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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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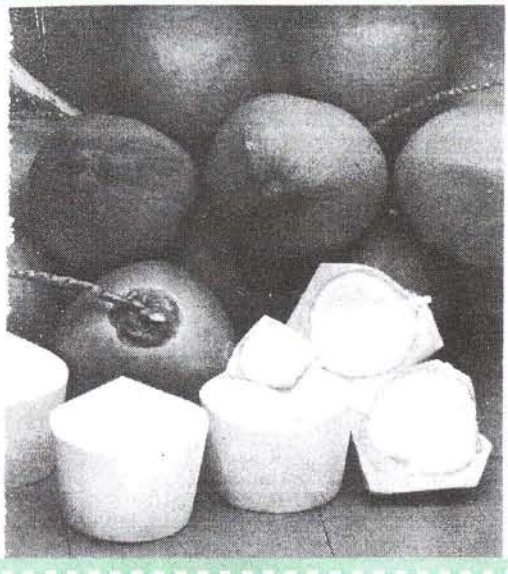
In celebration of Coconut Week

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...

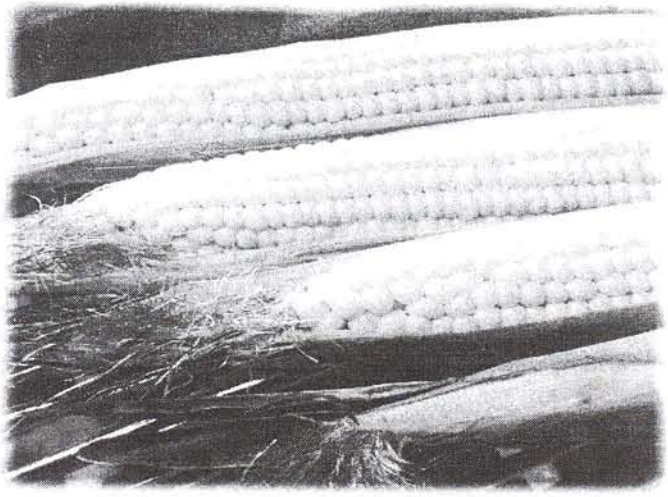
Dr. Evangeline C. Santiago

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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