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On-farm research accelerates technology transfer

Applied research conducted at the farmers' fields and managed by the farmers allows them to see for themselves the comparative advantage of the technology being tested over that which they presently practice. And if they can observe that it can give them higher yield and better quality product with the same input, then it would be easier to convince them to adopt the technology, thus, technology transfer can be hastened.

This is the main thesis of BAR Director Eliseo Ponce's topic "*Accelerating Technology Transfer in Agriculture and Fisheries: The OFR Program of DA-BAR*" during the seminar-workshop on Effective Linkage with Local Government Units to Modernize Agriculture held in

Antipolo City recently.

OFR is on-farm research to test a site-specific technology. It is conducted in a specific area to: a) develop technologies that are responsive to the needs of the users; b) accelerate technology transfer from research station to farming/fishing communities; c) shorten the time from technology development to technology adoption; and d) provide mechanism for effective interface between research and extension.

There are major considerations in designing OFR, according to Dr.

Ponce. First, it should focus on farmers' priorities. These priorities can be identified through a participatory rural appraisal which is the first step in the system's flow. Focused group discussions are conducted with the farmers to identify their technology needs and priorities as well as the available resources in that particular community. This is also one way of getting the farmers' commitment because they are already involved even at the very beginning. Second,

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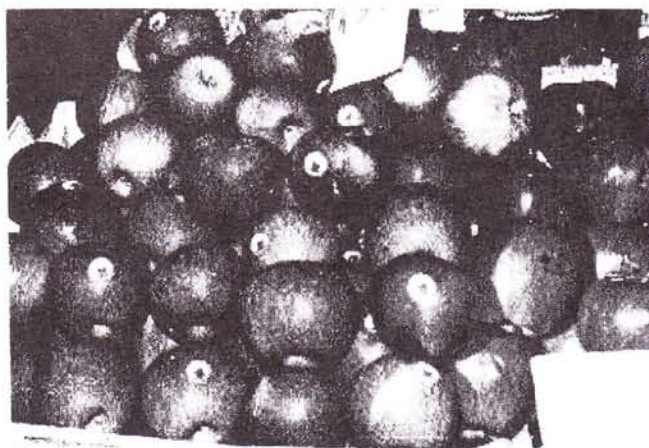
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DA bans importation of apple and other fruits from China

Department of Agriculture (DA) Secretary Leonardo Q. Montemayor has issued Administrative Order (A.O.) No.22 to temporarily ban the importation of apples and other fruits from identified places in China. As stated in the A.O., the decision came in October after the Plant Quarantine Service under the Bureau of Plant Industry (BPI) intercepted the quarantine pest of apple called 'codling moth' (*Clydia*



pomonella L.) in several shipments of apples from China.

Other banned fruits include pear, apricot, peach, plum, quince, cherry, almond, walnut, ornamental apple and corn. The A.O. specifies the

see DA, page 8

More on technology transfer

Now and again, we hear that the inadequacy of research results or technologies to improve agricultural productivity is not the problem but more on whether or not these technologies reach the intended users. Simply, this means that the research institutions have not been remiss in their function of generating technologies. Proof of this is the bulk of paper presentations during R & D symposia, annual research planning reviews of the country's research consortia and other fora and publications such as technical journals.

After the presentations where do the technologies go? Who takes over? What is the mechanism to make these technologies move from research to training, extension, and ultimately to the farmers, fisherfolk, rural women, out-of-school youths and whoever are the users? Are the roles and responsibilities clear to those who are supposed to move these technologies to the users. Are they involved when there are paper presentations so they would know that there are existing technologies which they now should translate for the users. What are the institutional, structural and functional arrangements. The functions may be very clear in the Agricultural and Fisheries Modernization Act but since the transfer of research results, information or data involves movement from one institution to the other there has to be some mechanism to do it.

I remember the smooth transfer of technology from research to the farmer's fields in the case of the tobacco commodity. Before 1985, there were seven agencies working for tobacco. This only shows the economic importance of this crop to the country during those times.

(And rightly so, all families in the tobacco producing provinces of the country benefited from this crop as found by an impact evaluation). There was an agency in charge of research, training and communication for all tobacco types, two on extension and marketing for different tobacco types and other agencies. With this set-up there was overlapping and duplication of functions, jealousy and institutional imperialism. This flaw was soon corrected with the stroke of a pen (borrowing Dr. Obien's phrase) and all the tobacco agencies were merged into one. Of course, there was the consequent raw emotions and feelings of being the underdog but in due time these were erased and the qualified staff were soon leading in the different functions although the right positions were not given to them. In the end, the right people were placed in the right position and the merged agencies began to work as one.

Actually, our problem then was the identification of the technology that is supposed to be given to the farmers because the agencies mandated to do extension and marketing also had their own research. But I remember that a mechanism was worked out such that we, in research had to work cooperatively with those in extension in conducting on-farm research and technology demonstrations. A Technology Development and Transfer Division (TDTD) was in charge of this activity. Jokingly they were called **travel dito, travel diyan (tddd)** because they were really traveling a lot going from one site to another throughout all the tobacco growing provinces in the country.

The researchers together with farmer-cooperators and extension workers establish the on-farm research. Under the guidance of the researcher, the farmer and extension worker gather the data which will then be analyzed by the

researcher. Throughout the cropping season, neighboring farmers are invited during the crop's various growth stages to discuss the effect of the technologies we wanted to demonstrate and disseminate. They are warned, however, that a research is still being undertaken so the farmers would understand when the technology would not work as expected. In this case, the farmers are already involved in the evaluation of the technology. We also made it a point that the on-farm research is surrounded by ordinary farmers field so the farmers can make comparisons and see the effect of the technology.

The establishment of the techno demo farm is different. The technology that we show here should be 100 % successful or else research and extension are failures and credibility is forever lost. Also, this is now the function of training, communication, and extension. But like the on-farm research this is also used as the field school wherein the farmers learn and interact with the extension workers, trainers, and their fellow

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Understanding a total production system

■ Virginia A. Duldulao

"The paper I presented during the National Research Symposium is very simple. It is the synthesis of a series of experiments we had been conducting since 1993 to 1999. We characterized the nitrogen dynamics of different cropping patterns such as the seasonal distribution of nitrate and ammonium, determined how much nitrate and ammonium are in farmers' fields before and after each crop. Then we tried to find out what can be done to prevent the downward movement of nitrate. Remember that nitrate can contaminate our groundwater. We also found cases of infantile *methemoglobinemia* in the test site where the farmers applied fertilizers weekly. This is impaired respiratory system among infants or simply "blue babies". One cause of this is too much nitrate in drinking water and we assume that this is due to the too much fertilizers being applied by our farmers. Finally, we tried to determine the most efficient fertilizer rate so the farmers do not spend unnecessarily."

Dr. Epifania O. Agustin of the Mariano Marcos State University (MMSU), Batac, Ilocos Norte, talks of her winning paper, "Rainfed lowland rice-based cropping system of Ilocos Norte: Show window for future diversified and cropping systems." This won for her and her co-authors, who are from the International Rice Research Institute (IRRI) and MMSU, the AFMA Outstanding R&D Paper Award (Unpublished) Crop Science Midstream/Downstream category. This is a project of the Rainfed Lowland Rice Consortium of the Philippine Rice Research Institute (PhilRice), IRRI, and MMSU.

The study seems simple but the knowledge product generated has great applications to our rice-based production systems especially in areas where diversified farming is practiced. Moreover, the farmers can control the leaching of nitrate

into their groundwater which is also their source of drinking water.

The researcher assumes that if the biophysical environment is conducive to intensification, rainfed rice production systems in other parts of Asia may also change overtime and acquire the essential features of the production systems of Ilocos Norte where the experiments were conducted. Moreover, production systems will be commercialized and diversified as access to market improves. Thus, this production system can be a model for other areas and countries that have similar characteristics with that of the province where the experiments were conducted.

Characteristics of the area

Ilocos Norte has four major ecosystems but most of the agricultural activities are concentrated in the central lowlands. Rice is the most common crop during the rainy season and planted in about 60,000 ha. The province practices a highly diversified cropping during the dry season. The farmers grow various food/cash crops such as tobacco, garlic, mungbean, onion, sweet pepper, and tomato. Melon, vegetables, and corn are sometimes planted as monocrop or intercrop. All these are watered from groundwater irrigation. The farmers intensify their production system by applying greater amounts of inorganic fertilizer, irrigation and pesticides to the cash crops.

The cropping patterns practiced include: rice-tomato-corn; rice-garlic-mungbean; rice-mungbean-corn; rice-sweet pepper-corn; rice-tobacco; rice-garlic-corn; rice-tomato; rice-pepper; and rice-garlic. This system intensifies the use of the land and may not be sustainable if the farmers do not understand what happens after each crop.

What's in the cropping system?

"At the start, we characterized the nitrogen dynamics of the different cropping systems and found that there



is too much nitrate left after each crop. While this nitrogen can also be lost in the atmosphere, most of it is leached down, Dr. Agustin explained.

"Our problem, therefore, is to prevent the downward movement of nitrate so that it does not contaminate our groundwater. There is one barangay that is planting pepper after rice and the farmers fertilize their plants weekly, so you can imagine how much fertilizer that is.

In the next study, we planted nitrate catch crops that would use the nitrogen left after rice or during the dry to wet transition period (DWTP). We tried corn, indigo, and mungbean. We found that corn efficiently used the fertilizer at the upper layer of the soil at 15 to 30 days after planting and indigo at the lower layer beyond 30 days after planting. Indigo, however, can not give the farmers any income so they may not like to plant it. But if we can only convince them that this is a good source of nitrogen for their rice plants and can enhance soil texture then this can help in sustaining agriculture."

Dr. Agustin recommends the planting of both corn and indigo to reduce the leaching of nitrate

see Understanding, page 7

SRA researchers present new use for sugarcane

■ Laarni C. Anenias

There are many ways to make the most out of our depleting natural resources, if we really put effort to it. Multiple use of natural resources is one option. Like coconut, the tree of life, there are many other plants that can be fully harnessed – from their fruits, stems, flowers, roots, even down to what one might consider as rubbish.

In a recently completed study by the Sugar Regulatory Administration in Bacolod City, the researchers examined the possibility of using silage from sugarcane in producing fishfeed that could equal commercial feeds in terms of nutritional value.

The study intended to establish the advantage of using silage over rice bran, the leading commercial feed ingredient, in terms of its nutritive value and storage. The researchers believed that silage as a raw material in the production of fish feeds could be efficiently utilized if its nutritive value is established.

Moreover, with the intense competition with foreign feed manufacturers, local producers need to find ways to lower their cost of production. Silage from sugarcane can be used as a cheaper substitute, and consequently, lower the prices of locally produced feeds.

Cane tops and bagasse, (the by-product after the juice in sugarcane is extracted) are chopped, and ensiled (placed in a container and allowed to ferment). This is done to make cane tops and bagasse digestible for fish. Additives such as NAOH, urea, and molasses are added then stored at 300°C or at room temperature for best results. The silage should be maintained at 9-12 percent moisture. After 30-35 days of storage, silage is dried and

ground into powder form, then analysed for its nutrient components.

Now, in preparing the fish feed, these ground silage are mixed with fine granules of soybeans, and dried and powderized prawn heads. These added ingredients serve as main sources of nitrogen. Then, this mixture is subjected to pelleting and extrusion process. This process entails putting a binder to the mixture to hold them together, then these were passed through the pelletizer. These are placed in steel trays and put to a furnace. These feeds are then tested in bangus, grown in aquariums, for one month.

The results

The silage was analysed for crude protein, fiber, fat, moisture, and ash contents. The analyses revealed that the feeds are suitable for bangus, tilapia, hito, and other types of fish since these can tolerate the feeds' relatively high fiber content. Although still within the suggested level of fiber content for fishfeed at 7%, these would not be suitable for prawns since these cannot tolerate a fiber content this high.

These feeds' crude protein, crude fat, nitrogen free extracts, and ash within the prescribed levels for commercial feeds. The study recommends the use of sugarcane tops, bagasse, cane leaves, and molasses in feed formulation as 15-25% substitutes. Analyses conducted by the researchers revealed that these feeds can adequately supply the nutrient requirement for vitamins, fiber, and minerals of fish. Antioxidants that are also abundantly found in molasses improved the shelf-life of feeds and together with vitamin C, can give fish and other aquamarine animals resistance to diseases.

Results likewise indicated



that the feeds remained stable in water for 24 hours. The researchers explained that pelleting enhanced the feeds' stability in water. Researchers further observed that feeds not subjected to pelleting easily deteriorated and polluted the water. These fish feeds likewise qualified in the standards for digestibility and palatability.

The researchers estimated the total cost of this formulation at P42/ kg, much cheaper than the cost of commercial feeds at P75/kg. At an estimated P32,000 net profit per ton, a local producer of this feed formulation can gain a net income of P392,000 per year. The researchers estimated the pay back period in about one year, with a 93% return on investment; a very nice figure that entrepreneurs could be interested at.

And so, this brings a whole new dimension to the adage, "there is money in garbage." With the bright prospects this study presents, now "there is money in silage." ■

(Source: Paper on "Value added silage from sugarcane by-products for fishfeed production," by Teresita O. Macuro, et al, of the Sugar Regulatory Administration in Bacolod City. For more information, please contact SRA's Manila office c/o the Industrial Projects Division, Sugar and Sugar By-Products Utilization Department, Annex Bldg, North Ave., Diliman, QC or call telephone numbers 926-7227 or 926-7006)

70-year old lady is outstanding rice farmer

■ *Junelyn S. de la Rosa*

This year's Gawad Saka awardee for Outstanding Rice Farmer is a 70-year old widow from Sta. Cruz, Davao del Sur. Four decades ago, Mrs. Luz Lozada or Nanay Luz was more at home in the kitchen whipping up delicious meals for her successful *carinderia*.

But when a fire razed her *carinderia*, the family decided to try farming as their means of livelihood. Trying to put food on the table at the same time sending her eight children to school, the couple desperately wanted to learn their new trade fast. They attended trainings and seminars on farming techniques and new technologies.

When her husband died in 1963, Nanay Luz took over the responsibility of looking after their

farm. Quick to learn, she was open to new ideas and farming techniques. In 1997, she participated in the Integrated Pest Management Kasalikahan Program and got interested in the new method of farming.

Today, her rice farm is one of the model farms that are regularly visited by Department of Agriculture (DA) personnel, extensionists and other farmers. Practicing IPM, Nanay Luz managed to harvest twice a year without using a lot of harmful chemicals and pesticides.

When DA introduced certified seeds in 1988, she was among the pioneer farmers who were enthusiastic about the benefits of planting hybrid rice. Today, she is happily harvesting 10.4 metric

tons of rice per hectare compared to national average production of less than four tons per hectare. Her fellow farmers have noted her success and they usually visit her farm to ask for her advice on certified seeds, natural enemies of rice, fertilizers, and other related topics.

Nanay Luz also devised a management technique to control golden apple snail or kuhol by using them to control weeds.

Today, Mrs. Lozada should be enjoying retirement but this feisty grandma is still working eight-hour days, seven days a week. When asked if she'll ever consider retirement, she said, "Not in another five years", and she even asked me, "Do you consider something you enjoy doing as work?" ■

Fisheries RDE network adopts new system in policy-making

Managers and policy makers of fishery and marine resources will only need a computer and a CD to carry out effective planning and decision-making for a more sustainable fishery industry.

This is the concept of the newly developed knowledge-based systems for fisheries management which was symbolically turned-over by the Fisheries RDE network to President Gloria Macapagal-Arroyo during the Farmers-Fisherfolk Day celebration in October.

These relevant computer programs packed in CD-ROM are designed to address the specific needs in fisheries management with focus on establishing a monitoring and evaluation system of potential marine fishery reserves in the country; fast access to information

on Fisheries Code, National Integrated Protective Area Systems (NIPAS), and other relevant laws including barangay and municipal ordinance; and information about illegal fishing

practices through identification of destructive gears and methods.

This system is designed to make monitoring of coral cover and fish abundance fast and easy because all the needed parameters are presented and interpreted in a comprehensive way. The benefits of this program also help the Local Government Units (LGUs) enforce



the implementation of regulations for coastal management. Moreover, municipal ordinances specifically designed for a given locale can be automatically generated.

The program targets a speedier implementation of the Fisheries Code in each of the 800 coastal communities all over the country. (*Mary Charlotte O. Fresco*)

How to keep the Songs playing

■ Rita T. dela Cruz

Commonly used as filler and florist greens in flower arrangements or as centerpieces in landscape designs, the "Songs" (*Pleomele reflexa*) really give splendid effects. Two popular varieties of this foliage plant are the Song of India and the Song of Jamaica. These two perennial, woody shrubs are both native to Sri Lanka and South India.

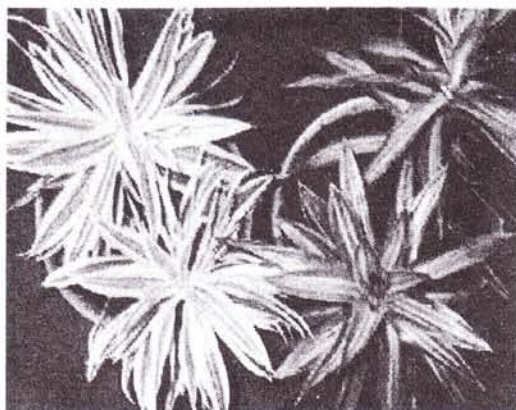
One would hardly miss the lively and magnificent colors of these ornamentals. Whether alone or with other colorful flowers, Songs are simply eye-catching. The Song of India has leathery, dark green leaves with wide bands of golden yellow at the edges. Meanwhile, the Song of Jamaica, has dark green leaves with a tinge of pale green at the middle.

As the Songs become more and more popular in the flower and landscaping business, the demand for commercial production continues to increase. And to keep these Songs playing, such demand must be met.

Scientists from the Institute of Plant Breeding (IPB), University of the Philippines Los Baños (UPLB) have identified three important techniques in mass

propagating Songs. These techniques are specifically identified to produce uniform planting materials that will likewise produce roots with faster and higher rate of survival.

The *kulob system* is a technique employed by enclosing the



cuttings of the plant with polypropylene (a thermoplastic substance that is a synthetic polymer of propylene) plastic and sealing it with rubber bands. The rooting medium is composed of burnt rice hull and sawdust.

The plastic tent is a technique used for large-scale production wherein the cuttings are fully enclosed in a polyvinyl plastic sheet (a plastic material made from vinyl polymer),

and similarly uses the principle as the *kulob system*. The enclosed cuttings must be placed under partial shade to keep the medium moist.

Misting is another technique widely used throughout the world. Growers plant the cuttings in raised benches or frames, the cuttings are then sprayed with water through nozzles installed in a distance. To lessen stem rot that may be enhanced by this technique, growers need to cut holes at the bottom of the bags or pots to allow the plants to release excess moisture.

The purpose of these three methods is to produce roots in a short time. When the roots are already established, which usually takes two to three weeks, the rooted cuttings are ready for transplanting.

Identification of the techniques was made possible through a project under the Integrated Ornamental Horticulture R and D Program (IOHRDP) of the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development-Department of Science and Technology (PCARRD-DOST).

(For more information, please contact Dr. Simeona V. Siar and Mr. Herminio C. Jalotjot, Jr., Institute of Plant Breeding, University of the Philippines Los Baños, College, Laguna 4031, Tel. No.: (049) 536-2298; 536-3304 Fax No.: (049) 536-3438.)

On-farm...

the interventions should address the problems that limit productivity/income faced by a large number of farmers. In this way, majority are helped and thus, a greater impact. And thirdly, the technologies should be socially acceptable, technically feasible and economically viable. These are important characteristics of a technology to ensure adoption.

Dr. Ponce emphasized the need for a strong linkage with local government units in the conduct of OFR. The municipal agricultural and fisheries officers are in direct

contact with the farmers and they will be responsible in identifying the farmers who will conduct the OFR. All levels in the research, development and extension (RDE) continuum have their own roles and responsibilities which will be legitimized in a memorandum of agreement before the conduct of an OFR.

The Director also discussed the step-by-step process in conducting OFR including budgetary requirements and incentives to partners in the implementation. (VAD)

More...

farmers. Field days are conducted to make the farmers aware that there is a technology that can help them increase their yield and improve the quality of their product. Once they are aware of the technology they now become more interested and this interest should be maintained by conducting trainings, publications and continuous visit of the extension worker in the field.

Better said than done? We have tried it and the strategy or mechanism worked although problems are imminent. Problems are here to stay, anyway ■

A move to save the "weeping popes"

■ Mary Charlotte O. Fresco

If there is a crop that has the potential to fill in the domestic market deficit worth P1.3 billion a year, it is no other than the potato. Whether it is white, Irish or just plain spuds, potato is processed into many products such as flour, chips, and French fries. Yet, a very destructive pest known as bacterial wilt is threatening the industry today.

Bacterial wilt or brown rot is caused by *Pseudomonas solanacearum*. It commonly occurs in cooler climates and in the highlands. Aside from potato, it also affects more than 30 plant families including some economically important crops such as tomato, eggplant, peanut, bell pepper and tobacco.

Agriculturalists often call the infected potato tubers "weeping popes" because of the sticky bacterial mass that oozes from the tuber's eyes. In its vegetative stage, it is easy to detect if a potato plant is infected by bacterial wilt. Among its symptoms are: wilting of one part of the plant or the entire plant, plant appears to have lack of water, rolling of upper leaves, and occurrence of dark narrow stripes in the stem. The infection is also evident in the tubers. Dark spots can be observed in the skin while the meat possesses a ring-like brown discoloration.

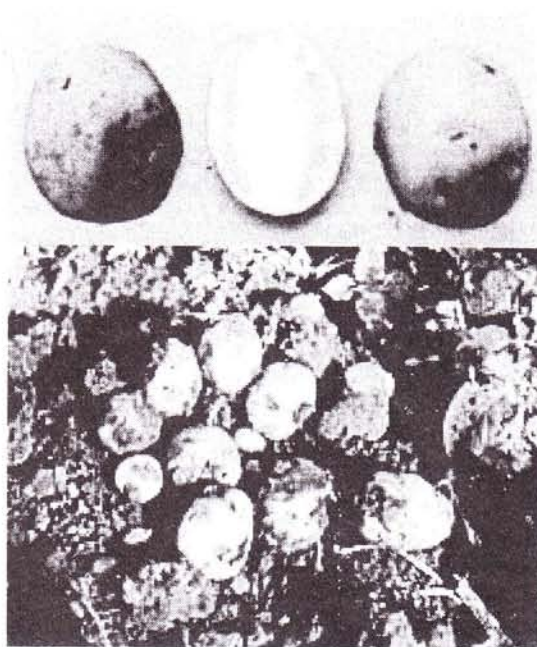
In a move to save the "weeping popes" from this destructive disease, the Northern Philippines Rootcrop Research and Training Center (NPRRTC), La Trinidad, Benguet, developed a management technique to effectively control the incidence and spread of bacterial wilt. This strategy involves a lot of safety and protective measures. The soil to grow the seedling and planting materials should be disease-free, since they are the major carrier of infection. In NPRRTC, healthy potato planting materials are propagated through cuttings and tissue culture. These propagation techniques are done under

strict procedures to protect the seedlings and growing media from any contaminants and pathogens. Disease-free cuttings are sold to potato farmers at low price. The soil is sterilized by exposing it under the direct sunlight for 4 to 5 days.

Meanwhile, infected plants should be burned while infected tubers may be buried in deep areas below a slope. Crop rotation also helps minimize infection in the soil. A farmer may use corn and legumes since they have deep penetrating root system and possess beneficial bacteria in their root hairs.

Planting resistant variety such as *Igorota* is also recommended. If possible, use only registered seeds from certified potato growers.

According to potato experts, contaminated planting materials that are grown in areas with cooler temperature may not show any symptoms of infection. They transmit the infection to succeeding tubers that may lead to severe disease outbreaks



Potato tubers infested by bacterial wilt. Note the discoloration of the cut tuber above.

when plants are grown in warmer places.

Bacterial wilt has long been a serious problem in crop production worldwide, yet until now, there are no chemicals available to effectively control it. Therefore, its incidence can only be reduced if various control measures are strategically combined ■

Understanding...

during the entire DWTP.

"Finally, we wanted to reduce the nitrogen input for pepper because we are bothered by our observation of "blue babies" in the test area for pepper, thus, our third study. And truly, we found that the farmers were applying too much fertilizer uselessly. Their fertilizer rates ranged from 133 kg to 366 kg per hectare. There is no reduction in the pepper yield even if the farmers only applied 266 kg per hectare," Dr. Agustin concludes. "We wish that the Department of Health will also get into the picture and find out the culprit in the "blue baby" phenomenon in one of our test sites," she added.

About the researcher

For one like Dr. Epifania O. Agustin who loves every bit of research, she is bound to capture many more awards. But the more important thing is her contribution to the advancement of agriculture in the country. She finished her MS in Soil Science at the University of the Philippines Los Baños (UPLB) and her PhD at Reading University, United Kingdom with specialization on Soil and Water Management. She is Professor 3, Director of Research and head of the Department of Soil Science, MMSU, Batac, Ilocos Norte. Her research papers are published in local and international journals. Ten of her works won for her awards and recognition ■

The carabao from the farm market

<http://www.pcarrd.dost.gov.ph>

Recognizing outstanding farmers through the farmer scientist bureau

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Rapid rotational grazing for goats: An alternative worm control scheme

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Spinach, blueberries brain food for rats

<http://www.cnn.com/health>

Philippines Recommends (PR) for sugarcane: Science-enhanced sugar production

<http://www.pcarrd.dost.gov.ph>

Facts about the onion industry

<http://www.pcarrd.dost.gov.ph>

DA...

origin of the infected fruits as Yantai, Longkou, Weihao and Qingdao (Tsinglao) in the provinces of Shandong and Dalian.

Following the ban, DA has ordered BPI to suspend all processing, evaluation and issuance of import permits to the infected fruits and has asked Plant Quarantine officers at all seaports and airports to conduct strict inspection of all shipments arriving from China. Any infected commodity from China shall be treated immediately or returned to the country of origin.

The 'codling moth' is one of the most harmful fruit pests. It feeds on living plant tissue like twigs, flowers, buds, fruits and nuts. (Thea Kristina M. Pabuayon)

National Fruits RDE network starts interface consultation workshop

Pursuant to the new modality for Research, Development and Extension (RDE) planning and implementation set under the Agriculture and Fisheries Modernization Act (AFMA), the Bureau of Agriculture Research (BAR) held an interface consultation workshop. The National-Regional Consultation Workshops on the Fruits RDE Programs for Agriculture started from October 17 and will end November 23, 2001 held at different Regional Integrated for Agricultural Research Centers (RIARCs).

Participants of the workshop were divided into three clusters, had separate workshops that lasted either two to three days depending on the expected outputs. The participants were the National Fruits Core Technical Team (CTT), Regional Executive Directors (REDs), Regional Technical Directors (RTDs), Regional RDE Fruit Team Leader, Regional Coordinator for High Value Commercial Crops (HVCC), fruit researchers and BAR staff from the National and Regional Programs Divisions.

Cluster I includes Regions 1, 3, 4, and the Cordillera Administration Region (CAR).

Cluster II includes Regions 5, 6, 7, and 8; and Cluster III Regions 11 and 12.

The workshop has the following objectives: to ensure the coherence of the Regional Fruits RDE Programs with the national thrusts identified in the National Integrated Research and Development Extension Agenda/Program (NIRDEA/P) for fruits; to ensure the responsiveness and relevance of the regional fruits RDE programs to the needs of the region; to identify and prioritize projects to be implemented by the regional RDE networks; and to enhance complementation between the national and regional RDE programs.

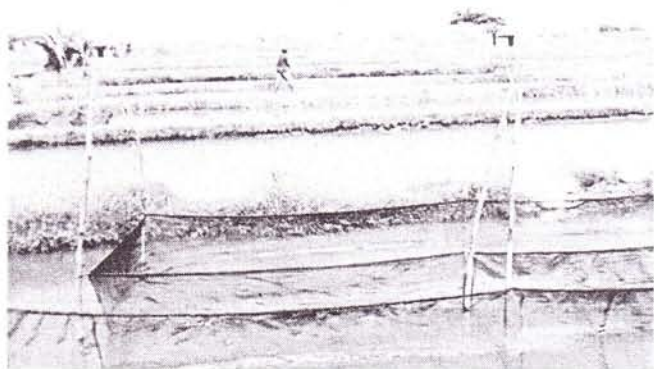
The workshops includes presentation of the National Integrated Research and Development Agenda and Program/Regional Integrated Research and Development Agenda and Program (NIRDEAP/RIRDEAP), discussion and presentation of papers, and open fora. Dr. Rene Rafael Espino, officer-in-charge of the Fruits National RDE Network and Ms Lorna Herradura, CTT member and RIARC managers presented the agenda and program. As an output, the participants validated and identified projects that will be implemented in the next two years, both at the regional and national levels. (Rita T. dela Cruz)

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Aquaculture network advised to take proactive role



Bureau of Agricultural Research Director Eliseo R. Ponce challenged the Aquaculture RDE network leaders and members to take a more proactive role in setting directions of the aquaculture industry.

In his opening message during the Aquaculture RDE Network Seminar-Workshop held at the Marine

Science Institute, UP Diliman on 22 November 2001, Dr. Ponce urged the network movers to constantly ponder on the question, "Where is the aquaculture industry heading?" This helped them craft initiatives that would move the industry forward.

Dr. Ponce emphasized the need for the network to set definite targets for

technology development. This, he cited, is the prevailing trend in countries worldwide. Our plans are blurred and therefore, very difficult to measure," he remarked.

He encouraged the network, given the data and their knowledge of the industry, to be more proactive in its approach by providing policy advice on the strategic directions of aquaculture. He suggested that the network come up with a yearly position paper to "recognize what is good, to criticize what is not, and to suggest possible solutions to problems." After all, "the best brains are actually in the network," he averred.

Like moving to the beat of a conductor, network members should work harmoniously, Dr. Ponce likewise emphasized. He said that the network should work as a team, and not just as a group of experts doing separate work. Central to this is good governance in the network's activities.

He said that the network should always strive to improve its performance, making sure that it is as effective and efficient as possible so

DOA Thailand, DA-BAR starts for agri cooperation

■ Ma. Rowena SA Briones

"Now more than ever, we have to push the frontiers of science and technology. We have to improve on what we have to keep up with the highly competitive economy," Department of Agriculture Undersecretary Ernesto Ordoñez urged the Thai and Filipino scientists who gathered together during the Bureau of Agricultural Research (BAR) and Department of Agriculture (DOA) of Thailand Joint Symposium.

The symposium was the first initiative toward cooperation between Thailand and the Philippines on agricultural research and development. It focused on new science for agricultural research and development. Thus, both countries presented their future research directions and priorities. Experts from both countries presented scientific papers on crops biotechnology, biofertilizers, biopesticides, plant diagnostics and information technology in relation to agriculture.

These areas of study are promising tools for poverty alleviation and enhancement of global competitiveness. We have to know how we are going to fully utilize them because as Usec. Ordoñez revealed, "we do not have the luxury of time. Global competitiveness is the only key to our survival."

With the onset of

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The many pros and cons of biotechnology

In the joint symposium of the Department of Agriculture of Thailand and the Bureau of Agricultural Research held in the country this November, crops biotechnology had been one of the major areas of discussion. Based on the paper presentations, both countries are now engrossed in the use of this technique in agriculture.

Biotechnology is not a new thing. When our farmers choose the best plant as source of their planting material and the best animal as their breeder, they are already practicing biotechnology. The same is true when they do grafting and marcotting. But they do not know that they are practicing selective breeding or using biotechnology. All that they are aware of is, they should select their source of seeds to have good planting material during the next planting season. Professor Richard Dawkins, a leading authority on evolutionary genetics said that biotechnology is not essentially different from older types of breeding. All plants and animals, including humans, are genetically modified by natural selection, random mutations, and recombinations.

Simply, **bio** means life or living thing and **technology** is a way, a means or a technique of producing a product. Scientifically, biotechnology is a collection of scientific techniques, including genetic engineering, that are used to create, improve or modify plants, animals and microorganisms. It enables scientists to move genes, the desirable ones, with greater ease and precision. Biotechnology was first used in medicine to produce insulin and blood clot busting enzymes.

As reported by PhilRice Executive Director Leo Sebastian

during the symposium, interest on biotechnology in the Philippines started more than 20 years ago when then Pres. Ferdinand E. Marcos got curious about the developments in other countries. Brazil, for instance, was able to produce alcogas from sugarcane through biotechnology. They used this to run their vehicles. But even as early as 1914, biotechnology tools such as hybridization and selection and later on tissue culture were already used by our plant scientists for the breeding of rice, corn, and other crops. Biotechnology research and development was formally established with the creation of the National Institutes of Biotechnology and Applied Microbiology now called the University of the Philippines-National Institute of Molecular Biology and Biotechnology.

With biotechnology to genetically modify our crops, there would be food revolution. Revolution in a sense that there would be more food with inherent nutritional value produced from the same or even less area in a short period of time. The perennial and critical problem of food insecurity throughout the world would be a thing of the past. And if nutritional elements can be incorporated in the crops being grown, then malnutrition will be solved and there will be no more need for the food supplements that are expensive (for those who can afford but how about those who can not even buy the basic food like rice?).

The logic is, if our population continues to grow and we till the same area of arable land, even with an increase in yield per hectare due to the use of modern agricultural production methods, there would still be food deficit. Food production just could not catch up with the increase in population. It is even impossible to assume that the area for farming does not decrease. The government can not

prevent landowners from converting their agricultural lands into more productive uses. Moreover, there is always a price to pay for the gains we get in employing yield-increasing technologies.

If the farmers use higher rates of fertilizer and more use of pesticides, this would translate to an increase in production input and possibly a change in the environment. In the place where I live, there is a lake nearby that supplies not only our community with fresh tilapia, shrimps, mudfish and shellfoods, but also the surrounding communities. This lake is located at a low portion such that during the rainy season the runoff from the surrounding farms would accumulate in the lake. Plant life in the lake has become so abundant and there is less harvest of aquatic food. (Am getting farther from biotechnology but still sciencescoping, nonetheless.) ■

-to be continued-

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Assessing risks of genetically modified crops

■ Ma. Rowena SA Briones

Field testing of genetically modified (GM) crops and their acceptance in the market can be likened to a war that had dragged on too long. Dr. Nina Barzaga, the director of the Institute of Biotechnology and Molecular Biology of the University of the Philippines at Manila, disclosed that consequently, biotechnology and what it can do to improve agriculture remains a no-man's land for most of us.

Many groups from the civil sector vigorously protest field testing of GM crops. A glaring example of this is Bt corn in General Santos City. Nevertheless, GM crops are gaining foothold in the market. What with the position of the World Health Organization, Food and Agriculture Organization, Organization for Economic Cooperation and Development and National Academy of Sciences in most of the developed countries, that GM crops are as safe as their conventional counterparts.

During the seminar on "Risk Assessment of Genetically Modified Organisms Related to Agriculture and Fisheries" held at BAR, Dr. Barzaga cited studies that have shown GM crops to be even more sustainable and have a higher production output. Contrary to the catchphrase of anti-GM groups that GM crops endanger the environment, GM crops are environment-friendly because their crop management practices are more efficient and less dependent on conventional pesticides.

Information campaigns to allay fear on GM crops

To allay fears of the public on GM crops, information campaigns should be mounted to show that several years were devoted to laboratory researches, contained greenhouse evaluation, contained



small scale field trials, down to pre-commercial testing to ensure that GM crops are safe before they are released in the market.

Risk assessments would also greatly help in conquering the myths about GM crops. Results of these are crucial to public acceptance of GM crops because it would address the issue on whether these crops are safe on humans and the environment. "However, we do not have a risk assessment system yet. That is why we did a comparative analysis of the risk assessment system of other countries. We will also start our own database, along with data from other countries, in drafting our own system," Dr. Barzaga averred.

Framework to regulate biotechnology

What is our biosafety framework then? We have RA 7394 or the Consumer Act which declares that it is part of the duties of the state to safeguard the consumers. Thus, it is the state that should set safety and quality standards for consumer products and ensure that these standards are followed.

The state also assists the consumers in evaluating the quality including safety, performance and comparative utility of products sold in the market. Hence, the researches on quality improvement and

investigations on causes and prevention of product-related deaths, illness and injuries.

NCBP to head the regulation

With the floodgates of biotechnology-propelled inventions, the National Committee on Biosafety in the Philippines (NCBP) was created. For the committee to have a multidisciplinary stance on evaluating uses and forms of biotechnology, the committee is composed of government agencies-- DA,

Department of Health and Department of Environment and Natural Resources and representatives from the academe (in the field of biological, environmental, physical and social sciences) and the civil sector.

The Committee drafts policies that would regulate all biotechnology work in the country. It identifies and assesses the potential hazards of genetically modified organisms, genetic engineering experiments and introduction of foreign species. Thus, the Committee is in a position to recommend measures to minimize risks, and formulate or amend policies and guidelines on biosafety to ensure that the general public and the environment are not in the receiving end of dangers unknown to them.

DA to safeguard consumers of agri products

The Department of Agriculture implements the Consumer Act on agriculture-related products. Its agencies at the forefront the Bureau of Plant Industry, Bureau of Animal Industry and Fertilizer and Pesticides Authority.

We have plant quarantine service, supervised by Bureau of Plant Industry (BPI), that enforces plant quarantine laws and regulations to prevent the entry of foreign pests and prevent the spread of local pests.

A genetically engineered rice for "golden" future

■ Mary Charlotte O. Fresco

Every parent wants his children, especially infants to receive the right amount of nutrients in order to grow healthy and strong. However, not all families have access to the right kind and amount of food, particularly in poverty stricken countries. In developing countries, vitamin A deficiency (VAD) is quite evident, as more than one million childhood deaths are reported every year. VAD remains to be the main cause of blindness, xerosis (abnormal dryness of skin and mucous membrane of the eye), xerophthalmia, and even death. This alarming health crisis prompted the scientists from the Swiss Federal Institute of Technology to develop the "Golden Rice".

Golden rice, as scientists named it because of the grain's pale yellow hue, is a genetically engineered (GE) grain enriched with beta-carotene and other carotenoids. Our body converts these necessary nutrients into Vitamin A. Though carotene is present in the rice plant, it is normally found in the leaves – the part which is not edible. Scientists were able to modify the genetic component of the rice grain by inserting a gene from a daffodil plant, which is known to produce vitamin A.

Food experts estimate that an average of two to 5 bowls of ordinary rice are needed for a person to meet the recommended daily allowance for vitamin A.

"Golden rice is not just anyone's rice, it will be everybody's rice," envisioned inventors Professor Ingo Potrykus and Dr. Peter Beyer, whose study on golden rice started in the late 1990s. They affirmed that this product of biotechnology should reach those who need it most, quickly, safely, and efficiently. The long and intense study on golden rice was initially funded by the Rockefeller Foundation, which continues to support the development of the project.

Since the golden rice arrived in the Philippines in

January 2001, the country's leading research centers such as the International Rice Research Institute (IRRI) and Philippine Rice Research Institute (PhilRice) have engaged in collaborative efforts to closely examine the suitability, efficiency, and safety of this GE rice. IRRI has provided a portion of its financial and physical resources, which include two full-time scientists, and a one-million dollars research fund for golden rice. Scientists from IRRI claimed that it would take five years to conduct field trials for golden rice since the Institute should follow the national biosafety guidelines.

To oversee that the field trials are in accordance with the highest standards for testing, IRRI has created a Humanitarian Board composed of several public and private organizations such as the World Bank, Cornell University, the Indo-Swiss Collaboration in Biotechnology, and the Rockefeller Foundation.

DOA...

globalization, Thailand and the Philippines have come to recognize that cooperation is vital. "It is important that we share technologies so that we can jumpstart all those things we could do so as not to be left behind, Usec. Ordoñez pointed out. BAR Director Eliseo R. Ponce added that "we will achieve more through this cooperation as we have common problems, interests and needs."

"This gathering of Filipino and Thai scientists is a great opportunity to share solutions and opportunities," the deputy director of DOA, Prapaisri Pitakpaivan, continued. "We value this research collaboration because this is a good channel for scientists and policy makers to exchange expertise and experiences so we can learn from each other and from there we can draw future activities complementing the policy of our government."

Thus, DOA disclosed that



Despite several issues and concerns raised by various civic groups over the genetically modified crops such as the golden rice, experts and nutrition specialists believe that golden rice is an exciting and potentially revolutionary development in the field of biotechnology that could make a lasting difference for millions of poor people across the globe.

Source: The Consultative Group on International Agricultural Research : <http://www.cgiar.org>; International Rice Research Institute: <http://www.irri.org>; Syngenta:

for the coming years, Thailand will base its agricultural outputs on the demands of the local and international market. Consequently, their priority crops are rice, rubber, cassava, sugarcane, pineapple, coffee, palm oil, corn and what they call "high potential crops" which include mangosteen, pomelo, peanut, baby corn, and sunflower. They also plan to increase their soybean and cotton production. To enhance production efficiency, DOA will promote sustainable production, decentralize their functions, and develop farmers' organization in the countryside.

The Bureau of Agricultural Research envisions a food-secure Philippines. Recognizing the crucial role research plays in the achievement of this vision, researches will be geared on developing novel agricultural production techniques and postharvest technologies to improve productivity and profitability of

see DOA, page 7

DA's monitoring officers hold consultative workshop

Monitoring officers of various Department of Agriculture (DA) attached agencies and staff bureaus gathered for a four-day consultative workshop in Punta Villa, Iloilo City, 26-29 November 2001. The workshop fulfills the AFMA's mandate to use a monitoring and evaluation system in assessing the effectiveness of the agriculture and fisheries modernization initiatives.

The Consultative Workshop on the DA's Monitoring and Evaluation System was organized and implemented by the Program Monitoring and Evaluation Division (PMED) of DA. The workshop had the following objectives: 1) familiarize participants with the monitoring reports required by the Department; 2) orient monitoring officers on current initiatives on Monitoring and Evaluation (M&E); 3) update participants on initial findings on the current National Economic Development Authority/World Bank (NEDA/WB)

M&E projects; and 4) discuss issues and concerns of participants on M&E and their recommendations to enhance the system.

On the first day, participants reviewed the DA's initial M&E guidelines and reports required, while the second day was devoted to the discussion of current initiatives on M&E and NEDA/WB M&E projects. The last day consisted of presentations of workshop outputs and recommendations.

Among the issues and concerns raised during the workshop were: lack of coordination among the DA units, need for guidance on re-alignment/re-programming of funds, untimely release of funds, limited number of personnel due to the no-hiring policy; delayed submission of reports; need for a monitoring and evaluation manual; need for a feedback mechanism; upgrading the capability of M&E personnel; and lack of knowledge on the DA M&E structure. (*Rita T. dela Cruz*)

Assessing...

Importers of GM organisms and potentially harmful exotic species, aside from seeking the approval of NCBP to import such materials, need clearance from BPI.

The Bureau of Animal Industry ensures that the meat we eat are free from disease and other contamination. We only export meat from meat establishments recognized as an exporting entity by the Veterinary Administration in the country where they are based. Aside from this, we require Veterinary Quarantine Clearance and Sanitary/Phytosanitary Measures import permit prior to the shipment of the exported meat products. International Veterinary Certificate attesting that the goods conform to the veterinary requirements of the Philippines and meet the guidelines and health standards of the Office of the International Epizootics is also necessary.

Need for guidelines

Other than these safety measures, however, we have no guidelines on the entry of genetically modified crops much less on whether we should label them and what will be the content of the label. Risk assessment efforts are still minimal, with much of our energies being devoted on the debate on whether or not GM crops are safe.

Dr. Barzaga affirmed that biotechnology is a crucial tool in attaining food security in the face of an ever-growing population and declining arable land. Its dangers being drummed by groups opposing its application can both be real and imagined but what is important is that we maintain an objective stance in our evaluation of its benefits and whether it have unpleasant side effects. According to her, "let us all work together. Science is there to make our lives better." ■

BAR Asst Dir keynotes mushroom convention

Assistant Director Nicomedes Eleazar of the Bureau of Agricultural Research (BAR) will be the keynote speaker during the annual conference and general assembly of the Philippine Mushroom Society (PMS) on 14-15 December 2001 at the Research and Development Center, Rizal Technological University (RTU), Mandaluyong City.

With the theme, "Mushrooms as Potential High Value Crop," the convention will focus on technologies for growing mushrooms and funding alternatives for cooperatives, interested growers and entrepreneurs.

Now on its 17th year, the PMS meets yearly to review its research agenda and discuss future priorities in the mushroom industry.

Experts and entrepreneurs working on mushrooms will tackle topics, on lowland production of button mushrooms, alternate substrates for semi-temperate species, benefit-cost analysis of growing tropical and semi-temperate species, and mushroom by-products.

Resource speakers will also discuss funding alternatives for entrepreneurs or growers who are interested in growing mushrooms as a source of income. They will talk about the venture financing assistance program, *masaganang sa kahan*, Landbank countryside development foundation, Effective Response to Alleviate Poverty (ERAP) program, and people's credit and finance corporation. (*Junelyn S. de la Rosa*).

GMA awards LGU's national nutrition achievers

Her Excellency President Gloria Macapagal-Arroyo together with Department of Agriculture (DA) Secretary and concurrent National Nutrition Council (NNC) Chairman Leonardo Q. Montemayor recently recognized outstanding Local Government Units (LGUs) for their contributions in the field of nutrition. Various LGUs vied for three major awards: Nutrition Honor Award (NHA), Consistent Regional Outstanding Winner in Nutrition (CROWN), and the National Outstanding Barangay Nutrition Scholars (NOBNS). The awarding ceremony was held at the Heroes Hall of the Malacañang Palace, Manila.

The NNC, the country's policy-making and coordinating body on nutrition, has institutionalized the awards system not only to recognize outstanding

achievers in nutrition but also to spur and stimulate nutrition awareness at the local level.

The NHA is the highest and most prestigious award given to an LGU that shows remarkable performance in nutrition program management for the past three years. The award was presented to three municipalities and one city: Echague, Isabela; Los Baños, Laguna; Trece Martirez City; and Calape, Bohol. Each received a cash prize of P250,000 and a trophy.

The CROWN is given to a municipality, city or province that has won a Green Banner for three consecutive years in the region for its outstanding performance in nutrition program management, resulting to significant improvements in the nutrition situation. The award was given to seven areas, namely: Dagupan

City; Nueva Vizcaya; Baguio City; Tagaytay City; Aklan; Bohol City; and Bohol Province. Each winner received P100,000 and a trophy. For the next three consecutive years, the National Nutrition Evaluation Team (NET) will monitor these areas to determine if they will qualify for the NHA.

Also recognized during the ceremony were CROWN awardees of previous years that were able to successfully maintain their exemplary performance for the first and second rounds of NBT validation visits. Awardees for the First Year CROWN Maintenance Award are the municipalities of Kiangnan, Ifugao; Sta. Maria, Bulacan; cities of Las Piñas and Legaspi; and the provinces of La Union and Isabela, while the Second Year CROWN Maintenance Awardees were the municipalities of Pateros, Metro Manila; San Gabriel, La Union; Don Carlos, Bukidnon; the cities of Koronadal and Danao; and the provinces of Laguna and Aklan. The NET will visit these areas for three consecutive years to determine whether they were able to maintain a downward trend in the malnutrition status through effective and efficient nutrition program implementation.

Meanwhile, the NOBNS are community-based nutrition volunteers in the barangay who bested about 22,000 similar frontline nutrition workers nationwide in linking the barangay and its malnourished populace with service providers at the city or municipal level for year 2000. Among the awardees were Ms Norma L. Monforte of Barangay Pinamanculan, Butuan City who received a trophy and a cash prize of P40,000 (first prize); Ms Mercedes DC Cara of Barangay Sta. Cruz, Benito Soliven, Isabela who received a certificate and a cash prize of P30,000 (second prize); and Ms Maria Fe A. Magdoza of Barangay Abucayan Sur, Calape, Bohol, and Ms Filomena P. Arances of Barangay Macebolig, Kidapawan City who received a certificate and a cash prize of P20,000 (third prize). *(Press release from the DA-NCC)*

BAR evaluates 7 PhilCorn zonal stations

As part of the on-going efforts to fully establish the Philippine Corn Research Institute (PhilCorn), the Bureau of Agricultural Research (BAR) PhilCorn Development Team recently evaluated seven identified regional stations. These are in Regions 1, 2, 3, 7, 10, 13, and ARMM. To serve as network cooperating units these substations are to be based in the Regional Integrated Agricultural Research Centers (RIARCs).

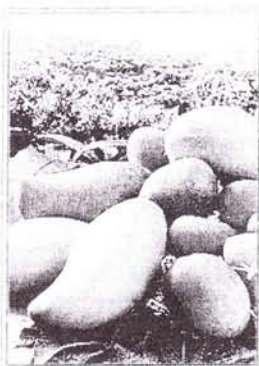
The team particularly assessed the manpower and institutional capabilities of the stations to effectively undertake research and technology promotion activities in the regions. The status of each station in terms of research facilities and some infrastructure was established. This is important to determine which of the facilities need to be renovated and

upgraded.

The group found that the seed-processing unit needs to be fully utilized, since one of the project's main objectives is to prepare and store high quality corn seeds for distribution to the small corn farmers. Other facilities such as seed storage, warehouse, sheller, cleaner and dryer for corn seeds need to be procured especially in the case of ARMMIARC.

The funds for the procurement of facilities will come from the Grain Sector Development Program (GSDP) and the national government annual appropriations.

The team was headed by BAR's Institutional Development Specialist Santiago R. Obien, Corn Network National Team Leader Artemio Salazar, Institutional Development Division OIC Rolly Labios, and other support staff. *(Mary Charlotte O. Fresco)*



MANGO: up close and personal

■ Ma. Rowena SA Briones

Mango is one of our best agricultural products but farmers do not have any standard procedure for

identifying different varieties of mango. Other than using the variety of the 'mother' tree as reference, there are no reliable indices that mango growers could use to identify the variety of mangoes at their seedling stage. Often, many mango farmers find out only later that the mangoes they nurtured are not the varieties they desire. Thus, the Institute of Plant Breeding and the Department of Horticulture of the University of the Philippines at Los Baños, developed practical methods for identifying the different varieties of mango found in the Philippines. These are the Carabao variety, Katchamita or Indian variety, the Pahutan variety and the Pico variety.

The variety of a mango can be easily identified through its leaves' aroma, shape and size. The aroma of squeezed mango leaves is similar to that of its fruit. Carabao mango leaves smells like that of its fruit. This is also true for Pico and Katchamita, with Katchamita as the most aromatic of the three varieties. The leaf of a Pahutan mango, on the other hand, smells like a Pili nut.

Mature leaves (about three months old) also show distinctive traits for each variety. The leaves of Carabao, Pahutan and Pico mangoes are narrowly trullate while katchamita leaves are narrowly rhombic.

The mature leaves of Carabao are the largest among the mango varieties. They are also the only ones with an abrupt acuminate leaf tip. The leaves of Katchamita are relatively narrowest while Pico has the longest leaves. However, soil fertility and other environmental factors present in the mango farm affect the shapes and sizes of leaves. So these are not constant. Carabao mango may not have large leaves if the soil is not fertile. Furthermore, the shape of leaf tip can be used only to identify the Carabao variety because the other three varieties have similar leaf tips.

The colors of one-week old leaves of different mango varieties is constant and distinctive. Carabao variety has light green with a tinge of brown leaves. Pahutan has light green leaves. The distinctive trait of Carabao variety is the relative uprightness of its leaves compared to Pahutan. Katchamita has brown to brownish violet flushes while Pico leaves are light brown to light purple.

A mango farmer can also do simple chemical tests using acidic methanol solution or acidified vanillin. Young mango leaves, about 19 days old, are soaked in soap solution, rinsed and allowed to dry on paper.

About one gram of leaf is cut into small pieces and pounded using mortar and pestle while acidified methanol is being slowly added on it. The extract is filtered using Whatman #2 filter paper until the volume reaches 10 ml. The variety of the mango is then identified using the color of these extracts. The Pahutan extract has the most intense green color followed by the Carabao variety. Pico and Katchamita have a similar

yellowish green color.

Acidified vanillin is used as a reagent. To formulate this, three ml of four percent vanillin in methanol and 1.5 ml concentrated hydrochloride are mixed. This solution, placed on a petri dish, is mixed thoroughly by swirling.

Five strips (1 inch by 2 inches) of filter paper are dipped in the acidified vanillin solution for 30 minutes. A drop from the juice of the pounded mango leaves is put on the acidified vanillin treated paper. Color reaction is observed after 15 minutes.

The color reaction of the juice from a leaf of a Carabao mango variety is light pink, pink for Katchamita and Pico, and light green for Pahutan.

Like magic, farmers will be surprised to learn that color, shape, size, smell and juice can be used as 'markers' or 'indicators' of the different mango varieties: Carabao, Pahutan, Katchamita and Pico. These methods are not just easy to do but also affordable.

Source: Paper presented during the 13th National Research Symposium entitled, "Indices for varietal identification of mango" by Evelyn Mae Tecson-Mendoza, Felicit Rodriguez, Perla Baldiviano and Leon Namuco.

DOA...

agricultural commodities and promote sustainable agriculture.

BAR and DOA will start drafting protocols of exchange for germplasm to expedite exchange of varieties between the two countries. However, Mrs. Pitakpaivan disclosed that Thailand must wait for the Mutual Trade Agreement endorsement from their Department of Agriculture (DOA). For the meantime, requests for exchange visits of scientists and researchers will be facilitated to encourage exchange of scientific and technical information.

The activities and impacts of the BAR- DOA cooperation will soon be posted on the BAR website and linked to the DOA website as part of the electronic fora both agencies agreed to instate.

These undertakings are part of the Memorandum of Understanding (MOU) for

cooperation in agricultural R&D agreed upon between the Philippines and Thailand last May 2000. Dr. Ponce related that the Bureau had submitted the MOU for review to the Department of Foreign Affairs. Likewise, Hon. Pitakpaivan Prapaisri added that the said MOU is also for review by the Office of the Prime Minister and the Ministry of Foreign Affairs in their country.

Nevertheless, both BAR and DOA put high hopes on what the cooperation can do. Deputy Director Pitakpaivan declared that, "even if the pace is slow, if we can come up with a decisive plan of action, we can move faster. We also need success indicators. We are all looking forward to uplifting the livelihood of farmers. If we will not be able to do that, then we'll just be wasting our time and resources." ■

WebNEWS

Get serious about averting trouble in the forest

<http://www.futureharvest.org>

Oscar Aria speaks out on ecoagriculture to folks de Sao Paulo

<http://www.agriculture.org>

Philippine mangoes reap praises from Brussels

<http://www.da.gov.ph>

Breakthrough in freshwater shrimp breeding made

<http://www.da.gov.ph>

Increasing farmers' technical capacity in raising farm animals

<http://www.da.gov.ph>

Plant vetiver grass to minimize erosion and flooding

<http://www.pcarrd.dost.gov.ph>

GM corn DNA found in Mexican maize

<http://www.cnn.com/health>

Aquaculture...

that it will be able to justify the funds given to it. He stressed that this is crucial for the sustainable existence of the network, saying that this will "depend on its ability to show that in it can be relied upon to do its part."

This is in relation to the recent announcement of Senate to cut the budget. For the network's budget to be sustained, it should show concrete evidence of research outputs. Examples of such outputs are what Dr. Ponce calls "knowledge products", such as manuals, pamphlets, and brochures that could be easily read and understood and not just terminal reports which could be highly technical and therefore unusable to many of their readers.

This seminar-workshop was held to present the network's accomplishments within the year, as well as update the members of the status of the network activities. (Laarni C. Anenias)

Urban agri NIRDEAP ok'd for 5-year implementation

The Urban Agriculture Network, one of the Bureau of Agricultural Research's special programs for R&D, is now fully operational as the Senior Scientists Advisory Committee (SSAC) approved its five-year National Integrated Research and Development/Extension Agenda and Program (NIRDEAP). The NIRDEAP embodies the integrated thrusts, activities, and directions undertaken by the network to ensure that R&D activities across the country are tied to the "one system, one program" approach initiated by the Bureau. This is done to avoid duplication of R&D activities and efforts and to save resources.

The urban agriculture's NIRDEAP is anchored on its overall goal of developing the capability of the urban dwellers and municipalities by engaging them in sustainable and environment-friendly activities that could improve their welfare and give them more employment opportunities.

The programs were crafted along the thrusts of the Agriculture and Fisheries Modernization Act (AFMA), which include food security, poverty alleviation, people empowerment, productivity and income, and sustainable agriculture.

The Network's major programs, which were strategically

formulated by its Core Planning Team (CPT), are socio-economics and policy development for urban agriculture; improvement of productivity and profitability in urban agriculture; food and nutritional self-reliance through urban agriculture; gender-based empowerment; and waste recycling and conversion for urban agriculture. Each program encapsulates strategies and prioritizes projects designed to meet specific outputs over a given period of time.

In its first year of implementation, the Bureau has allocated a total of P525,000 for the prioritized projects focusing on the development and adoption of various R&D technologies.

Since urban agriculture was charted as one of the agricultural undertakings in the Philippines in 1983, it has benefited numerous low-income families by introducing community projects that can give them immediate and competitive returns. In line with the concept of "farming the city" urban dwellers can make the most out of their limited land by planting crops, ornamentals, tree crops, and raising animals for home consumption as well as for commercial purposes. (Mary Charlotte O. Fresco)

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