-marine source. This way, fish farming becomes profitable with a sustained supply of protein source.

Recently, the Southeast Asian Fisheries Development Center (SEAFDEC) Aquaculture Department and the Australian Center for International Agricultural Research (ACIAR) looked into the possibility of replacing fish meal with other cheap meals and develop practical diets with low fish meal content which can be used as alternative for trash fish.

The practical diet is the processed animal by-product meals. It is a mixture of meat meal and blood meal.

To test its potential as a replacement for fish meal, a feeding trial was conducted. The substitutes were tried in the diets of juvenile grouper.

The feeding trial showed that processed animal by-product meals could replace fish meal up to 80% of the protein content in the aquafeeds. The *lapu-lapu* fed with the substitute meal showed similar or better growth rates than those fed with fish meal. Moreover, researchers noted that the *lapu-lapu* fed with the substitute meal exhibited a high feed conversion ratio, meaning that the grouper readily accepted the replacement and did not find any problem in feeding.

As for its cost, the substitute diet is much more practical. The raisers can avail of the processed animal by-products in the local market at P18 to P20/kg as compared to the commercial fish meals at P50/kg.

This is indeed good news among raisers since meat meal and blood meal in the processed animal by-product meals are much cheaper compared to trash fish in fish meal. This cheap substitute can lighten the problem of inadequate and expensive fish meal.

(Source: "Replacement of fish meal by animal by-product meals in a practical diet for grow-out culture of grouper *Epinephelus coioides*" by O.M Millamena of the Aquaculture Department, Southeast Asian Fisheries Development Center or SEAFDEC, Tigbauan, Iloilo 5021 Philippines.)

## 1st nat'l...

The conference will carry the theme "Responsive research and development for sustainable capture fisheries" and will showcase the advances made in capture fisheries research for the past seven years.

Topics to be covered by the conference include fish behavior and physiology, enhancement and renaturation, fisheries monitoring and evaluation, fishing boat and gear technology, information systems, marine protected areas, oceanographic and limnology studies, resource and ecological assessment and management, socio-economics and policy, and species and population investigations. Proceedings of the

event will be published in a special issue of the UP Visayas Journal Issue of Natural Sciences which will be released in October 2003.

Paper presentors who wish to submit their full papers for publication in the journal should send their papers to the organizers by 1 February 2003.

Deadline for submission of abstracts for paper presentations and regular registration is on 30 September 2002. Normal registration will entail a fee of P1,000, while late or walk-in will cost P1,500. Interested parties may call Dr. Glenn Aguilar at (033)315-9440 or through e-mail at [cfn@miagao.i-next.net](mailto:cfn@miagao.i-next.net) for additional inquiries. (Thea Kristina M. Pabuayon)



# All about Bt corn

by *Saturnina C. Halos, Ph.D.*  
*SPDA, BAR*

1. Bt corn is a variety of corn genetically engineered to resist the attack of corn borers, a very destructive and difficult to control corn pest and a relative of common moths and butterflies.

2. Bt refers to *Bacillus thuringiensis*, the common soil bacteria where the gene making protein toxic to the target insect was obtained and transferred to Bt corn varieties. *B. thuringiensis* has a long history of safe use as an insecticide.

3. There are 9 types of Bt corn developed by 6 private corporations (*Table below*)

Bt corn type	Technology developer
Knockout, NatureGard	Syngenta Seeds, Inc.
Yieldgard® (Bt11)	Syngenta Seeds, Inc
Starlink	Aventis (formerly AgroEvo)
Bt Xtra™	Dekalb Genetics Corp
MON801	Monsanto Company
Yieldgard® (MON802)	Monsanto Company
Yieldgard® (MON810)	Monsanto Company
MON809	Pioneer Hi-Bred International
Herculex™ I	Mycogen (c/o Dow AgroSciences)
	Pioneer (c/o Dupont)

These Bt corn types differ in their ability to resist the attack of their target insects and to adversely affect non-target insects. They also differ on the part of the plant where the Bt gene produces protein that is toxic to the target insect, in the amount of the Bt protein produced, the possible resistance of the Bt protein to digestion and the possibility of the Bt protein to cause allergic reactions. Some Bt corn types also contain transferred gene for herbicide tolerance.

4. Bt corn, like any other genetically engineered organism or GMO, is subject to regulation in various countries depending on use. If planned for crop production, environmental, food, and feed safety, data must be generated from laboratory and field trials and reviewed by independent scientists. If imported for food and/or feed, data on feed and food safety must be reviewed independently.

5. The environmental safety of a particular Bt corn for crop production is established by studying the available information on outcrossing with wild relatives, weediness potential, secondary and non-target effects on humans, other vertebrates, beneficial insects and on biodiversity and the presence of a mitigating measure to prevent the rapid evolution of insect resistance to the Bt protein.

6. The food and feed safety considerations of Bt corn include level of dietary exposure, comparative nutritional composition of forage and grains, and toxicity and allergenicity of the plant expressed novel proteins.

7. Different countries set different criteria in approving Bt corn for planting, and processing for food and feed use. Each type of Bt corn is evaluated independently. Each technology developer applies for the approval of its own individual Bt corn type.

8. All nine Bt corn types were originally developed in the USA and were approved for planting, for food and feed use except Starlink corn that was approved for feed use only. However, due to regulatory problems, approval for Starlink corn was withdrawn. Approval for Knockout, NatureGard may also be withdrawn because of their adverse effects on swallowtail butterflies.

9. Outside the USA, approvals of Bt corn for food and feed use are as follows: EEU (counting it as one country), Argentina, Australia, Canada, European Union,

Japan, Netherlands, Switzerland, and UK approved Knockout, NatureGard; Argentina, Australia, Canada, European Union, Japan, Switzerland, and UK approved Yieldgard® (Bt 11); and Argentina, Australia, Canada, European Union, Japan, Switzerland, and South Africa approved Yieldgard® MON810. The other Bt corn types were approved in Argentina, Japan, Canada except Starlink, MON801 and Herculex™ which were approved only in the USA.

10. Approvals for commercial planting of Bt corn in other countries are as follows: Argentina, Canada, EEU, Japan and South Africa for Yieldgard® (MON810); Argentina, Canada, and European Union for Knockout, NatureGard; Argentina, Canada, and Japan for Bt Xtra™; Argentina, Canada for Yieldgard® (Bt11); and Canada, Japan for Yieldgard® (MON802) and MON 809.

11. The Bt corn being tested for possible commercial planting in the Philippines is Yieldgard® (MON810).

12. In Yr 2000, Bt corn was planted on 8.2 million hectares in the USA, Canada, Argentina, South Africa, Spain and France of which the USA has the biggest area.

13. USDA estimates a significant rise in areas planted to biotech crops especially Bt corn in the USA this year. Biotech corn area will increase from 25% to 32%.

14. All corn imports from the USA, unless otherwise indicated, contain Bt corn because corn from various farms are mixed in storage and processing.

15. Leading importers of US corn grains and products include Japan, Taiwan, Mexico, Egypt, South Korea, Colombia, Saudi Arabia, Venezuela, Dominican Republic and others like the ASEAN (Malaysia, Indonesia, Philippines, Thailand and Vietnam).

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Vorman, J. Biotech Crop Plantings Rise Again in 2002 Reuters Fri Mar 29, 3:24 AM ET



## Web NEWS

**Harvest makapuno in 3 years using PCA-developed hybrid seed nut**  
(<http://www.da.gov.ph>)

**Go urban farming and beat El Niño**  
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**Scientists confirm local origin of African cattle**  
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**Saving the world's fish stocks depends on empowering women**  
(<http://www.futureharvest.org>)

**Conserving forests by making markets work for forest communities**  
(<http://www.futureharvest.org>)

### Sciencescoping...

*we felt we were able to let them understand what biotechnology is all about because of their questions.*

*If a survey is made on how many know about biotechnology, perhaps only two out of ten would be aware of it and of these two, do they understand? Awareness does not necessarily mean understanding. There are many ways of keeping the public aware of biotechnology and later on heighten public acceptance. With the anti-GMO rallies being staged before the public has a good understanding of biotechnology, it will be difficult to counter what is already impressed into the mind of the public. First knowledge is difficult to erase. The biotechnology forum conducted in the north should be replicated throughout and also be made intensive to reach as many people as there are, using various media. Findings in communication research show that one medium reinforced by another is more effective in communicating an innovation than just one.*

*The big problem is the acceptance of biotechnology and its products, the GM crops and the GM-derived foods. Public awareness is just the first stage in the communication of an innovation. VAD (to be continued)*

## SEARCA invites media to GMO workshop

Recognizing the crucial role that media plays in educating the public on the safety of genetically modified (GM) plants and foods, the Biotechnology Information Center (BIC) of the SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA) invited media practitioners to a workshop at the Makiling Highlands Resort, Pansol, Calamba.

Two biotechnology experts from Los Baños tackled the most important issues in GM plants and foods. Dr. Jamela Revilleza, associate professor, Institute of Chemistry, University of the Philippines at Los Baños (UPLB), gave a comprehensive overview of biotechnology and Dr. Antonio Carlos Laurena, associate professor and researcher at the Institute of Plant

Breeding (IPB) discussed the safety of GM plants and foods.

Dr. Revilleza said that it is the media's role to change the public's misconceptions and fears regarding GM plants and foods. "The hype surrounding biotech products is misplaced since we have been using biotech products such as beer, patis, toyo, tofu, alcohol, and vinegar in the past," she said.

Summing up her presentation, Dr. Revilleza said that through biotechnology, we now have the tools to grow foods for better living, for better health, and for saving lives.

The biotech center was established two years ago to address the needs of the Southeast Asian region for a highly credible, sound, and factual information on biotechnology. To reach its various stakeholders, the Center manages the BIC Web, the BIC Chronicle, Biotech-on-the-Air, seminars, workshops, fora and the publication of reference materials. (Junelyn S. de la Rosa)

### Diversification...

- incentives and rewards.
- Scientists who directly assist the subsistence farmers shall be given additional incentives based on their contribution to the farmer's productivity; the higher the harvest of the farmers, the higher the financial rewards for the partner scientist.
- National and regional R&D centers shall be strengthened.

Members of the External Review Team gave their "rating" for the project. The project needs a minimum rating of 65% for it to be endorsed by BAR director to the DA Clearinghouse. The criteria considered food security, productivity and income, poverty eradication, empowerment, and global competitiveness. The project got an average rating of 69.8 %. A feasibility study will now be the next step for the project. (Carmela B. Brion)

### NtLs...

truly rationalized. We also need to have clear mechanisms for the networking that we do.

On our part, we need to improve our linkages with other networks especially with the agricultural engineering and biotechnology networks. I hope we can sustain the efforts that we have started.

I am happy that we help each other and we have a strong camaraderie. Our respect for each other is there. Even if our pace is slow, we are able to give our best. Slowly but surely, we will do everything in the best of our capabilities to achieve the vision of the network. (To be continued)

### BAR Chronicle

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