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Open academy for Philippine agriculture, first in the world

Bringing opportunities closer to farmers thru ICT

(From left to right)USM President Virgilio Oliva Sr.,ICRISAT Director General William Dar, PhilRice Executive Director Leocadio Sebastian, BAR Director William Medrano,and Senior BAR Consultant Santiago Obien.

The world's first and only open academy for agriculture is to be established here in the Philippines, said International Crops Research Institute for Semi-Arid Tropics (ICRISAT) Director General William D. Dar during the latest Advisory Council meeting held at the Boardroom of the Bureau of Agricultural Research (BAR).

Given the scenario of a fast-changing time and the growing demands on agriculture and fisheries sectors, one must be well-equipped with information to come up with innovative decisions for national development. Vital to this end is the thrust of the Agriculture and Fisheries Modernization Act (AFMA) for our farmers and fisherfolk to have access to modern technologies developed through R&D.

Easy access to information is achieved through Information and Communication Technologies (ICT), an important component in research and technology management. ICT bridges digital divide connecting farmers, scientists, researchers, and extentionists from different regions and communities of the country. ICT made possible the establishment of a virtual network for agriculture.

Six months ago, Dr. William D. Dar and BAR Senior Consultant Santiago R. Obien presented the concept of establishing an open academy for Philippine agriculture to Department of Agriculture (DA) Secretary Luis Lorenzo.

The idea is to have a virtual network that would readily provide information to answer farmers' needs and to provide them easy access through networking and the Internet. Meanwhile, the institutions connected through networking shall provide the education, training, extension and communication in agriculture. The project will be an alliance of national, local and international organizations. This project does not have to acquire new IT equipment necessary for the networking of different stations and putting them all on-line. It will utilize and tap the existing network infrastructures of

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Inside...

SEAFAR-CARD: merger beyond borders

by Junelyn S. de la Rosa

"Two heads are better than one". Thus, Brunei Darussalam's initiative on the ASEAN Centers of Agriculture Research and Development Knowledge Network (CARD K-Net) and the Southeast Asian Forum for Agricultural Research (SEAFAR) were merged into one sub-regional forum on agricultural research in Asia.

SEAFAR-CARD, being its new acronym, will serve as the hub or brain

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SCIENCESCOPING

Survival crop makes one survive

Strange how snippets can come so vividly after all these years, all because of a plant that made me laugh at a Thai classmate, who often came begging to be taught in English, while doing our graduate studies. While unobtrusively trying to ignore him because he was taking much of my time, he wandered off near our kitchen where we picked some vegetables. He produced from his pocket his Thai-English dictionary and tried to call my attention to a plant we gathered to mix with fish into ***sinigang*** *or plainly blanched, then mixed with a little* ***bagoong*** *and sliced tomato for salad.*

"Morning glory. This is morning glory," he intoned in his staccato and hardly discernible English pointing to the plant.

"We call that camote or sweet potato," I corrected him partly smiling but laughing inside.

The morning glory that I knew was a climbing plant with lavender flowers that look similar to that of the sweet potato but not it as morning glory. And now that I am writing on this crop, I realized my mistake and if I can only contact that Thai friend who became a key official in the Department of Agriculture of Thailand, then I should be profuse in my apologies. And he must know the crop being an agriculturist. The sweet potato belongs to the morning glory family. This, now I know. But I can easily justify that mistake long ago by saying, "Well, I'm learning."

*Sweet potato (**Ipomea batatas**) is called a lazy man's crop and I took it for granted until one day there were kids scratching the soil with their hands at a vacant lot beside ours. I was not particularly interested in the root they were able to dig but I was fascinated by the process of being led by a nearly dead vine to a root downward, dig the soil around it with the hand or a stick, then a root bigger than a fist is uncovered. Ah, God's mystery and my fascination for simple things. I did not know whether I was happier engrossly watching the activity or the kids scouring and finding food for the table. I think we felt the same except that our delight was of different levels. This actually started my engagement with sweet potato that I filled sacks with soil, set them in our azotea and planted camote stems. My girl looked at me questioningly for she did the cleaning up after my planting. I told her I was practicing urban agriculture which we were promoting at that time. I did get leaves for* ***sinigang*** *but only got marble-sized roots that I left for the next growth.*

Eating sweet potato makes one fart, they say. You wouldn't care farting if you knew that sweet potato is the healthiest vegetable around. It is called "nature's health food". The United States Action Health Letter rated 58 vegetables by adding up their percentages of US Recommended Daily Allowance (USRDA) for six nutrients, namely: vitamins A and C, folate, iron, copper and calcium plus fiber. Sweet potato topped the list at 582 percent with raw carrot coming in second with 434 percent.

The Center for Science in the Public Interest, still in the US, rated the nutritional value of common vegetables and sweet potato came out on top with a score of 184 and white potato with 83 points. A cup of cooked sweet potato provides 30 mg or 50,000 IU of beta carotene (Vitamin A). This is equivalent to 23 cups of broccoli. When eaten with the skin, it gives four times the USRDA for beta carotene. Fat free, sweet potato is a good source of Vitamin E with two-thirds cup of it providing 100 percent of the USRDA for Vitamin E. Since it is a good source of dietary fiber, it promotes healthy digestive tract.

All the figures are from the US since there are no available data on specific nutrients of sweet potato in the Philippines but if there were differences, they may not be so significant. What is important is, we know that our lowly sweet potato is after all a nutritious vegetable and snack.

This crop is not native to the Philippines. It is a native American plant brought by Columbus and his men to Spain and the Spaniards brought it to our country when they colonized us. There are two types, the dry-fleshed and the moist fleshed. It is strange that the dry-fleshed has more water in it than the other type, studies found.

A survival crop, it saw the Chinese through a number of droughts. In our country, it can see us through when rice and corn are not enough. Our brothers and sisters in the highlands and at times the Ivatans make it their staple and they survive. It is mostly grown in the Philippines as feeds and source of sugar and starch for industrial uses. It can withstand rough weather and can thrive in poor soils. It has been tried in the sand dunes of Ilocos Norte and thrived well with big roots.

Sweet potato is a survival crop and it can make us survive.
(VAD) ■

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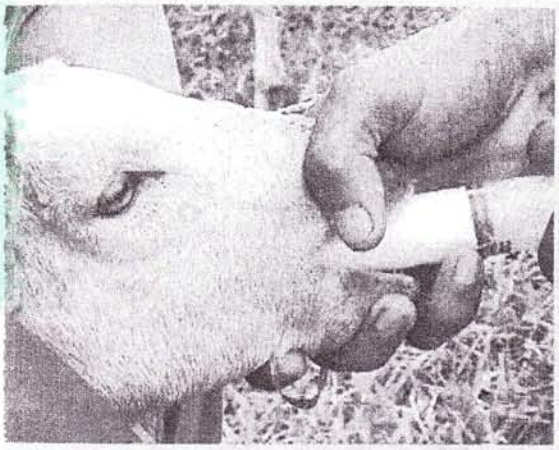
Mindanao farmers benefit from livestock community-based project



Backyard cattle raisers in Southern Mindanao have something to look forward to after the Southern Mindanao Integrated Agricultural Research Center (SMIARC), one of the regional centers coordinated by the Bureau of Agricultural Research (BAR) has conducted on-farm research trials on indigenous cattle using improved pasture. This community-based project at Barangay Tacunan, Tugbok, Davao City aims to develop and showcase appropriate and sustainable livestock production technology.

The research project is a cooperative undertaking of the Progressive Farmers Association of Tacunan (PROFAT), and the Local Government Unit-City Agriculturist Office of Davao City.

This project on indigenous livestock implemented from January 1999 to December 2002, distributed 20 indigenous female cattle or dams to qualified cooperators. Farmer-cooperators were selected according to a set of criteria, namely: 1) a member of PROFAT; 2) interest in caring for animals; 3) not a recipient of previous animal dispersal program, and; 4) rules and regulations abider. Farmer-cooperators were given proper training on herd management; and full assistance from government such as free vaccination, deworming, proper breeding, mineral and vitamin supplementation, disease control, feeding and frequent monitoring of the animals.

As part of the agreement, the first offspring of the cattle goes to SMIARC for distribution to the next members and the dam is retained by the original cooperator. In this way more farmers will benefit from the program in the coming years.

During the site visits, Dr. Rolando Kintana of BAR observed that the indigenous cattle using improved pasture is comparable to hybrids. During the on-farm trials, farmers attested to the benefits of this project. When asked about their system of raising indigenous cattle, the farmers used improved pasture like napier grass and other grasses common in the area.

One of the farmer-cooperators stressed that, since the implementation of the project he became more excited and interested in raising cattle. This project enabled him to establish a 1/4 hectare of napier grass. He plans to increase his pasture to two hectares since he wants to increase the number of his cattle. He hopes to become one of the important suppliers in the beef cattle industry. *(Mercy O. Distor of SMIARC)*

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center of the National Agricultural Research Centers (NARCs) of the 10-member Southeast Asian countries composed of: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. It will facilitate the sharing of expertise and resources to improve research and development in these countries.

The merger was created after NARC officials evaluated the two original proposed fora. Both shared the vision of a more visible R&D in the region with the ultimate goal of improving the living conditions of poor communities in the countryside.

SEAFAR aimed to promote systematic sharing and reuse of agricultural research and development knowledge among Southeast Asian NARCs to assist less developed research centers, rationalize efforts, and maximize the use of limited research funds.

Similarly CARD K-Net with its emphasis on information technology (IT) was a sub-regional focal point for maintaining a distributed knowledge base of research on food, agriculture and forestry. This system as well as its content will continuously be updated and disseminated among member countries in facilitating transfer of technology and technological advances in areas of production, processing and marketing of foods, agricultural and forestry products.

Knowledge is defined as *information with value-added*. Thus, the CARD K-Net will include research findings, lessons learned, best practices, databases on bibliographical and factual applications and knowledge bases, which will include documents, and multimedia presentations. Also, with the use of Geographic Information System (GIS), the forum will make use of broadband

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RP agri globalization in for tough times ahead --Balisacan

by Ma. Lizbeth J. Baroña

The SEAMEO Regional Center for Graduate Study (SEARCA) Director Arsenio M. Balisacan says, Philippine agriculture is not ready for global trade competition.

This well respected economist's insight on the status of the agriculture sector was revealed at the Department of Agriculture (DA)- University of the Philippines Program in Development Economics (UP-PDE) sponsored lecture series entitled ***Philippine Agriculture: Are We Ready for the Competition?,*** at the Bureau of Soils and Water Management (BSWM) Auditorium on July 17, 2003.

Dr. Balisacan reported that between 1980 and 2000, agriculture grew by 1.5 to 1.8% a year. This rate is lower than the country's population growth rate, which is at 2.1 to 2.3%. He identified the *almost negligible* growth in the country's Total Factor Productivity (TFP) as the reason for the low agricultural growth rate. Between 1970 and 1980, our TFP was at 1%, but between 1980 and 2000, the figure dropped to 0.1%.

TFP is an indicator for productivity that measures total output per unit of total input (capital, labor, resources). Technological progress is also taken as an index for TFP growth. The Philippines has not been faring well in either of this area. With these figures, Balisacan says, that the Philippines will have a tough time competing in the world market.

WTO, Doha Declaration

Balisacan first touched on the status of the World Trade Organization (WTO) negotiations. The last ministerial conference held in Doha, Qatar, yielded the Doha Declaration. The Declaration essentially reconfirms the long-term objective of the WTO agreement to "establish a fair, market-oriented trading system through a program of fundamental reforms". This program is aimed at correcting and preventing restrictions

The Doha Declaration also makes "special treatment for developing countries in integral parts of negotiations". This is to enable these countries to meet needs in food security and rural development.

The Philippines, according to Balisacan, will benefit from globalization through greater access market for the country's exports. Furthermore, it will lead to higher commodity prices, which eventually will lead to increased export earnings. He also cited other benefits through more efficient resource allocation; benefits for consumers of processed food relying on highly protected sectors like sugar and corn; better government focus on meaningful and lasting support for farm sector; and higher growth in production and employment generation.

However, achieving these benefits will mean hurdling the challenges and threats that the country will face. These are: a) job displacement in the short term; b) lower prices of competing farm products; c) dismantling of advantageous special trade arrangements; and d) unequal global playing field due to "unfair trade" practices of developed countries.

The next ministerial meeting is scheduled in September this year, in Cancun, Mexico.

"Strong reform" agenda

Balisacan saw hope for the industry with the "strong reform" agenda, comprised of trade liberalization combined with increased investment in R&D, extension and other support services like irrigation. As per Balisacan's Agricultural Policy Simulation Model (APSM), these agenda will lead to higher yields and lower prices of major crops, lower imports, faster poverty reduction, and lower migration to urban areas.

Discussion reactant, and economist, Prof. Solita Monsod agreed with Balisacan's points, adding that the "few rays of light" for the industry lie on the commercialization of Bt corn and the increased use of hybrid rice. Likewise, Rolando Dy of the University of Asia and the Pacific (UA&P) concluded that Filipinos need to have faith in themselves, adding, "non-confidence makes us lose the fight".

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(Author's note: In its July 28 issue, the Philippine Daily Inquirer (PDI) reported that the Philippines will be taking a "defiant stand" in the upcoming ministerial meeting. It said, the country will "reject any moves to further open up our local market". The report says we will only allow "opening up its sensitive agricultural products if the developed countries remove the multi-billion dollar subsidies they use to prop up their farmers..." This practice is legitimized by the WTO, and is widely viewed as an "unfair trade practice" on the part of the developed countries.) ■

FIDA at 22, opens exhibit

The Fiber Industry Development Authority (FIDA) opened an exhibit of fiber products in celebration of its 22nd anniversary at the 3rd Floor, Argo Building in Cubao, Quezon City on July 22-23.

The ceremonial ribbon cutting was participated in by Josephine Ramilo, representative from the Office of the Presidential Adviser on Agricultural Modernization (OPAAM), FIDA Administrator Cecilia Gloria Soriano, and Deputy Administrator Ricardres Tiberio. Thereafter, FIDA-NCR Regional Director Rodante Peñalba officially declared the anniversary celebration open.

Export quality fiber products from different parts of the country were in the exhibit. This include silk products like table cloths and barong embroidered in Lumban, Laguna; placemats and purses made from *buntal* plant from Marinduque and Bulacan, respectively; and hats made of *sabutan* plant from Aurora Province. Other fiber products shown in the exhibit were materials used in making piña barong. The exhibit also showcased the many products that fiber can be made into like doormats, rope, dartboards, lampshades, fans, pots, and table mats.

"In 2001, the Philippines is the leading producer of abaca fiber in the world," says Gina de Ungria, a FIDA official. Indeed, 84% of the world abaca fiber supply in 2001, came from the Philippines. Abaca can be made into ropes, tea bags, sausage skin, and cigarette paper. It can also be made into handbags, frames, albums, medical masks, and linen sheets.

In a brief message, Administator Soriano reiterated the commitment of FIDA in serving the farmers of the fiber industry in the countryside, and also thanked OPAAM for its continued support to the industry. *(Ma. Lizbeth J. Baroña)*

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and wireless technologies for connecting research and development institutions in Asia and identify effective procedures for knowledge exchange and sharing.

A technical working group for the new forum was created during the 24th Senior Officials Meeting with the ASEAN Ministers of Agriculture and Forestry (SOM-AMAF) in Bangkok, Thailand last June. Bureau of Agricultural Research (BAR) Director William Medrano will chair the Technical Working Group while the SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA) will be the secretariat.

With this merger, NARC officials are optimistic that agricultural R&D in the region will be given more leverage and that valuable resources and expertise can be used efficiently to benefit more people in Asia.

As former BAR Director Eliseo R. Ponce said " this forum shall enable us to pursue active partnership in the area of agricultural research for development across our borders and the synergy that shall be created will lead to the creation of new agricultural technology and knowledge for our growing populations".

While, the details of this new merger are still being discussed in the roundtable, one thing is already certain- this forum is a step towards a more proactive and empowered agricultural R&D in the region.

Finally, the impact of this forum is significant as it has the capacity to bring solutions where they are needed and change many lives for the better. ■

Source: Proposal on the Revised Brunei Darussalam's Initiative on ASEAN Centers of Agricultural Research and Development Knowledge Network (CARD K-Net)

BAR participates in library management training-workshop

The Bureau of Agricultural Research (BAR), represented by Mr. Ricarte V. Castro and Ms. Julia A. Lapitan of the Knowledge Management Division (KMD), attended the training workshop "Capacity Building for Library Automation in Philippine Libraries and for Broadening the Base of the *FAO AGRIS Database*". The Agricultural Librarians Association of the Philippines (ALAP), in cooperation with the International Rice Research Institute (IRRI) Library Documentation Service, organized this event held on July 23-25, 2003 at IRRI, Los Baños, Laguna.

The training-workshop discussed two main topics: (a) the FAO AGRIS database attributes and the need for capacity building; and (b) capacity building for library automation and AGRIS participation. An intensive hands-on training and workshop was conducted on the use of the WEBAGRIS Data entry format and WINISIS for database management. Participants worked on different forms of materials and generated proposals.

The training-workshop aimed to create awareness of the FAO AGRIS (Agricultural Information System) project and its value in agricultural research and the benefits of contributing to it. This also aimed to encourage participation as input center; introduce and train participants on the use of metadata and FAO standards; improve skills using WINISIS (a free library software); improve coverage and dissemination of Philippine agricultural literature; and revive the Philippine national agricultural bibliography. Proponents of the AGRIS project see that the establishment of an electronic national agricultural database is not remote with more Philippine libraries contributing to the AGRIS database. Currently, there is no national agricultural bibliography in the Philippines as *Philippine Agricultural Bibliography* stopped publication many years ago. The national agricultural database that could come up, either in print or electronic format, would benefit all agricultural scientists and libraries in the country and in other parts of the world. *(Likha C. Cuevas)*

Balisacan is SEARCA's new director

Effective 14 July 200, Dr. Arsenio M. Balisacan is the new director of SEAMEO Regional Center for Graduate Study and Research in Agriculture (SEARCA).

A well-respected economist, Dr. Balisacan is a professor of economics at the University of the Philippines (UP) Diliman, where he served in various capacities as director of graduate studies and fellowships, director for research, and director for finance of the School of Economics. He is one of the leading experts on poverty, rural development, and development policy research in East Asia.

Prior to his appointment as SEARCA director, he chaired the Technical Advisory Group for the Secretary of Agriculture of the Philippines and adviser to the Executive Secretary of the Economic and Social Commission for Asia and the Pacific (ESCAP) for the implementation of the UN's Millennium Development Goals. He served as Undersecretary (equivalent to Deputy Minister) for policy and planning of the Philippine Department of Agriculture, during which he led the Philippines' delegation at the WTO agriculture negotiations and at various APEC, ASEAN and CAIRNS meetings.

Outside the Philippines, he served as visiting fellow at the Australian National University in Canberra, research fellow at the East-West Center in Honolulu, and economist at the World Bank in Washington, D.C.

His research interests focused on poverty, inequality, food security, agricultural and rural development, globalization, and political economy of policy reforms. He has published extensively in these areas in leading international and regional economics journals. He is author, co-author, or co-editor of six books, the latest of which is *The Philippine Economy: Development, Policies, and Challenges* (Oxford University Press, New York and Ateneo de Manila University Press, 2003).

He has been the recipient of numerous awards for outstanding research achievements and outstanding publications awards given by UP, Outstanding Young Scientist Award and Outstanding Publication Award given by the National Academy of Science and Technology (NAST) of the Philippines, and the Sir John Crawford Award given by the Australian Agricultural Economics Society. He was founding editor of the Asian Journal of Agricultural Economics, the professional journal of the Asian Society of Agricultural Economists, and is serving as advisory editor of the Agricultural Economics, the journal of the International Association of Agricultural Economists. He is the current president of the Philippine Human Development Network, an organization of prominent experts and leaders of strategic organizations in human development, supported by the UNDP.

Dr. Balisacan obtained his PhD degree in Economics at the University of Hawaii and M.S. in Agricultural Economics at the University of the Philippines Los Baños under SEARCA's Graduate Scholarship Program. *(Press Release)*

Should we love...

be transformed into baskets, fruit trays, hand fans, and vases. However, the problem with tobacco handicraft is the high cost of labor, because the process of smoothening and weaving the stalks are very manual and labor-intensive. The only consolation or bonus points an owner can have is that these crafts are resistant to termites and weevils, due to the pesticidal properties of the plant.

Terminator Tobacco – It has been reported that tobacco dust, if sprayed in liquid form, can be used in vegetable crops to kill insects and pests such as golden snails, maize weevils, grain moths, and red flour beetle. Staunch advocates of organic farming will surely be delighted to hear this.

Tobacco has indeed so many potentials beyond its cigarette-pack identity that we have been accustomed to for many years. The National Tobacco Administration is doing its best to erase the negative connotation for tobacco, and hopefully, it can introduce the plant in the market as a promising crop worthy of every people's praises, trust, and respect.

Tobacco is a promising crop. Love it, give it a second chance. ■

Sources:

1. *Other Uses of Tobacco – Utilization of Tobacco Stalks for Handmade Paper and Handicrafts Production. Paper presented during the Ilocos Agricultural Research Development Consortium (ILARDEC) Annual Regional Symposium at the Pangasinan State University, Santa Maria Pangasinan, on July 2002.*
2. *For more information, please contact Engineer Cecilio Cabigan (Program Leader), or Mrs Nelly Castro (Project Leader) of the National Tobacco Administration, Batac, Ilocos Norte. Telephone Nos: (077) 792 4505 or 792 3086, Fax: 792 3111.*
3. *Department of Health, Philippines – http://www.doh.gov.ph*
4. *World Health Organization – http://www.who.int*
5. *Institute of Agronomy and Plant Breeding, University of Natural Resources and Applied Life Sciences, Vienna - http://ipp.boku.ac.at/pz/oilseeds/eshetu.html*
6. *Food and Agriculture Organization - http://www.fao.org/docrep/x2230e/x2230e12.htm*
7. *Broward Country SWAT, Florida http://www.browardswat.com*

Should we love tobacco?

by Carmela B. Brion

Nearly **5 million people died from tobacco smoking - related diseases** in 2002. Five million people is equivalent to exterminating the whole population of Quezon City, Laguna, and Davao City. Lung cancer, emphysema, high blood pressure, and heart attack are some of the diseases associated with tobacco smoking. A report published by World Health Organization identified the growing access to tobacco consumption as one of the contributing factors to the rising cardiovascular disease cases in poor nations.

If tobacco is associated with heart attacks, why in the world would people still love it?

Ask the **National Tobacco Administration (NTA),** an agency, which continuously undertakes research and development in an attempt to discover the "healthy" uses of tobacco. NTA is optimistic that these efforts shall help them promote tobacco as a good plant. Exploring and developing the potentials of tobacco, as an industrial crop is a big boost to the 62,000+ farmers in the industry. Scientists and researchers are studying the whole plant in an attempt to discover which among the parts of the plant can be tapped and developed into useful products. What have they discovered and learned so far? Here's the list:

Gourmet Tobacco - Tobacco seed oil may soon find its way into the shelves of local supermarkets, along with oils made from sunflower, coconut, soybean, corn and canola. Consumers need not worry, for it has been reported that tobacco seed oil is free from nicotine, and remarkably, 70% of the tobacco seed contains protein, carbohydrate, and crude fibre. In fact, countries like Bulgaria, Greece and India are already using refined tobacco seed oil as salad oil in their kitchens. The mint-smelling oil can also be a good ingredient for soap and paint.

Formula Tobacco –Broilers and tilapia will get a natural high from the tobacco seeds mixed into their diet. Seeds, after being pressed for oil, can be used as feed supplement. It can substitute as much as 25% of the ration for broilers. The effect? NTA has documented that the weight of the broilers increased and the taste of the meat was not affected at all (no tinge of bitterness or nicotine was reported). What's more, using seeds as substitute can slash away the price of the feeds by as much as 25%, a big savings to the farmers. This only shows that tobacco seeds are not toxic, thus, studies are underway if it can also be used as food component for humans. Tobacco flavored roast beef, anyone?

Medicinal Tobacco – *This is an herb of marvelous virtue against wounds, ulcers, herpes, and all other things...* these are the words of Jean Nicot, the 15th century French Ambassador to Portugal who introduced the tobacco plant to France and who later wrote of the medicinal values of tobacco. Six hundred years later, scientists and researchers are continuously experimenting to uncover the medicinal benefits of tobacco: as antibacterial, antifungal, and topical analgesics. Today, researchers from NTA are formulating different medications from the tobacco seed oil and leaf extracts. Five dogs, each of them afflicted with skin disease and bald spots on their bodies, were initially treated with these medications, and after one month, the disease was cured and researchers noticed that new furs emerged on the dog's bald spots. The success rate of the trial was approximately 100%, however, it was limited to veterinary purposes only. NTA has not yet explored the possibilities of tobacco for human medicine.

Industrial tobacco – Pulps from the stalks, which normally rot in the field after harvest, can now be processed into hand-made papers. Stalks, on the other hand, are chipped, glued and pressed to make particle boards, which are essential supplies in the construction business. Are these particle boards safe to use should one decide to utilize them for building a house? Yes, and the Forest Product Research and Development Institute (FPRDI) can attest to that.

Tobacco Handicraft – Stalks are so much in demand in the NTA. It's not for particle-board making only, but it can also

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BAR awards scholarship grants to 6 R&D personnel

The Bureau of Agricultural Research (BAR) through its Scholarship Program has recently granted scholarships to six qualified research personnel from the National R&D System for Agriculture and Fisheries (NaRDSAF) member-institutions: two for PhD and 4 for the MS degree. The awardees were chosen by the Scholarship Committee after a series of evaluations.

The grantees for PhD are: Nancy S. Romano of the Aurora State College of Technology (Animal Science-UPLB) and Ramises N. Solante of the Panay State Polytechnic College (Entomology-UPLB). The grantees for the MS degree are: Joan Marie S. Agarcio of the Philippine Rice Research Institute (Genetics-UPLB), Sharon G. Aguila of the Department of Agriculture-Regional Field Unit 1 (DA-RFU 1)(Agricultural Economics-UPLB), Genalyn B. Macasaet of DA-RFU 4 (Microbiology-UPLB), and Marry Joy P. Porras of DA-RFU 9 (Plant Pathology-UPLB).

The grantees started their graduate programs during the first semester of 2003. They are entitled to a monthly stipend, matriculation and other school fees, thesis and dissertation support, book allowance, and full salary and other benefits from their mother agencies.

The scholars under the PhD program are expected to complete their study in three years while those taking their MS in two years.

The number of this year's scholars was cut down to six due to the Bureau's budget constraint for the year 2003. In 2001 and 2002, BAR was able to send 15 and 21 NaRDSAF scholars, respectively, to different universities and colleges in the country.

The scholarship program of the Bureau is vital in empowering the research personnel to develop their skills and knowledge for a more responsive and efficient R&D system. *(Rita T. dela Cruz)*

Web NEWS

Iraqi agriculture hard pressed to meet demand
(http://www.futureharvest.org)

The Mexico Action Summit: a call to action
(http://www.futureharvest.org)

Lorenzo moves to regulate tuna fishing in RP waters
(http://www.da.gov.ph)

Oplan Sagip ABAKA to boost disease eradication
(http://www.da.gov.ph)

GM rice may pave way for GM crop acceptance
(http://www.isaa.org)

Australia approves GM canola
(http://www.ogtr.gov.au.)

Japanese develop DNA book
http://genome.gsc.riken.go.jp)

Open academy...

the government, their content and information databases. These equipment will be estabiished in an open environment using ICT and distance learning. With great optimism, Secretary Lorenzo liked the concept and asked Dr. Obien to lead in this endeavor.

Three months after presenting it to the Secretary, a convenor's dialogue was held at BAR to brainstorm on the idea. The meeting participated in by agencies with significant role in the project. The group identified key constraints and opportunities of research-extension-farmer linkages to modernize the agriculture sector and how the availability of information could help the farmers.

After the brainstorming, a seminar-workshop organized and facilitated by the Philippine Rice Research Institute (PhilRice) was held in Nueva Ecija . The output of this activity was an operational plan, as well as the details of the roles and responsibilities of agencies involved in the project.

On 28 July 2003, DA Secretary Lorenzo, Department of Science and Technology (DOST) Secretary Estrella Alabastro and University of the Philippines Open University (UPOU) Chancellor Felix Librero signed the Memorandum of Understanding (MOU) that established the open academy for Philippine agriculture. The project is a triumvirate effort of the three main agencies with support from other research institutions. A meeting with the project's Advisory Council was held after the signing ceremony with Dr. Dar giving the opening remarks. The agenda include: launching date of the project, initial source of funding, activation of the technical committee and proposed preparatory activities. The meeting was chaired by Dr. Santiago Obien and co-chaired by Dr. Dar, Dr. Leocadio Sebastian, and Dr. William Medrano. Other attendees during the meeting were: Agricultural Training Institute (ATI) Director Alberto Maninding, Senior BAR Adviser Manuel Bonifacio, University of Southern Mindanao (USM) President Virgilio Oliva Sr., Pampanga Agricultural College (PAC) President Sosimo Battad, Technical Working Group Member Dr. Edilberto Redoña and Program Leader Roger Barroga both from PhilRice. *(Rita T. dela Cruz)*

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DA, DOST converge for agri-fisheries dev't

Being major stakeholders in agriculture and fisheries development, the Department of Agriculture (DA), through the Bureau of Agricultural Research (BAR) and the Agricultural Training Institute (ATI), and the Department of Science and Technology (DOST) through the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD), and the Philippine Council for Aquatic and Marine Research and Development (PCMARD) held, a consultative convergence workshop to enhance R&D services to farmers and fisherfolk, at the Oasis Hotel in Angeles, Pampanga, August 20 – 21.

The workshop had four working committees, namely: Research, Development, and Extension (RDE), Capability Building, Tech Utilization, and Information Communication Technology (ICT). These committees have been conducting a series of meetings before the workshop, which were aimed at identifying the convergence areas of DA and DOST in their RDE efforts. The workshop was the venue to finalize the convergence and for the committees to jointly formulate strategies in the implementation of the committee outputs.

'Blood compact' for R&D

BAR Director William C. Medrano, in a message delivered during the opening ceremony, expressed optimism that the convergence will forge a relationship among the concerned institutions that is "tantamount to a blood compact". He also mentioned the urgent need to address the needs of the countryside.

"We have been individualistic with the tendency to protect our turf and compete for resources, prestige, and power. Today, I ask that all these be buried and become things of the past," Medrano added.

In his message, Executive Director Patricio Faylon of PCARRD supported the call of Medrano to unite, adding, "let the four organizations (BAR, ATI, PCARRD, & PCMARD) be part of the solution, not the problem." Faylon also called for loyalty to the mandates of the four institutions.

Director Rafael Guerrero reiterated PCMARD's commitment to the objectives of the convergence also called for the four institutions to 'combine strengths'. ATI Director Alberto Maninding expressed satisfaction that despite the budget issues dogging the department, efforts like the convergence workshop were not hampered.

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Inside...

SCIENCESCOPING

Seeing through the ARMMIARC

For those who are not within the circle of the regional integrated agricultural research centers, ARMMIARC is acronym for Autonomous Region of Muslim Mindanao Integrated Agricultural Research Center. Located at Simuay, Sultan Kudarat, Maguindanao, its building is a grant from the Bureau of Agricultural Research (BAR). Mr. Rolly Labios and Dr. Santiago R. Obien, (division chief and senior technical adviser, respectively) on institutional development are going there to discuss with the center manager the second phase of the development plan for the Center. I am at DA-PhilRice Midsayap gathering materials for a project I am working on.

"You want to talk with the Muslims? You can pack your things and we'll drop for you at 2:00," relayed Dr. Obien, text-style.

There is one more key person to interview but by two o'clock I have packed and I am ready. It is marathon work really and there is so much to know and plenty of materials to gather for the project to be substantial. I have crammed the two-day work into one, missing lunch and talking with people unto the night and very early in the morning. But if one has been under the influence of Dr. Obien for sometime, this work ethics is not unusual .We think that there is not always enough time but we always find time. Racing with time and winning the race is sweet and this makes all the difference in feeling fulfilled in one's job.

The two 'greats' in institution building and a bubbling Siya Belongan, assistant center manager of ARMMIARC, drop for me just long enough for a glass of ***buko*** *juice, courtesy of PhilRice-Midsayap branch manager Cesar Tado, from the coconut grove beside their guest house. We chug and speed away to Sultan Kudarat in a vehicle that has seen better days, then stop a while in a Mister Donut bakeshop for Dr. Obien to buy his* ***pasalubong*** *for the staff of the Center. When this* ***pasalubong*** *is given them when we arrive, we hear shouts of glee maybe not for the arrival gift but welcoming again someone like a homecoming hero. He taught them to plant rice not to shoot guns.*

Except for an old government building at its far left side, the ARMMIARC building inaugurated by Agriculture Secretary Lorenzo only last month, stands isolated and seems lonely but imposing. We alight in front of the gate where men and one lady are landscaping. Paradoxically, the lone lady is the security guard but she is not in her uniform. Late in the afternoon before we go to Cotabato City where we are billeted, I ask her if she knew how to shoot a gun. The men around answer for her, " She does not know how to shoot but she sprays." They all laugh wholeheartedly. Does this belie our perceptions of our brother and sister Muslims?

The land where the Center building stands is a Bureau of Plant Industry (BPI) property. A jumping distance at its left is an animal shed where they once have 23 cows. At the back of the building are uncultivated lands that slope downward into a sharp and deep ravine so that when a cow falls into it, it is eaten by snakes. Who dares go and retrieve the cow? Upward from the ravine is a mountain that could be terraced and planted to fruit or forest trees and root crops. Just in front of the building inside the perimeter fence is a newly graveled road. About a kilometer to the back is a clear and placid lake beckoning to be developed into an agro-ecotourism attraction. Outside the fence used to stand squatter houses that needed all the diplomacy the officials of ARMMIARC could muster to convince the owners to be relocated. When construction of the building began, the squatters relented and one by one the houses were also transferred with the staff helping them in whatever way they can. This could only mean that when the will is strong, something can be done. What used to be a forested area and holduppers' haven can be the seat of development. That is if officials are willing, they are committed, they have persistence to attain their vision, and in their heart is the nobility of purpose – to bring progress, which to them, has been elusive for all those years.

Daud Lagasi, ARMMIARC manager and his group with Macmod Mamalangkap, the manager of the Regional Fisheries Research and Development Center (RFRDC) and DatuTunggal Mastura, chief, Experiment Station Development, treat us to durian and crab whose ***aligue*** *is so hard, red,*

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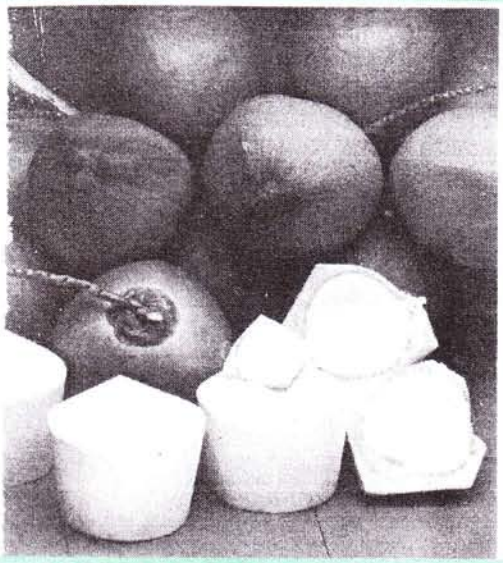
In celebration of Coconut Week

Coconut: More than just a thirst quencher



As part of its 2nd Coconut Festival, and in celebration of its 17th Coco Week, the Philippine Coconut Authority (PCA) held a forum on the health benefits of coconut, at the PCA Auditorium, August 27.

The day-long event saw three presentations on the health benefits of products from coconut. The presentations featured the *Natural Benefits of Coconut* by Dr. Conrado S. Dayrit; *Frequently Asked Questions about the Coconut Virgin Oil* by Ms. Merle A.Villanueva; and *The Nutritious Flour from Coconut* by Dr. Trinidad P. Trinidad.

In an inspirational message, Bureau of Agricultural Research (BAR) Director William C. Medrano reiterated BAR's commitment to provide resources for researches that can directly benefit the coconut farmers. "PCA, as a leading partner of BAR in this pursuit, will continue to receive financial assistance from BAR," pledged Dr. Medrano.

Department of Health (DOH) Assistant Secretary Dr. Juanito Rubio, in his keynote address, acknowledged the 'life-giving' promise of coconut, as it has been decades ago. He pointed out some of the benefits of coconut, citing the anti-fungal, anti-viral, and anti-bacterial properties of the lauric acid found in coconut oil. He also said that he appreciates the fruits of researches belying past misconceptions about coconut oil. This was one of the reasons why the coco-industry is suffering, he said.

Forum proper

Dr. Conrado Dayrit presented a comprehensive paper on the health benefits of coconut. He first touched on the hardships the coco-industry went through, and categorically blamed politics for those hardships.

He cited the coco-methyl ester, or coco-diesel, as complete fuel substitute or as fuel additive, that is anti-pollutant. Dr. Dayrit talked about *'bukolysis'* of buko water. He said buko water could reduce the size of kidney stones, by breaking up the enzyme that holds the stone together, making them easier to flush out of the body.

Coconut oil, he said, is the 'best oil in creation'. It is an immediate source of energy, especially for people involved in sports. He explained that coconut oil belongs to the medium chain triglycerides (MCT), a property that makes its conversion to energy faster. Coco-oil promotes weight loss, prevents bacterial, fungal, and viral infections, supports the immune system functions, and improves digestion for faster metabolism.

A farmer-leader from the crowd offered to help in the promotion of coconut oil in the countryside. This was after a fellow farmer gave a personal testimony on the effectiveness of coco-oil in curing fungal infections.

Dr. Trinidad P. Trinidad of the Department of Science and Technology (DOST) said the flour from *'sapal'*, a by-product of the coconut milk is a good source of dietary fiber and is comparable to other sources of dietary fiber like oat bran and flaxseed. It has also been shown to prevent chronic diseases.

She cited the results of this study to provide scientific basis in the development of coconut flour as functional food. Reviewing the definition of coconut flour and setting up an accreditation scheme for producers for product uniformity were among those suggested in the open forum.

Virgin coconut oil (VCNO), according to Ms. Merle Villanueva of DOST, can only be produced using fresh coconut meat. She added that, numerous studies show VCNO to be beneficial to the body similar to that of a mother's milk. Both contain lauric acid that helps in the fight against bacteria, viruses, and other pathogens. It also strengthens the immune system.

see Coconut Week... page 6

Medrano keynotes HARRDEC RDE symposium

Bureau of Agricultural Research (BAR) Director William C. Medrano was the keynote speaker during the *Regional RDE Symposium and Farmer's Forum* of the Highland Agriculture and Resources Research and Development Consortium (HARRDEC), La Trinidad, Benguet, 13-14 August 2003.

An annual activity of HARRDEC, the symposium focuses on the presentation of technologies and information for dissemination identified during the in-house reviews of the consortium-member agencies. It serves as a venue to disseminate research breakthroughs and significant findings as well as evaluate potential technologies.

According to Director Medrano, RDE has a lot to do in developing a market-oriented economy as it elevates the level of agricultural competency in the country. To be able to face the various challenges of this fast changing times, we need more technologies to transform the farm into a sustainable and highly profitable enterprise, he emphasized.

He stressed that R&D has a crucial role to play in achieving a technology-based industry that can address the key issues of food security, global competitiveness, productivity and income, and poverty eradication and people empowerment.

He posed three challenges to the participants. First, is to bring technologies to the ultimate users. He emphasized the need to strengthen the research-extension linkage by enlisting the cooperation of LGU partners to move cutting-edge technologies to the countryside. There is a need to make these technologies available to the clients so that they could benefit from them. He mentioned that in the final analysis, the success of any technology is measured by the number of people whose lives have improved because of it.

Second, he challenged the participants to make good use of the results of this symposium by initiating better measures to ensure the dynamic and timely delivery of R&D results. There is a need to improve the system and make it more efficient in supporting farmers and fisherfolk.

Finally, he stressed the need to do more applied research where results can be adopted by the farmers easily. A technology that requires a lot of skills and inputs from the user is not always a good technology, he said. He encouraged the researchers to stop doing research for research sake and waste resources in the end. He cited that what is need are simple, cost-effective and sustainable technologies that could make farmers globally competitive. He mentioned that BAR is initiating some reforms to re-orient its national R&D policies.

On top of its list of reforms is prioritizing strategic and applied research. These are researches should be strongly market-oriented, innovation-driven, and farmer-oriented. These are the two types of research that Director Medrano firmly believes could create direct impact on the farmers' and fisherfolk's productivity and income.

Another strategy he mentioned is networking with regional assessment institutes and other research organizations and good partnership with provincial extension centers, non-government organizations (NGOs) and key stakeholders to provide timely delivery and dissemination of newly generated technologies to the clients.

Participants during the symposium included technology generators, researchers, communicators, extension workers, policy makers, entrepreneurs, farmers, and representatives from the private sector and NGOs. *(Rita T. dela Cruz)*

World R&D

Vitamin E in *Bt* corn?

by Rita T. dela Cruz

Today, *Bt* corn takes another leap in the field of biotechnology as scientists and researchers from the Agricultural Research Service (ARS) of USDA developed a new method to increase the Vitamin E level in corn.

Vitamin E is a fat-soluble vitamin that exists in eight naturally occurring compounds that process activities in the body. Collectively, these eight compounds are called *tocols*. All these tocols have antioxidant activity. Antioxidant is the substance that protects the cells against the effects of the 'free radicals' that are potentially damaging by-products of the body's metabolism. These free radicals could cause cell damage and may contribute to the development of cardiovascular disease and cancer. Although there hasn't been any available study to confirm whether Vitamin E might help prevent or delay the development of chronic diseases, it has been associated with a number of beneficial effects like reducing the level of cholesterol and improving the health of pregnant women.

Vitamin E is naturally found in corn and other vegetable oils. Since *Bt* corn has long been developed and genetic engineering of crops has been taken to a higher level of producing better quality foods, scientists used it to increase its antioxidant level.

What the scientists did is to examine the pathway that would lead to tocopherols—one of the naturally occurring forms of compounds in Vitamin E. Tocopherols could be classified into two: the alpha tocopherol and the gamma tocopherol. Between these two, alpha was found to be more desirable for human and animal consumption due to its powerful biological antioxidant. Moreover, most of the breeding lines in corn have naturally much more alpha tocopherol, thus the breeding goal to increase Vitamin E level is much easier to achieve.

Using genetic engineering, scientists introduced an enzyme that could redirect the metabolic instability of the corn. The enzymes contained 10-15 times the total Vitamin E content of traditional corn varieties. As a result, the Vitamin E content in corn seeds was increased six-fold.

As of today, the new method is still being refined. Scientists are studying further some other attributes that could be beneficial to crop production like increasing the resistance of plants to oxidative stresses and in increasing its shelf life. ■

Sources:

*"**Scientists Boost Antioxidant Content of Corn**" by Sarah Graham (http://www.sciam.com/article)*
*"**Enhancement of Vitamin E Levels in Corn**" by Drs. Torbert R. Rocheford, Jeffrey C. Wong, et.al. Published in The Review.*

Bt gains popularity in the Philippines

Farmers from Dingras and Vintar, Ilocos Norte in the Philippines recently expressed the benefits they gained from planting *Bt* corn. They say that this genetically-modified crop has increased their harvest and profits. The farmers further stated that they liked planting *Bt* corn because it is pest-resistant, high-yielding, and the corn kernels are bigger than the traditional variety they used to plant.

These were the testimonials that farmers made during a recent media encounter sponsored by the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) Biotechnology Information Center held at the Mariano Marcos State University (MMSU) in Batac, Ilocos Norte.

Last February, the farmers were convinced to plant *Bt* corn by the Provincial Office of the Department of Agriculture(DA) and the provincial government. They

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769 new agriculturists DA Sec Lorenzo graces oath taking

A total of 769 new agriculturists filled the Fiesta Pavilion of the Manila Hotel on 27 August 2003 as they took their professional oath and were inducted into the Philippine Association of Agriculturists (PAA). The new batch of agriculturists successfully passed the first licensure examination administered by the Board of Agriculture chaired by Dr. Fortunato Battad, former president of the Central Luzon State University (CLSU).

The successful passers represent 22% of the 3, 467 agriculture students who took the exam in July 2003. The top schools for agriculture with the most number of passers are University of the Philippines Los Baños (UPLB) with the highest percentage of passers (98%), Leyte State University (LSU, formerly Visayas State College of Agriculture, ViSCA), 64%, Central Luzon State University (CLSU), 57% and Central Mindanao University (CMU), 42%.

Gracing the occasion was Department of Agriculture (DA) Secretary Luis P. Lorenzo, Jr. In his keynote speech, he stressed the importance of acquiring expertise and skills in ensuring the quality of agriculture as a profession and its modernization as an important factor in the country's economic development. A businessman, Secretary Lorenzo also emphasized the importance of entrepreneurship in the agriculturists' pursuit to expand their professional career along with promoting the economic growth of the country. Armed with their expertise and skills, the new agriculturists must not be satisfied by subsistence production but rather aim for increased production.

Other attendees were Professional Regulation Commission (PRC) Chairperson Antonieta Fortuna-Ibe, Philippine Association of Agriculturists (PAA) President Tomas Claudio, UPLB College of Agriculture Dean Candida Adalla, LSU President Paciencia Milan, and CLSU President Rodolfo Undan. *(Rita T. dela Cruz)*

Coconut Week...

The recommended daily dosage for VCNO, according to Ms. Villanueva, is three tablespoons, but this should be taken in small doses, especially for first timers. It may cause diarrhea, especially for people who are used to 'low-fat' diet.

Suggestions were made for the classification and grading of VCNO, the establishment of basis for pricing, marketing, and setting quality standards for VCNO.

The forum was conducted to create awareness on the contributions of coconut to human health; to identify the opportunities of coconut as a health product; and to mobilize partners in the development and promotion of coconut as a functional health product. *(Ma. Lizbeth J. Baroña)*

Bio-organic fertilizer...

drops to 35 degrees centigrade, the compost is ready for harvest. The compost is dark-brown to black and soil-like in appearance.

Before drying the compost, add the liquid enricher and incubate for five days. Air-dry the compost for one day so it will be easy to handle. Put the dried compost in sacks and store in shaded areas. If there are large particles, use a grinder to have a uniform texture of the bio-organic fertilizer.

Source:

SRA Recommends Bio-Organic Fertilizer. *A brochure published by the Industrial Projects Division of the Sugar Regulatory Administration*

BAR recieves 159 papers for the 15th NRS

The Bureau of Agricultural Research of the Department of Agriculture (DA-BAR) called for published and unpublished papers for the 15th National Research Symposium to be held on October 8-9, 2003. It received 159, 64 published and 95 unpublished.

Open to all Filipino researchers and member-institutions of the National Research and Development System on Agriculture and Fisheries (NaRDSAF), the annual symposium recognizes significant accomplishments in research and development and encourages the publication of research results by providing incentives for exemplary research performance.

The symposium is also one way of updating the country's reservoir of affordable cutting-edge technologies and information and encouraging more scientists to take a more proactive stance in generating technologies that could transform our farmer/fisherfolk into globally-competitive business entrepreneurs.

To be held at the Bureau of Soils and Water Management (BSWM), the finalists will present papers to compete for the AFMA Best R&D Paper Awards and the AFMA Outstanding R&D Paper Awards.

The finalists are the papers that garnered a rating of 80% and above during the initial evaluation by a panel of experts in their respective fields. Papers are grouped into either published or unpublished category. Specific categories are: agricultural engineering, processing and postharvest; crop science; animal and veterinary science; fisheries and marine science; and socio-economics. Aside from these specific categories they are further subdivided into upstream and downstream research.

The awarding ceremonies will be held the following day during BAR's 16th Anniversary and Recognition Day. *(Junelyn S. de la Rosa)*

DA, DOST converge...

Workshop Output

The four committees presented their respective outputs after the workshop.

In the establishment of a unified RDE Knowledge Bank, the ICT Committee placed fund sourcing as the priority convergence area. It planned to accomplish this by the last quarter of this year. After this, they will concentrate on other convergence areas they identified and prioritized. This include forming and maintaining the ICT infrastructure and facilities; putting up the knowledge component of the Bank; forming ICT policies on RDE; capability building of ICT experts and users; content building; and performance output.

The RDE subcommittee on agriculture recommended for a unified RDE agenda, and it suggested the R&D network to prepare the unified agenda. The network will compose of team members from various R&D institutions in the country. The subcommittee on fisheries, however, is aiming to unify the RDE agenda of 2005-2010 by the first quarter of 2004. They also want an integrated program planning, monitoring, and evaluation system and a streamlined R&D network.

The technology utilization committee will develop a convergence plan for priority commodities, and come up with a manual of operation, which they plan to accomplish by the last quarter of this year. Their convergence plan involves: a) enhancement of convergence centers; b) delivery and support services through info-tech assessment; c) capability building for service providers by converging with the HRD committee; d) content build-up of knowledge products services through a convergence with the ICT and RDE committees; and e) resource generation by developing proposals for fund-sourcing.

The human resource development committee or the capability building committee's action agenda include the creation of an inter-agency HR committee through a Technical Working Group on capability building with PCMARD. It plans to conduct strategic planning sessions; formulate an integrated HRD plan for the agriculture, forestry, and natural resources (AFNR) sectors; draft a uniform policy guideline and a uniform criteria for accreditation of academic institutions offering graduate study programs; and develop a monitoring and evaluation scheme. All these are to be accomplished before the fourth quarter of this year.

The event was attended by representatives from BAR, ATI, PCARRD, and PCMARD, including Director William Medrano (BAR), Director Alberto Maninding (ATI), Executive Director Patricio Faylon of PCARRD; and Director Rafael Guerrero of PCMARD. *(Ma. Lizbeth J. Baroña)*

Sciencescoping...

and thick that if your fingers are not firm and strong, it takes you a long time extracting it and you would not enjoy your meal in a group of highly masculine species. (This has many times been the case with me, the lone woman who also enjoys being pampered by gentlemen. But the pampering at times makes me uneasy.)

A very grateful Daud says that they have not been in the mainstream of events for the past five years but he regularly corresponds with BAR. Now, he has a building, 51 staff (36 plantilla and 15 casuals), a vehicle,(nay two vehicles, the other one is a new bus),enthusiastic staff, communication facilities, etc. etc. As if to make up for lost time, they have lots of techno demo projects on rice and corn. They have on-site trainings for farmers braving the possible 'sprays'.

They have linked with the Japan International Cooperation Agency (JICA) and requested part of the ARMM Social Fund for a plant nursery, building complex that will house a farmers' training center, dormitory, conference hall, and cafeteria.

Not to be outdone, Macmod and officials of the BFAR Regional Field Office negotiated for a 10-hectare water area for their projects on fisheries with the Philippine Ports Authority (PPA), which they were graciously granted. He brings us to the area for Rolly to see the configuration for plans of development. On the way our mouth water as they talk of fresh water shrimps as big as an arm. Can somebody beat that? I cannot even believe but who is Rolly not to be believed? In fact, he gives us a sample of the shrimps (although smaller ones) from what he buys from the Cotabato City market on the early morning we are flying back to Manila. What a treat to the sweet and fleshy flesh!

The 15th region of the Philippines, composing of Lanao del Sur, Maguindanao, Sulu, and Tawi-tawi, the Autonomous Region of Muslim Mindanao (ARMM) was created on November 6, 1990 under then President Corazon C. Aquino. It has a population of about 2.5 million with one in every 10 a Muslim and seven in every 10 literate. It has four airports (2 secondary, one feeder and one trunk line) and 36 ports, with one international port of entry. It is blessed with abundant year-round and evenly distributed rainfall throughout the year and is generally spared from typhoons. Its comparative advantage lies in agriculture and fisheries with its vast tracts of uncultivated lands and marine resources. Almost all agricultural crops can be grown in the region and is home to exotic fruits like durian and mangosteen. Its hills and grazing lands make livestock raising a profitable industry. Sulu is the world's richest fishing ground with pearls from its deep blue sea. Seventy two percent of the country's seaweeds are found in Sulu and Tawi-tawi.

With ARMM's potential and with people like Daud, Macmod, Mr. Nasar Solmani, regional security of agriculture and ARMM Governor Parouk Hussin, other officials and their staff, can progress be far behind? ***VAD*** ■

Detecting chemical...

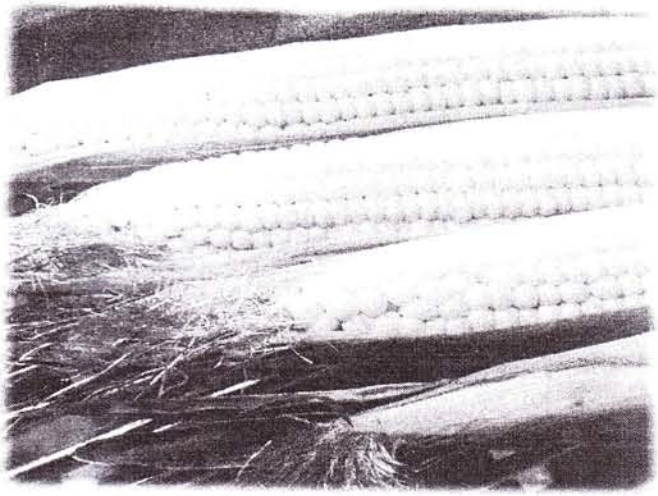
Dr. Evangeline C. Santiago

chemical that bonds with and removes free metal ions from solutions) of the digests before AAS analysis can satisfy the requirements on the detection limit and precision. Full validation of the modified method is recommended before it can be used to analyze lead in tuna."

The full validation of the modified method is recommended before it can be used to analyze lead in tuna. "Since AAS is a common instrument and is available in laboratories, BFAR is already training their analysts on this method," Santiago added. There is no reference laboratory yet for this method.

Can local laboratories comply with the requirements for trade exports? For the meantime, Santiago explained, local laboratories are using the AOAC method. Their methods will not be acceptable (in international standards) since unspiked tuna samples analyzed would have no lead detected because AOAC has a low method detection level.

Tuna industries do not support the analysis of lead and instead proposed the removal of the regulation level. This cannot be done, however, since it is a requirement in international trade, Santiago said. Since CODEX wanted to lower the regulation level of lead in tuna (2 ppm for trace metals), the formation of a reference laboratory for trade export is subject to the technical capabilities of analysts. ■



Bringing in China's super hybrid corn

by Rita T. dela Cruz

For years, our country has been producing new varieties of corn to increase the country's corn production and to improve the quality of seed materials that are currently available to farmers. However, production did not increase. Aside from the decreasing areas allotted for corn, a noticeable dip in production continues to take place particularly during the height of the El Niño and La Niña phenomena.

Hua Lung No. 1: The super hybrid

Hua Lung No. 1 is China's super hybrid corn and the country is mulling over the possibility of importing some seed samples to test its adaptability to our local farms.

The super hybrid corn could grow up to three meters high and could yield 25 tons of grain per hectare. It could produce a total of 75 tons of herbage per hectare that could be processed into forage. This could be a cheap source of feed for livestock.

The super hybrid corn could produce eight times more than the current average yield of corn in the country, which is only three tons per hectare. Its yield is three times more than that of the highest yield (eight tons per hectare) ever achieved by any hybrid corn variety developed in the country.

The super hybrid corn was developed at the Hua Pei Agricultural College in Changchun City, Jillin Province of China. Although the place belongs to semi-moist climate, the developed hybrid flourishes even during the dry season due to its resistance to drought.

Tremendous effect

Due to the super hybrid corn, Changchun City has been producing 40% of China's over all corn production. The city has loads of surpluses that they sold in the world market.

Since the hybrid is not easily attacked by pests and not susceptible to corn diseases, farmers need not spend more for pesticides and other chemical products although they need a few of these for maintenance.

Corn is a very important crop in the Philippines. It is the staple for 20% of the Filipinos and constitutes about 50% of the feeds for the livestock and poultry industry, contributing 28% of the total value of the national agricultural production.

With the promised benefits of the super hybrid corn, Department of Agriculture (DA) Secretary Luis P. Lorenzo said that they are now looking for ways to bring in the *Hua Lung No. 1* to Philippine soil and explore the possibility of acquiring it for local propagation.

So if proven adaptable to Philippine soil, China's super hybrid corn can surely increase corn production in the country. ■

Sources:

1. "Philippines Eyes China's Super Hybrid Corn" report by Pulse Asia, August 25, 2003. *(http://sg.biz.yahoo.com/030825/16/3dncv.html)*
2. "Field Trials Mulled For Super-Hybrid Corn From China" report by Philippine Star, August 24, 2003. *(http://www.philstar.com/philstar/Business200308304501.htm)*

Bt gains popularity...

wanted to pilot-test the Bt corn on 10 hectares. The farmers were given soft loans to procure Monsanto's YieldGard variety, fertilizers, and contract the necessary labor.

The Provincial Office of the City Veterinary and Agricultural Services in Batangas has declared that *Bt* corn is safe for human and animal consumption, and does not pose risks to the environment.

A risk management study headed by Dr. Saturnina Halos, Agricultural Biotechnology Advisory team chairperson, was also conducted in accordance with the Department of Agriculture Administrative Order No. 8, which served as the basis for the government to allow the planting of *Bt* corn. According to Halos, *Bt* corn is just as nutritious and healthful as other native varieties and does not bear allergens. *(BIC Press Release)*

Detecting chemical contaminants in canned tuna and rice

by Likha C. Cuevas

We have lead and cadmium in our food?

Yes, and our food like the canned tuna that we export and rice must be analyzed to determine if they contain these contaminants. Dr. Evangeline C. Santiago of the Natural Sciences Research Institute (NSRI) at the University of the Philippines Diliman (UPD) discussed this topic in the seminar on, *"Identification and Initial Validation of an Analytical Method for the Determination of Lead and Cadmium in Fish (Canned Tuna) and Rice Samples to be used for Monitoring and Regulatory Purposes,"* on August 6, 2003 at the Bureau of Agricultural Research (BAR) CERDAF Conference Room. This seminar has been organized by the Product Quality Systems Network (PQSN) and co-sponsored by BAR.

According to Dr. Santiago, cadmium and lead are metals with no known role in metabolism but have been involved in historic poisoning episodes of human populations and wildlife resulting from contaminated food and prey. They are introduced to the environment by human activities usually from mining and metal industries and from leaded gasoline. These metals that are released into the atmosphere, may settle with dust particles on plants and crops or may find their way to the soil and coastal and river waters and sediments.

Cadmium may be present in big amounts in soil fertilized with sewage sludge. The toxicity of cadmium includes the direct binding of this contaminant with the negative groups of DNA to produce precursors of tumors. Lead, on the other hand, is deposited on and retained by crops, particularly leafy vegetables and fruits. Fish are contaminated by lead that ranges from 0.1 ppm and up to 0.8 ppm for shellfish. Canned goods are also contaminated through leaching of lead solder in cans while others get contaminated from lead glazes in pottery and ceramic ware.

Lead accumulates in the body over a lifetime and the body releases it slowly. Over time, even in small doses, this can cause lead poisoning with impairment of the nervous system as one of its effects. To prevent these from happening to consumers, monitoring contaminants in food for trade and regulatory purposes has to satisfy the criteria for data quality set by CODEX. CODEX specifies a set of criteria for acceptability of the method in analyzing a specific contaminant in a particular matrix.

The study that Santiago and her team of experts regarding lead and cadmium contamination analysis validated an analytical method that meets the CODEX criteria for analysis of lead in fish and cadmium in rice in three selected local laboratories under a supervised inter-laboratory analysis program. The supervised laboratory program then used a set of documented test procedures and test materials to eliminate as much variability between laboratories.

The study showed that the analysis of cadmium in rice using the standard AOAC procedure involving dry ashing and direct aspiration in Atomic Absorption Spectrophotometry (AAS) for monitoring and regulatory purposes can be done at the Institute of Chemistry (IC) at the UP Los Baños (UPLB), Philippine Institute of Pure and Applied Chemistry (PIPAC) in Ateneo de Manila University, and the Research and Analytical Services Laboratory (RASL) of NSRI. The research team, however, concluded that the analysis of lead in canned fish in these local laboratories using standard AOAC method does not satisfy the requirements of CODEX/EU for the detection limits and precision of the analytical method for the specified regulation level of 0.5 mg/kg lead.

Santiago said, "the laboratory at NSRI showed that modification of the method by *chelation* (the process of forming a ring with one or more hydrogen bonds with the use of organic

see Detecting chemical... page 8

Bio-organic fertilizers: cheap soil relief

by Junelyn S. de la Rosa

An innovative, eco-friendly technology to convert sugarcane by-products into bio-organic fertilizers has been developed by scientists from the Sugar Regulatory Administration (SRA). Bio-organic fertilizers are promoted as cheap alternatives to restore soil fertility of poor degraded soils.

Poor soils are a result of intensive agriculture, slash and burn methods, pesticides and chemicals, mining, and urbanization. These practices degrade the quality of our soils and result to low yields and low productivity.

The scientists use sugarcane by-products like bagasse, mudpress, slops, and ash from sugar factories and alcohol distilleries. Bagasse is the pulp or dry refuse left after the juice has been extracted from sugar cane while slop is what remains of the mash after an alcoholic beverage has been distilled. The technology has shortened composting time from six months to 4-6 weeks.

Transforming these by-products into bio-organic fertilizers is a welcome option since these waste materials can be serious health hazards to communities around the factories.

Materials for compost pile

First, you need an activator. This is a liquid concentrate of cellulolytic fungi such as *Trichoderma koningii, T. resii, T. viride, T. harzianum* and *Phanerochaete chrysosporium*. These organisms are cultured in liquid media such as rice bran decoction, coconut water, and slops.

Next, you need plant residues such as cane trash, bagasse and mudpress, wastes, and manure. Among the sugarcane by-products, mudpress contains the highest amount of nutrients but these nutrients are organically bound which means that they can only be released to the soil with the aid of fungal microorganisms.

The fungal organisms in the activator degrade plant residues to make the nutrients available. Manure and green leaves are added to the compost pile as these are rich sources of nitrogen needed to sustain the growth of the microorganisms.

To hasten the composting process, you need an acidified solution (distillery slops and furnace ash) containing phosphates and ammonium sulfate.

The recommended mixture is 2:1:1, that is two parts mudpress, one part bagasse and one part manure and green leaves. A 1% activator and 0.5% ammonium sulfate constitute the most essential ingredients for the compost pile.

Compost 'activator' is available at the SRA Applied Microbiology Laboratory upon advanced request. Interested individuals can also sign-up for a short training course on how to produce the 'activator' at the same laboratory.

Making the compost pile

First, prepare layers of bagasse, mudpress, green leaves, manure, mineral matter and activator using the recommended proportion. Continue layering until the pile is three feet high, five feet wide and ten feet long. Make sure that there are enough green leaves for the nitrogen needs of the microorganisms.

Keep the compost pile moist but not too wet. Too much moisture can delay decomposition. Cover it with laminated plastic or canvas and let it stand for five days. Turn over the pile and sprinkle with the acidified solution every three days after the first five days. This is done to allow adequate aeration and mixing of the materials. For the composting to be successful, maintain the acidity of the compost pile from 5.7 to 6.2 pH.

Temperature of the compost should rise to 65-70 degrees centigrade within 2-3 days. When the temperature

see Bio-organic fertilizer... page 6

ICRISAT DG presents successes *vis-à-vis* vision

The Consultative Group on International Agricultural Research (CGIAR) has so far awarded four King Baudouin Awards, the most prestigious international award in agricultural research. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has won it three times.

ICRISAT Director General William D. Dar, in his *Investment in ICRISAT Benefits the Poor* presentation at the CERDAF Boardroom on 1 August 2003, explains why.

Dr. Dar first made a clear correlation between agricultural research and poverty reduction. He reported that globally, a 10% increase in crop yield led to a 6-10% reduction in the proportion of the absolutely poor. In Africa, a 10% increase in crop yield led to a 9% reduction of the proportion of the absolutely poor in the region. Moreover, the Green Revolution in India increased real income by 90-125%.

This case of successes in poverty reduction was the backdrop of Dar's report on the achievements of ICRISAT.

Tangible successes

Dr. Dar named some of their successes in working with farmers in Asia and Africa.

In the 70s and the 80s, when the pearl millet hybrid was almost virtually wiped out by downy mildew disease, ICRISAT, along with local agencies, helped salvage the hybrid. They came up with the Disease Resistant Pearl Millet, which won them their first King Baudouin award.

ICRISAT left a clear trail of success in Africa, through the rosette resistant groundnut and the Macia variety of sorghum. The groundnut, sold to feed their families, helped African women back on their feet. The Macia, a variety of dwarf sorghum, is the choice of South African farmers.

In Asia, ICRISAT's fusarium wilt resistant pigeonpea variety, has brought millions of dollars to farmers in the Karnataka Region in India. This variety is also the world's first pigeonpea hybrid.

Certified seeds in packets were also made available to the rural areas by introducing them to schools. Children earn extra income selling them to neighbors. Moreover, ICRISAT also introduced planting legumes in rice/wheat fields to the Bangladeshi farmers for increased income. It played a key role in bringing legume crops to South African farmers, who had traditionally planted cereals.

According to Dar, ICRISAT will continue making changes for the rest of the decade, guided by its vision of scientific excellence and impact. Dar put emphasis on *impact*, saying it is the 'bottomline' of any research. Furthermore, the institute envisions improving the well-being of the poor by taking the livelihood approach in introducing the fruits of agricultural research. It also sees increased partnership with other institutions, and sees itself playing a role in the transformation of subsistence farming into self-reliant farming, and eventually into commercialization; and establishing a market linkage system a form of a business tool for farmers.

ICRISAT is based in Andhra Pradesh, India, and its director-general, from Sta. Maria, Ilocos Sur, was one-time BAR director and secretary of the Department of Agriculture in the Philippines. *(Ma. Lizbeth J. Baroña)*

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