

BUREAU OF AGRICULTURAL RESEARCH

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Florendo Awardee for Outstanding Information Tool for Print

Vol. 5 No. 8

A monthly publication

AUGUST 2004

DA has new secretary

resh from his two-year stint as administrator of the National Food Authority (NFA) and his seven-month service as Agriculture Undersecretary for Luzon Operations, Atty. Arthur C. Yap was recently appointed by President Macapagal-Arroyo as the new secretary of the Department of Agriculture (DA). The appointment was formally introduced through a modest welcome ceremony held on 23 August 2004, BSWM Convention Hall, Quezon City. Attending the ceremony were DA employees and various stakeholders from the state colleges and universities (SCUs), local government units (LGUs), and private sectors.

Answering the call of service

In his acceptance speech, he promised to vigorously pursue the gains of the Department through commodity outputs especially in the implementation of the banner programs of rice, corn, high value crops, and the fisheries sectors. To achieve this, he mentioned that there is a need to constantly adhere to the effective review and implementation of the country's commodity and sectoral road-maps. In line with the recent SONA of President Arroyo,

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Secretary Yap reiterated that all DA programs will be tracked and measured as against her 10-point agenda particularly in the commitment to create 6 to 10 million jobs in the next six years, with half of that coming from the agriculture and agribusiness sectors, and the development of one to two million hectares of agribusiness lands.

In answer to the growing needs for insufficient food, Secretary Yap said that increasing farm and fisheries incomes is the key to sustain and motivate farmers and fisherfolk to continue the process of food production particularly in the countryside. To this end, he wished to strengthen the capability of small farmers and fisherfolk by linking them to the market at the shortest possible time with the least intermediaries, which would eventually raise farm incomes and lower the basic food prices. He pointed out that this is the weak link in the equation to attain food security and if addressed immediately, increased productivity could be easily achieved.

He also recommended a close partnership with LGUs, and the clustering of DA agencies and other executive offices as an efficient way to implement government projects. DA and the private sector must also continue to dialogue and collaborate at every phase in the development and strengthening of their sectors. He urges the stakeholders to modernize and build up support services that suffered with the long standing bias for commodity-based production support programs i.e., agricultural statistics,



DA Secretary Arthur C. Yap

information technology, market information programs, market development and promotion, regulatory services, policy and planning, especially in the area of international trade negotiations.

Another important aspect he stressed in his speech is the issue of DA budget reform. He recognized the urgency of prioritizing budget to the attainment of key growth targets. He cautioned however, addressing the problem vis-à-vis the need to build a DA that would remain relevant and responsive to the challenges of time.

He said that among the affected areas in the budget cut is irrigation development such as the rehabilitation and maintenance of current and existing systems. He said that the irrigation investments would not be sustainable if farmlands are more rainfall dependent than watershed supported.

When asked about the role of R&D in his priorities, he said that the DA's support for its various stakeholders can only be felt if the DA pursues a

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He grows citrus the scientific way

by Virginia A. Duldulao

e reached a big twostorey wooden structure that looks like a lodging house in a prairie after a bumpy ride negotiating a zigzagging road that climbs along mountainsides and ravines from the town of Solano, Nueva Viscaya, the fog thinning as if afraid of our intrusion as we approached the highest altitude.

We, is Cely Miranda, citrus project coordinator of Region 2, Arthur, our driver and me. Three hours earlier we were debating whether we proceed to Malabing or not. If it rains we could not come down and

would stay in the Valley for the night. I prayed hard we would proceed. I strongly desired to meet the 'king of citrus' in northern Philippines.

"You look Japanese," I immediately commented as he met us in his citrus farm.

"Yes, and I work like a Japanese ever since I started growing citrus," was Mr. Alfonso Namujhe, Jr.'s answer. "I applied for this land in 1964. Malabing Valley was an open settlement for people displaced by the Ambuklao and Binga Dam projects but the Benguet people preferred to stay in Dupax (another municipality of Nueva Vizcaya). The first commissioner of the Commission on National Integration was Judge Dolongan, a Kiangan, so he brought in people from our place to occupy this place. I just graduated in high school. My mother and I came here; my father who was a teacher and my other siblings stayed behind. My mother who was a forwardlooking woman thought that the younger children (am one of them) would not have any inheritance if we stayed together in Kiangan. I applied for this land as a homestead. The requirement was to clear the land (was able to clear two hectares), improve it for one continuous year, and

apply for the title. I saw the potential of this place and I was inspired to pursue college. I took up agriculture, major in animal husbandry determined that I would come back and develop it." Mr. Namujhe reminisced.

"And now, the people of Malabing speak of you like you are a god," I told him my observation the other day when I talked to members of the Malabing Cooperative.

"Is that so?" he laughed. "It was hard work," he continued. "I had to learn many things before embarking on my project. I worked as farm manager and later as feed mill quality control officer at Monterey in Laguna. It was there that I learned about management and it was also there where I met my wife, also an agriculture graduate and a native of Tiaong, Quezon," he intimated.

"I started learning and researching everything about citrus. I went to PCARRD for a citrus technology because I had to grow citrus scientifically. How can we ever succeed if we don't do things scientifically? My sister in Australia who was going to finance my first three-year operation required me to go there and learn everything there was to know about citrus growing. When I returned I brought with me different scions plus the technology. Maintaining an orchard is not as easy as

technology. Maintaining an orchard is not as easy as planting bananas. You need time, money, effort and skill to grow citrus and the life span of the orchard depends on your maintenance."

It is citrus time. Some heavy-laden branches (I was able to count 13 fruits in one branch) are provided support for them not to break.

As if guessing my next question, Mr. Namujhe said, "I apply chicken manure right



The citrus king and the author

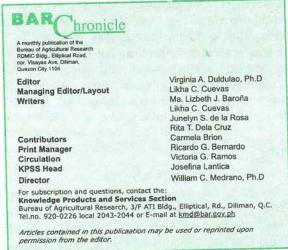
after the harvest season. One month before the flowering stage, I apply urea and two months before ripening, I put complete fertilizer for color change and potassium for sweetness."

"And have you shared your technology to the other farmers?" I asked him.

"This land is God's gift to the people. If you love your fellowmen, you should be unselfish. If you become a millionaire, let others become millionaires by sharing your knowledge. I have dreams for this beautiful and fertile land. I am now into exotic fruits, later on into cut flowers. I will integrate these farms into a recreational and educational tourist spot where one can enjoy and learn at the same time. There will be banca rides on a man-made lake at the top of the mountain."

As if guessing again my questions noticing my raised brow he said, "God is generous to us. We have the water, a good climate, unpolluted environment, and industrious people. The lodging house where you stopped is for visitors

see He grows citrus...page 5



Seminar-workshop on new art form celebrates IYR

The National Commission for Culture and the Arts (NCCA), local government units (LGUs) of Quezon Province, International Rice Research Institute (IRRI), and the Philippine Rice Research Institute (PhilRice) are sponsoring the Outdoor Art Installation Workshop Seminar on September 14, 2004 at IRRI and University of the Philippines Los Baños (UPLB), College Laguna. This seminar-workshop, in connection with the International Year of the Rice (IYR), aims to enhance the Pahiyas celebration in Lucban, Quezon, which uses rice as the focal subject.

Outdoor art installation is a relatively new art form, which is site-specific and usually temporary or ephemeral. The arrangement of objects and use of different mediums in a creation made especially for a particular gallery space or outdoor site, to be viewed as an entire ensemble or environment. Participants of this seminarworkshop will come from the municipalities of Quezon province, which will be identified by their respective LGUs. The workshop will consist of presentations by three noted resource persons on outdoor art installation, visit to existing art installations at IRRI's Rice World Museum, and putting up of installation projects by participants.

The IYR 2004 is intended to achieve global awareness on the importance of rice. In the process, people will appreciate the role of the rice farmers, who, despite extreme difficulties and frustrations they encounter, they still continue to plant rice to feed the world. The organizers of the IYR Philippines envision that many activities this year in celebration of IYR could be continued in the years to come.

The national IYR steering committee is composed of:

BAR bids for ISO 9001:2000 certification



BAR Director William C. Medrano

ith vision set on an ISO 9001:2000 certification by December 16 this year, the Bureau of Agricultural Research(BAR) formally launches its ISO 9001:2000 certification process, at the RDMIC Lobby, August 24.

BAR challenges itself

"We want to be among the world-

Department of Agriculture (DA) Secretary Arthur C. Yap as chairman; Department of Tourism (DOT) Secretary Roberto M. Pagdanganan and Dr. Kwanchai A. Gomez (Asia Rice Foundation executive director) as vice chairpersons. Other cooperating agencies and organizations are: the DA-Bureau of Agricultural Research (DA-BAR), Asia Rice Foundation (ARF), Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC), Commission on Higher Education (CHED), DA, DOT, Department of Education (DepEd), Department of Science and Technology (DOST), NCCA, National Food Authority, IRRI, and PhilRice. (Likha C. Cuevas) class organizations," BAR Director William Medrano said. Being certified the International Standards for Quality Management Systems through an ISO certification will help BAR maintain client satisfaction.

To be among the world class organizations would entail greater effort on our part for better documentation, improved intra-organizational communications, and most important, is greater quality awareness, and a positive cultural change. All these, he said, would

enable BAR employees and staff to become better government employees.

He also maintained that being ISO certified should ultimately be translated into serving BAR clients – farmers and fisherfolk – better. He said that this process is in the service of the national agricultural research system, and to the faming and fishing communities.

Quality from within

In his inspirational message, BAR Senior Technical Adviser Santiago R. Obien called on the "adventurous and dedicated men and women willing and eager to go on and join on the search for a new milestone in the history of BAR. We are entrusted with a beautiful, if not expensive home (referring to the RDMIC). We are entrusted the task of guiding the national agriculture and fishery research network. There are big responsibilities for which we have so much to account for. The service demanded of us is enormous and the final judge for that quality of service are the farmers and fisherfolk," he remarked.

Mr. Joseph Server, president of JSA, an independent organization hired to audit BAR for the certification process presented an overview of the ISO 9001:2000 certification process, and gave an idea of what it is expected from the BAR staff and employees as the certification process progresses. (Ma. Lizbeth J. Baroña)

N E W

BAR, PCARRD support development

of BPI Los Baños

The Bureau of Agricultural Research (BAR) and the Philippine Council for

Agriculture, Forestry and Natural Resources Research and Development (PCARRD) signed a memorandum of agreement (MOA) with the Bureau of Plant Industry (BPI) to support the development of the Los Baños National Crop Research and Development Center (LBNCRDC) experimental station.

The LBNCRDC is identified as the national research center for tropical crops and ornamentals. This station was formerly known as the BPI Economic Garden and is one of the oldest stations of BPI. There has been a minimal improvement in its infrastructures since it was created in November 1931.

The project consists of three phases. Phase I to be implemented for 2004-2006 includes master development plan preparation, road networking, initial perimeter fence improvement, and initial improvement of the A.N. Eusebio Hall. Meanwhile, Phase II that is for implementation in 2006-2008 involves upgrading the Center's laboratories and greenhouses facilities, upgrading the crop

production facilities and seed storage, renovation of dormitories and staff housing, and completion of the road networking. Phase III includes subdividing lots for production and R&D purposes, upgrading the irrigation and drainage system of the production area, and upgrading irrigation and drainage of the research area.

The MOA signed on 20 August 2004, RDMIC Conference Room, covers Phase I of the project. PCARRD shall provide the technical assistance, architectural plans, and financial assistance. Meanwhile, BAR shall provide the counterpart funds as well as assist in the initial planning, monitoring and evaluation of the project.

The agreement was signed by BPI Director Hernani Golez, PCARRD Executive Director Patricio Faylon, and BAR Director William Medrano. Also attending the signing were: Mr. Dennis Eusebio and Mr. Francisco Manipor of BPI-LBNCRDC, Ms. Corazon Oncullo of BPI, Ms. Eleanor Ocampo and Mr. Benedicto Simbulan, Jr., of PCARRD and, Mr. Rolly Labios and Dr. Santiago Obien of BAR. (Rita T. dela Cruz)



Dr. Medrano of BAR (right) signs MOA with Dr. Faylon of PCARRD (left) and Dr. Golez of BPI (center)

globalization, in particular trade and

25%. Deadline for submission is 3
September 2004 and 03 January 2005.
Priority areas of collaboration are:

1) Good governance, accountability mechanisms, and civil society participation like setting up e-government structures; public finance reform in local and provincial government; millennium development goals monitoring mechanisms in local government; involvement of civil society organizations in planning and budgeting process in local, provincial, regional, and central government; and budget analyses and alternative budgets, local and national, from civil society perspectives (ex. pro-poor, gender, children, and environment); 2) Regional economic integration like opportunities and challenges in ASEAN integration and



Eligible activities for this grant are: a) Conferences, seminars, and workshops; b) Training, educational and capacity-building activities; c) Research and studies; d) Media events, media products, and advocacy activities; e) Other activities that promote the image of European Union as a model of best practice

For more information
(application form, budget and
logframe formats and other
requirements), please contact: MS
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Grants for Development-Oriented Projects

he European Commission-Philippine Delegation commits Euro 2.6 M (P156 M)-grant for development-oriented projects for government agencies, LGUs, NGOs, business associations, universities, research institutions and other non-profit organizations. The value of grant allocations to the Philippines (July 2004-March 2005) has a minimum contribution range of P3.6M and a maximum of P16.M for every successful proposal. The cost-sharing arrangement is: EU75%, proponent

Much ado about ISO



International Organization for Standardization

hen you buy a product or obtain service from an establishment that declares itself "ISO compliant", will you feel more assured that you are getting your money's, or time's worth? You should, because being stamped with an ISO - or International Organization for Standardization - means your money's worth complies with world-class standards.

Why do standards matter?

The importance of having standards can be best imagined through everyday actions that we almost never notice. When one has been walking through the same room everyday for the past decade of his life, he never notices — or acknowledges the presence of the single most important structure in the room: the wall. Try removing that wall, and it will be the first thing one will notice once he walks in.

Standards are also like walls. We only notice their presence, or acknowledge their importance if they are absent. Standards raise the levels of quality, safety, reliability, and efficiency of a product or service that is translated into benefits economically.

What is ISO?

The ISO was formed in the 1947 to unify industrial standards. It started as an international standardization in the electrotechnical field. Twenty-five countries met in London, England in 1946 to create a new international organization that "facilitates the international coordination and unification of industrial standards". In February 23, 1947, the organization's operations officially began, and ISO is born.

Today, ISO covers standardization of a huge range of products, services, and environmental management. It is now a network of standards that spans through 148 countries. Its Central Secretariat is in Geneva, Switzerland. Even though ISO is a non-governmental organization, it has member organizations that are both in the government and public sectors, all aiming at providing quality services to their clients.

Who sets the standards?

The ISO.org reports that technical committees composed of experts on loan from the industrial, technical and business sectors were asked to develop standards. These experts are also joined by representatives of government agencies, testing laboratories, consumer associations, and environmentalists. The experts participate as national delegations, chosen by the ISO national member institute for the country concerned. These delegations are required to represent the views of the organizations in which their participating experts work, and of other stakeholders.

There are currently 226 technical committees that set standards for products and services that range from cosmetics, to civil defense, to market and social research, to quality management and quality assurance.

Why do we want it?

It will give us "bragging rights" among our peer institutions. Bragging rights because we rightfully feel being "a cut above the rest". Being stamped "ISO 9001:2000 compliant" would enable BAR to satisfy – and delight clients with efficient services. The efficiency of our operation processes will entail better documentation, improved intra-organization communication, reduced re-work, and most importantly, a greater awareness for personal and institutional quality output, and a positive cultural change in a workplace. (Ma. Lizbeth J. Baroña)

Sources:

http://www.iso.org/iso http://www.canberra.com/other/ iso_primer.asp www.moody-group.com

... He grows citrus...

who will stay for the night."

"It is difficult to come here," I remarked.

"The difficulty in coming here is the joy of it. If you go to heaven, it is much more difficult."

What more could I say to this philosophical citrus scientist who has singularly changed the landscape of his beautiful Malabing Valley? --VAD

Fungi: A solution to Manila's plastic woes

Today, we are living in the middle of a ticking time bomb- Manila's garbage problem. Metro Manila

produces about 8,000 tons of solid waste each day and is expected to reach 13,300 tons in 2014. With the lack of a proper waste management system, the explosion of this metaphorical time bomb is a likely scenario in the near future. But, there is good news yet. Scientists from the Institute of Biological Sciences in the University of the Philippines Los Baños have found a new solution to Manila's plastic garbage- they have found fungal species that can decompose or cause plastic to rot.

Our love affair with plastics

We have a love affair with plastics. From Styrofoam cups in our favorite Starbucks café, Styrofoam containers at our favorite fast food chains, to the everdependable plastic bag at the grocery store- plastics are virtually everywhere. In fact, we probably use plastics hundreds of times a day without knowing it. We are all aware of the boon that plastic has brought to our lives. Unfortunately, coupled with its benefits are its disadvantages to our environment where most of them still end up as waste.

What is plastic?

Plastic is an extremely versatile synthetic material made from the polymerization of organic compounds. Polymerization is a chemical process wherein a compound or a substance is made by adding smaller molecules. They are made

from finite, nonrenewable petroleum and natural gas.

While plastic
products are cheap, making
them is not. Plastics contain
additives such as colorants,
stabilizers, and plasticizers that may
include toxic substances such as
cadmium and lead. It is because of these
substances that plastics may harm human
health. For instance, plastic chemicals,
such as ethylene dichloride and vinyl
chloride used to produce vinyl are
considered to be carcinogenic or cancercausing. They may also trigger other
health problems such as liver, kidney and
neurological damage.

Getting rid of plastics

It has been said that next to diamonds, plastics are forever. This has made disposal of used plastics a cause of concern. Burning plastics is a no-no since plastic fumes can cause a wide range of ailments including skin diseases, asthma, and some forms of cancer. Burning plastics releases noxious smoke and may release cancer-causing gases into the air which people downwind have to breathe. Burying plastics with other wastes can contaminate soil and groundwater. Even recycling, widely endorsed to reduce solid wastes, does not effectively reduce the volume of used plastics.

In the Philippines, approximately 120,000 tons of plastics are generated each year, 50 percent of which end up in open dumping sites that are distributed in cities near Manila.

Biodegradation: A new way of getting rid of plastic

Scientists from the Institute of Biological Sciences in UPLB have found



a new way of decomposing plastics. The new method is called biodegradation, the process of degrading waste material through the use of microorganisms such as fungi and bacteria. They isolated two kinds of bacteria- *Penicillium sp*, and *Aspergillus sp* and one type of fungi called *Xylaria sp*.

Among the microorganisms, they reported that Xylaria sp. performed the best in degrading the plastic sheets. In a followup study, the scientists found that the Xylaria fungus grows best at 25°C and at pH 5. These were the optimum conditions where the fungus grew vigorously using a mineral medium with 0.5% glucose and plastic strips as co-carbon source. Fifty days after incubation, the scientists reported that the plastic strips were embedded in the mycelial mat and results of scanning electron microscopy showed that there were already visible damages on the surface of the plastic strips. (Junelyn S de la Rosa)

Source:

- Isolation of Decomposer Fungi with Plastic Degrading Ability by Virginia C. Cuevas and Rodolfo Managilod of the Institute of Biological Sciences of the College of Arts and Sciences of the University of the Philippines at Los Banos, College, Laguna.
- Colonization of Plastic by Xylaria sp. by Virginia C. Cuevas and Ma. Theresa Clutario of the Institute of Biological Sciences of the College of Arts and Sciences of the University of the Philippines at Los Banos, College, Laguna.

The Department of Agriculture-Bureau of Agricultural Research (DA-BAR), headed by Dr. William C. Medrano, supports and promotes the production of a newly developed sweet sorghum variety, *ICV 93046*, which can be used for the production of ethanol. The new variety is developed by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), a non-profit international research organization headquartered in India, devoted to science-based agricultural development.

DA-BAR signed an agreement with ICRISAT to share cutting edge technologies and other international goods related to dryland agriculture with the Philippine agricultural system.

Filipinos may not be familiar with sweet sorghum (Sorghum bicolor) as it is considered a minor crop here in the Philippines and is mainly used for industrial use and animal feeds. Besides having wide adaptability, rapid growth, and high sugar accumulation and biomass production potential, sweet sorghum is tolerant to drought, soil salinity, acidity, and toxicity.

In addition to the grain, the new variety of sorghum has great potential in the production of alcohol (ethanol). The sugar content in the juice extracted from sweet sorghum varies from 16-23% Brix (a measure for sugar content in liquids). The ethanol produced from sweet sorghum can be used to blend with petrol and diesel to produce gasohol.

During the pilot study, ICRISAT scientists found that sweet sorghum is the best alternative raw material to supplement sugarcane in ethanol production. At 5,600 liters per hectare per year the ethanol production from sweet sorghum compares well with the 6,500 liters per ha per crop of sugarcane. According to the estimates made by research partners of ICRISAT, the per liter cost of production of ethanol from sweet sorghum is 4.28% higher than from sugarcane molasses. However, the slight increase in the cost of production of ethanol from sweet sorghum is compensated by grain yield of 1 ton per hectare (which can be used as human food or animal feed) and the superior quality of ethanol. Moreover, the really significant advantage of sweet sorghum is that the production of ethanol from this crop is environment-friendly since it uses the nonmolasses production technique.

The end products of sorghum (i.e., silage) have higher biological value than the bagasse from sugarcane when used as fodder for animals, as it is rich in micronutrients and minerals. It could also be processed as feed for ruminants. Moreover, the end products from sorghum are valuable as raw materials for pulp products as they contain similar levels of

ICSV 93046 Walkanda

cellulose compared to sugarcane bagasse.

According to Dr. Dar this new variety grows in four months; sugarcane requires 11 months to grow. It also requires less water and less input as compared with other crops that are good for ethanol production.

Director Medrano saw the great potential of this technology especially now that the government is supporting and advocating the use of bio-alternatives for gasoline. In collaboration with ICRISAT, DA-BAR will support the preliminary field trials (both on-station and on-farm) of the new variety of sorghum in major dryland areas of Luzon, Visayas, and Mindanao. ICRISAT will transfer the developed varieties while BAR will mass-produce the seeds for distribution and commercialization.ICRISAT is headed by former Agriculture Secretary William D. Dar. (Rita T. dela Cruz)

...DA has new

program of strengthening research and development (R&D) as well as extension programs that will liberate small producers from their limited traditional knowledge to entrepreneurship.

From business and law to agriculture

Secretary Yap, 38, is said to be the youngest in the history of the Department. He is a graduate of the Ateneo de Manila University with an A.B. honors degree in management and economics and later

finished law at the Ateneo de Manila School of Law.

Before joining the public service, Secretary Yap has been associated with different law firms including: Yap, Jacinto, Jacob Law Office; Associate, Azcuna, Yorac, Sarmiento, Arroyo, and Chua Law Offices; and Balane, Barican, Cruz and Alampay Law Offices. As member of the private sector, he was the national president of the Philippine Association of Paint Manufacturers

(1997-1999).

His stint at government service started when he became the president-CEO of the Philippine International Trading Corporation (the only government-owned trading company assisting SME exporters and counter trade program implementers). In October 2002, he was appointed as the NFA administrator and concurrently chair of the Food Terminal, Inc. (FTI). He also served as the DA undersecretary for Luzon Operations and was frequently serving as DA's OIC. (Rita T. dela Cruz)

BAR calls for unpublished papers for 16th NRS

he Bureau of Agricultural
Research of the Department of
Agriculture (DA-BAR) is calling
for unpublished papers for the 16th
National Research Symposium to be
held on 5-6 October 2004 at the Bureau
of Soils and Water Management,
Diliman, Quezon City.

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 our 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.

This year, the contest is limited to unpublished papers due to budget limitations. Qualified entries are unpublished reports of R&D projects conducted in the country from July 2003 to June 2004. Finalists of the 2-week long panel review will present their papers to compete for the AFMA Best R&D Paper Awards during the symposium.

The finalists are those researchers who will garner a rating of 80% and above during the initial evaluation before a panel of experts in

their respective fields. Specific categories are: agricultural engineering, processing and postharvest, crop science, animal and veterinary science, fisheries and marine science, and policy and socio-economics. Aside from these categories, the papers are further subdivided into upstream and downstream research.

The awarding ceremonies will be held the following day during BAR's 17th Anniversary and Recognition Day at the Bureau of Soils and Water Management on 07 October 2004. (Junelyn S. de la Rosa)

Book on Philippine rice research soon available

A milestone in Philippine rice research will be released as part of the International Year of the Rice (IYR) 2004.

Philippine Rice Centennial: Research and Development will be launched during the Philippine Rice Research Institute (PhilRice) anniversary in November 2004. The book is at par with international standards and recognizes the Filipinos' contribution to rice research.

The book is a comprehensive guide that covers significant changes in the landscape of Philippine rice research and development (R&D). It is an informative and easy-to-read book that targets the general public along with members of the academe, researchers,







Brochures on Bt corn studies in the Philippines

(http://www.searca.org/~bic/info_kits/ btcorn_feed.pdf) (http://www.searca.org/~bic/info_kits/ btcorn_insectdiv.pdf)

Swiss cabinet says no to GM crop moratorium initiative

(http://www.swissinfo.org/sen/ swissinfo.html?siteSect=511&sid=5153637)

Issues hindering growth of agribiotech

(http://www.biospectrumindia.com)

Natural biodiversity can enrich genetic base of crops

(http://plosbiology.org/plosonline/ ?request=getdocument&doi=10.1371/ journal.pbio.0020245)

and policy-makers. The book chronicles the trail of each rice research field's evolution from being science-based to market-oriented in its approach, which makes it interesting to educators and policymakers.

The book's rich historical data shows the rice situation in the country before the arrival of rice research institutions such as the International Rice Research Institute (IRRI) and PhilRice. It also answers major questions about the Philippines' rice production (e.g. why the Philippines cannot be compared to the rice sufficiency level of neighboring countries like Thailand).

Philippine Rice Centennial emphasizes the impact of rice researches on people and communities. Each aspect of rice R&D in the Philippines is tackled: from land preparation to postharvest, trends, and paradigm shifts in management discussions to gender concerns; from the macroeconomic viewpoint down to the farmers' subsistence mentality. (PhilRice Press Release)