



## DA revitalizes ailing rose farming industry in Benguet

Lack of storage facilities, adequate roads, and lack of competitiveness in the global market are just few of the constant problems of Filipino farmers. In La Trinidad, Benguet, the country's main producer of roses, similar problems thrive.

Also known as the "rose capital of the Philippines," Benguet produced about 5.1 million dozens of roses in 2000. Bahong, a small town in Benguet, produced 90% of this harvest alone.

As a result of those problems mentioned, the rose farmers get low income. As reported, each farmer earns a meager net income of P7,202 per 500 sqm annually. Considering that an average farmer owns about 2,225 sqm, each farmer has a total net income of about P 32,017 yearly. At an average household made up of six people, net per capita income of 5,345 would

result. This figure is way below the country's poverty threshold, which is P13,916 (annually) in 2000.

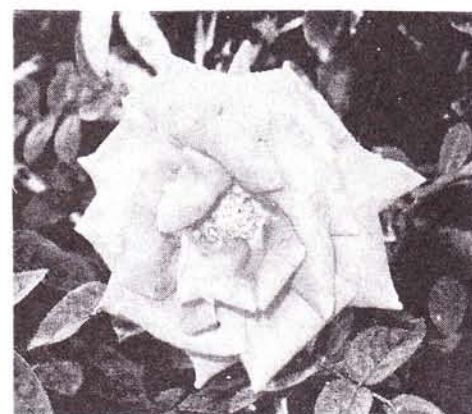
Reports indicated that low farm gate prices have the greatest effect on rose farmers' income.

"White Teneke," the most popular rose variety in Benguet, sells lowest at P13 per dozen, while "Red Success" is sold at P17 per dozen.

A study showed that most of the time, traders are the ones who set the price of the harvests. An interview with 31 rose farmers showed that only 32% of them are able to set the price for their harvest, while 62% of them are dictated by traders, and only 3% can haggle for harvest prices.

Moreover, Benguet rose growers also have very low productivity. Only 70% of the planted roses is productive, and only

70% of these is sold due to low quality. Likewise, rose growers also face



problems of poor postharvest facilities and farm-to-market roads.

In his visit to Bahong early this year, Department of Agriculture (DA) Secretary Leonardo Montemayor vowed to help these rose growers by putting up initiatives to help them. He made the visit to look into the reported mites infestation in Bahong. He assured rose farmers here that the DA has several projects in the pipeline for them, such as technical assistance in the establishment of rearing house for mites predators, establishment of an *in vitro* laboratory, and intensification of research and development for cutflowers. (Laarni C. Anenias)

(Source: Rose farming still thriving in Bahong, La Trinidad by Julieta delos Reyes, Cesar Quicoy, and Alvin Paul Dirain)

## Crop prot RDE network caps year with in-house planning workshop

The National Crop Protection RDE Network capped the year with an in-house planning workshop to assess its accomplishments and redefine its goals for the next year.

Led by Dr. Eliseo Cadapan, network team leader, the members identified several problems facing the network and proposed modifications in their mission and vision.

The most pressing problem the network needs to address is the high cost of pesticide use which amounts to P6.07 billion per year. A large portion of this amount goes to rice with P3 billion, while eradication of weeds, insects and others receive an allocation of P1 billion each. Another problem is the poor adoption of technologies due to weak linkage between farmers and researchers, and

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## The many pros and cons of biotechnology

Like any new thing, biotechnology spurs much debates and reactions (reasonable and sometimes violent) although it was mentioned in the preceding issue that biotechnology is not a new thing. Our scientists and even farmers had been using this technique to improve their crops and animals, only that it was selective breeding or tissue culture that they were doing and not the biotechnology that we know today.

Then why all the fuss about biotechnology? Any ordinary human being upon learning that a foreign matter is introduced into the food he is going to eat is alarmed. It is like ingesting a splinter, a pin, a needle or any foreign body. Well, I wouldn't care if I knew that what I have taken in will make me healthier, more beautiful or more intelligent. Why create a fuss if the person knows that what he is eating will not in any way alter him, or cause him discomfort or pain? People have to know not about biotechnology *per se* but about the product of this technique—the genetically modified (GM) crops and the genetically modified organisms (GMOs) that are used to improve existing crops. What are these and are they safe? What happens to the world we live in if these crops now dominate the landscape and the environment?

Somebody mentioned that all these arguments are the result of ill-informed and hysterical criticisms fanned by irresponsible media. Call the media what you may but it has done its job of

creating awareness of what biotechnology is all about. And if we look at the positive side, what is happening now is a good sign. Relating this to the innovation-decision process, we are at a stage wherein we want to know everything about biotechnology. The interest and curiosity of people have been fired and could only sizzle down with more satisfactory and non-threatening information to the public. Such information should be simple and understandable to prevent further confusion. In fact, at this point, open dialogue and exchange of ideas should be encouraged. And the discussions should be ventilated to everybody through all means of communication for the public to completely understand the many pros and cons of this thing called biotechnology, the GM crops and the GMOs.

I, too, have some reservations eating a GMO product and so I had to read plenty of literature to gain a better understanding of biotechnology. It is funny to think that if we eat a GMO product, that gene or the organism used to create the new product will become part of our system. One article I read said that processing, in general, breaks down the deoxyribonucleic acid popularly known as DNA in the raw materials, so the genes themselves are unlikely to be present in the final product. Moreover, complex chemicals, such as genes, are broken up in the digestive system and so there is no evidence to suggest the transfer of any gene from GMOs into the human body. In the United States,

more than 40 biotech foods have been part of that country's food supply for about a decade and they have been proven safe as conventional foods.

**Who benefits from biotech crops and food?** Everybody benefits, the farmers for lower production costs but higher yield, and consumers for lower price. In the future, farmers will be able to make use of lands with adverse conditions because with biotech, drought- and saline-resistant plants that are developed will bring additional yield. There will be less use of fertilizers and pesticides and the benefit for the environment and man is but obvious. The companies that develop the seeds will also profit from the controlled sale of the planting material. (to be continued)■

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# Pesticide-free legumes, anyone?

■ Mary Charlotte O. Fresco

Nearly everybody knows that vegetable legumes are highly nutritious and are major source of income for our local farmers. What people are not aware of is the high amount of pesticides applied by our local farmers to minimize pest damage and losses. These harvests that contain high levels of pesticide residues have adverse effects to human health as well as the environment.

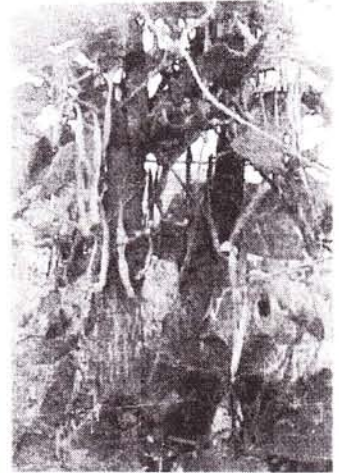
To address this heightening public health and safety concerns, organic vegetable production is introduced. Organic vegetable farming is a sustainable production system that excludes the use of synthetically made compounds such as fertilizers and pesticides. It involves the adoption of cultural practices such as crop rotation, green manuring, and biological pest control to maintain soil productivity and nutrients and control insect

pests and weeds. But these practices can guarantee best results when appropriate organic crop varieties are used.

At the Institute of Plant Breeding in UP Los Banos, several organic varieties of vegetable legumes suited for organic farming were identified. Three varieties of pole sitao were introduced, namely, CSL 19, UPLPS1, and Line 228-1. CSL 19 is found to be highly resistant to aphids and podborer. UPLPS1 is moderately resistant to both aphids and podborer, while Line 228-1 is resistant to podborer but susceptible to aphids. For bush sitao, two organic varieties were introduced: the UPLBS3 that is moderately resistant to aphids and podborer and CBD3 with moderate resistance to podborer. Likewise, two varieties of pole snap beans (B21 and Taichung#1) were found to have intermediate resistance to leafminer and leafhopper. B21 and

Taichung#1 are known for their high-yielding performance with an average yield of 18 tons/ha and 10 tons/ha, respectively.

As for the snap beans, the varieties identified that have resistance to podborer are Hab 19 and Hab 404.



The identification of these organic varieties of legumes is part of the on-going research of the Vegetable RDE network on varietal evaluation of selected vegetables under organic conditions, a project funded by DA-Bureau of Agricultural Research■

## A bunch...

flowering ginger (or both). Therefore, when shipping these plants between islands, precautions should be taken to make sure that they are free of the banana aphid.

### What are the symptoms?

The first symptoms consist of dark green streaks on the lower portion of the midrib, and later on the secondary veins of the leaf. Removing the "white fuzz" or wax covering the midrib makes it easier to see the streaking clearly. Streaks consist of a series of "dots" and short lines often referred to as "morse code" streaking. As infection progresses, streak symptoms become evident on the leaf blade. When fruit is produced, some of the hands may have distorted and twisted fruits.

Keikis or suckers that

develop after infection are usually severely stunted, resulting in leaves "bunched" at the top of the stem. Leaves are usually short, stiff, erect and narrower than normal. Leaves display marginal yellowing or chlorosis and necrosis or burning. These plants will not produce any fruit.

### How can the virus be controlled?

It cannot be cured, and affected plants must be destroyed. Control depends on prompt detection and destruction of infected stools. There are strict quarantine restrictions to prevent movement of contaminated planting materials. Control also depends on the use of uninfected planting materials and intensive eradication schemes.

Complete control of the aphid vector and proper removal of diseased mats are the most important factors for disease control.

The first step in disease

management is effective aphid control. The use of contact, systemic insecticide is suggested so that there is residual anti-aphid activity and aphids are not stimulated to move from treated, infected plants to healthy ones. Clearance has been obtained for the temporary use of Diazinon.

Only after spraying to control aphids can diseased plants be rouged. Spraying with Roundup or Tordon is suggested. Even if only a single sucker is infected, the entire mat must be destroyed. If regrowth occurs, both aphid control and rouging must be repeated until the mat is completely killed

(Sources: Leaflets published through the UPLB-PCARRD-DOST project "Adoption of Control Strategies and Rehabilitation of Areas Affected by Banana Bunchy Top," and <http://www.kpfc.com/banana.htm> and <http://www.dpi.qld.gov.au/health/4203.html>)



# R&D projects pass BAR's en banc review

Thirty R&D project proposals passed the Bureau of Agricultural Research's en banc review for possible resource allocation and funding. This developed after the NPD Review Committee composed of the sector heads and NPD Chief Teodoro Solsoloy referred the P112M plus worth of projects to the various R&D networks for further review and possible inclusion in their prioritized programs.

The following are the proposed projects, the lead agency, and the corresponding amount by network: for aquaculture, UPV has

proposed a 2-year project worth P2.1M; for the Regional Programs Division and high value commercial crops program, USM, UPLB, BFAR Region IV, DA Palawan Research Outreach Station, Biotech UPLB, and Tarlac College of Agriculture proposed ten projects worth P83.2M; UPLB and Leyte State University have proposed four projects worth P5.7M; for Capture Fisheries, UPLB proposed a P0.5-M one-year project; for rootcrops and agricultural engineering, BSU, Biotech and Tarlac College of Agriculture proposed three projects worth P7.5M; for biotechnology and livestock and

poultry, Biotech, the Tarlac College of Agriculture, and National Institute of Molecular Biology and Biotechnology (NIMBB-UPLB) proposed five projects worth P6.1M; UPLB proposed two projects for the Social Science and Policy network worth P3M; Biotech, UPLB, and Tarlac College of Agriculture proposed three projects for the Postharvest, Food Science and Nutrition network worth P2.9M; and Tarlac College of Agriculture proposed one project worth P0.9M to the Soil and Water network. *(Thea Kristina M. Pabuayon)*



## ANNOUNCEMENT

The DA through Secretary Leonardo Q. Montemayor has lifted the temporary ban on the importation of apples, pears, apricot, peach, plum, quince, cherry, almond, walnut, ornamental apple, and corn from selected areas in China—Yantai, Longkou, Weihai, and Qungdao. This was made official through Administrative Order No. 24 series of 2001.

The temporary ban was lifted after the Plant Quarantine Technical Team from the Bureau of Plant Industry (BPI) was sent to China to investigate the sources of infestation on the fruits exported in the country and made sure that the importers abide by the plant quarantine measures.

Meanwhile, the plant quarantine officials in China have pledged to comply with the conditions as stated in the import permit and adopt strict sanitary and phytosanitary

measures to prevent pest infestation in the future.

Secretary Montemayor ordered the resumption in the processing, evaluation and issuance of import permits; inspection of all shipments; mandatory treatment at the country of origin. Subsequent inspection in all Philippine seaports and airports shall be undertaken for all shipments until new guidelines have been formulated, based on the bilateral agreements to be established by the two countries concerning fruit importation. Upon arrival at Philippine ports, all imported commodities from China found infested with pests shall be returned to the country of origin or destroyed at the expense of the importers.

The lifting of the temporary ban sought to foster a stronger relationship in the trade of agricultural commodities between the Philippines and China ■

## Crop protection...

lack of training on the part of farmers. Other problems taken up are market globalization, porous quarantine control, reactive approach to field crop protection problems, inadequate baseline information, quality control of products, and weak organizational linkages and structures.

As proposed by the members, the network's vision should be "a sustainable agriculture through effective, safe and affordable crop protection practices." National Experts Team (a pool of experts consulted by team leaders to review project proposals) and network member Dr. Edwin Benigno proposed to modify the network's mission to "protect crops against the harmful effects of pests to ensure that agricultural products are utilized by humans." Likewise, Dr. Benigno proposed several goals for the network, including the reduction of entry of exotic pests to the country, improved management of pest outbreaks, monitoring of pest sources, distribution and chances of pest infection, ensuring ample supply of biocontrol agents

*see crop protection, next page*



# Using biotechnology in improving crops

■ Maria Rowena SA Briones

Necessity is the engine that propels most of the inventions, discoveries and improvisations in this world. And nothing like the necessity for food can propel mankind's creativity into good use.

One of the newest fields in science is biotechnology. Although this is a thorny issue, it is undeniably a solution to most of our agriculture-related problems. By using biotechnology, we can improve certain characteristics of crops such as yield, quality and resistance to pests and diseases. With this, we address a big part of the problem of our farmers. Thus, biotechnology is one of our country's research and development priorities.

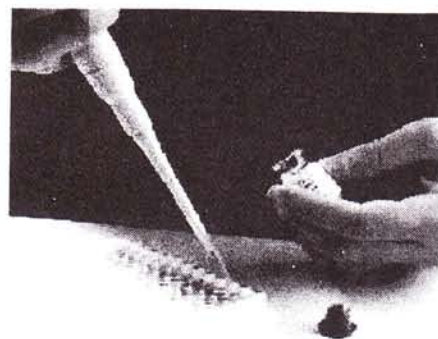
In 1997, Pres. Fidel Ramos approved the implementation of biotechnology researches on five important crops—corn, coconut, mango, papaya, and banana. The Agriculture and Fisheries Modernization Act of 1997 also recognizes biotechnology as a means to modernize agriculture and enhance rural development. Pres. Gloria Macapagal-Arroyo, in a policy statement issued last July

2001, affirmed that biotechnology can help us achieve and maintain food security and sustain life as it can make medicines cheaper and medical treatments easier, if not avoidable.

We have a trained manpower for us to attain the vision using biotechnology but, often, funds are not enough. Nevertheless, crops biotechnology researches in the Philippines are viewed as one of the pillars for agricultural development. Support agencies like the Bureau of Agricultural Research strengthen the capacities of scientific institutions involved in biotechnology research and development.

The lead institution for biotechnology researches in the country is the National Institute of Molecular Biology and Biotechnology (BIOTECH) at the University of the Philippines Los Baños. The priority crops of these researches are what had been identified as the country's important crops: corn, coconut, mango, papaya and banana.

BIOTECH is already field-testing the corn-borer resistant corn



they developed. For coconut, BIOTECH is modifying coconut's fatty acids to increase the amount of medium chain triglycerides.

To increase production of banana, mango, and papaya—our major export crops—BIOTECH is developing bunchy top virus-resistant banana and ring spot virus-resistant papaya. Mango is being bred to have a gene that can delay ripening to preserve its quality while in transit thus increase its export potential. The Philippine Rice Research Institute (PhilRice) spearheads biotech researches on rice. The research strategy here is not just to do researches on our own but to forge partnerships with other research institutions such as the International Rice Research Institute (IRRI). PhilRice researches are geared on developing high yielding and highly adaptive rice varieties. Along with IRRI, field testing of bacterial blight-resistant rice will be undertaken as soon as the National Committee on Biosafety approves it. The trials will be done in Muñoz, Nueva Ecija and Los Baños, Laguna. Meanwhile, genetically modified rice lines that are resistant to rice tungro spherical virus are currently being tested in screened houses.

Hopes are high that biotechnology will help improve agriculture in the country—not just the yield but more importantly, the lives of those who depend on it.

*Reference: Paper presented by Dr. Leocadio Sebastian of the Philippine Rice Research Institute and Dr. Violeta Villegas of the Institute of Plant Breeding- UPLB during the BAR-DOA Joint Symposium held last November 27-28, 2001.*

## Crop protection...

and crop protection technologies, and ensuring that crop protection activities are safe both for man and the environment.

At present, the members characterized crop protection in the field level as poor, with little or no compliance with the crop protection protocol. According to them, IPM protocols for many crops are inadequate or completely unavailable. To date, only rice, corn and a few vegetables have IPM

protocols. In terms of technologies, the network has already developed several biocontrol agents such as Diadegma, Cutesia, Trichogramma, Metarhizium, NPV, Telenomus and Orius.

The network is set to meet tentatively in January 2002 to finalize these proposals and present its revised strategic plan to the Senior Scientists Advisory Committee (SSAC). (Thea Kristina M. Pabuayon)

(With reports from Anna Liza Guevarra, NPD)



# Culturing the delectable *lapu-lapu*

■ Mary Charlotte O. Fresco

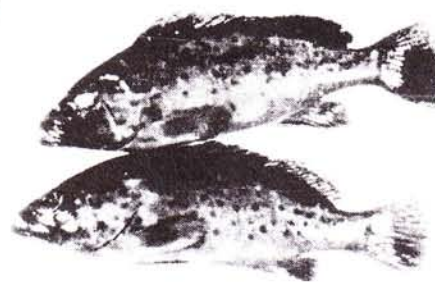
If there's a fish that is valued most for its excellent meat texture and exceptional taste, it is no other than the delectable *lapu-lapu*. Collectively known as grouper (*Epinephelus spp.*), *lapu-lapu* or *inid* is one of the most economically important cultured marine fish species in the Philippines, Australia, Japan, Hongkong, Malaysia, and Singapore.

The grouper can be easily identified by its light yellowish to brown body with unequal spots scattered on the head, body, and fins. There are about 40 species of groupers widely distributed in tropical waters. Two species, the *E. coioides* and *E. malabricus* are the most preferred for culturing in

ponds and cages.

According to the Southeast Asian Fisheries Development Center (SEAFDEC), groupers contribute an estimated P640,000 per hectare a year to our domestic gross revenue. Since the domestic and export demand for groupers is remarkably increasing year after year, there is no doubt that grouper culture can help boost the country's economy if production is sustained.

However, culture of grouper in ponds and net cages failed to reach large-scale production due to shortage of fingerlings and trash fish as feeds. In response to these needs, the SEAFDEC developed strategies and techniques to make grouper culture in net cages and brackish ponds produce optimum return and benefits for our



local farmers.

## Culture in net cages

Choosing the site for net cages culture should be the foremost consideration. The best sites are those with good water quality, adequate water exchange, free from predators, and protected from strong wind and waves.

In constructing the floating cages, one can use bamboo poles and polyethylene netting materials at 25-50 mm diameter. In making the net cage, two types of net panels are needed: 4-side panels and one bottom panel. The net should be secured to the raft structure of bamboo poles using a rope.

The grouper fry (2.5-7.2 cm) can be stocked in the nursery cages. Fish density should range from 100-150 per square meter. A 2x2x2 net can hold 400-600 fingerlings. Sorting must be done every week and stock sampling every 15 days. Groupers are normally held in the nursery cages until they are about 16 cm when they can be transferred in transition nets. A transition net 5x5x5 wide can hold 1,100 fishes. The fish are finally transferred to the production net after 2-3 months.

Grouper juveniles are fed with chopped trash fish once or twice daily. Feeding is usually done in the morning and towards the evening. It should also be done when the tides are slack so that minimal feeds are swept away by wave current.

## Culture in brackish water ponds

The pond used for grouper culture is similar to that of milkfish culture. It should be at least 1-2 meter deep. Stock adult tilapia (5,000-10,000/ha) in the pond and allow reproduction for one month. The tilapia

see Culturing, page 8

## PMS holds mushroom convention

"If we are to have a vibrant mushroom industry in the country, we need to keep track of what's going on in the global mushroom market," said Ms Josefina Lantican, chief of Impact Evaluation and Policy Division of the Bureau of Agricultural Research (IEPD-BAR). This set the tone for the 17th annual conference and general assembly of the Philippine Mushroom Society (PMS) at the Research and Development Center, Rizal Technological University (RTU), Mandaluyong City on 14-15 December 2001.

This year's theme "Mushrooms as Potential High Value Crop," underscores PMS' interest for including mushrooms in the list of high value crops of the Department of Agriculture.

The convention focused on better technologies for growing mushrooms and funding

alternatives for cooperatives, interested growers and entrepreneurs.

Experts and entrepreneurs working on mushrooms discussed relevant topics including 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 also proposed funding alternatives for those entrepreneurs or growers who are interested in growing mushrooms as a source of income. They talked about the venture financing assistance program, *Masaganang Sakahan*, Land Bank Countryside Development Foundation, Effective Response to Alleviate Poverty (ERAP) program, and People's Credit and Finance Corporation. (Junelyn S. de la Rosa)



# A bunch of bunchy top

■ Rita dela Cruz



Banana (*Musa sp.*) in the Philippines is considered an "export winner" next to mango because of its export potential, supply capability, unique features, domestic demands, and socio-economic impact. According to the latest statistics, Philippine banana has a very high competitive advantage, contributing about 6% of the world's total production.

Production of cultivars like the *lakatan*, *latundan* and *saba* is still dominated by the Philippines in the world market.

But like any progressing industry, the banana industry also faces problems that could affect its further growth. According to farmers, traders, processors and other stakeholders, the number one problem lies on the susceptibility of these cultivars to banana bunchy top virus or BBTv.

BBTV is the most destructive virus disease affecting the *Musa* family. It is called "bunchy" because it is manifested by the rosette appearance of narrow, upright and progressively shorter leaves. It is caused by a virus with isometric particles transmitted by a brown banana aphid, *Pentalonia nigronervosa* Coq that feeds and multiplies

primarily on banana, abaca, gabi-gabi, and abaca.

Bunchy top produces dark green, dot-dash flecks running along leaf veins and hooking down along the midrib, and dark green streaks running vertically down the leaf sheath into the pseudostem of the banana plant. New emerging leaves are progressively shorter, narrower and more erect. The stools fail to produce fruit.

The disease was first known in Fiji in 1889. Its occurrence was reported in 1900 in Taiwan and a year after in Egypt. Its symptoms were observed in 1913 in Australia. In the Philippines, BBTv was first observed in abaca.

## How is the disease transmitted?

The virus is spread by the brown banana aphid, which can acquire the virus after an 18-hour feeding period and can retain the virus for about two weeks. During this time, an aphid can transmit the disease after feeding for about two hours on a healthy plant. Disease symptoms appear approximately one month after infection.

The brown banana aphid can transmit the virus to a healthy plant throughout its life. The virus multiplies, translocates to all parts of the plants and stays there for life. The earliest symptom appears 28 days after infection.

Since heliconia and flowering ginger are known hosts of the banana aphid, it is possible for virus-infected aphids to move from infected banana plants to heliconia or

see A bunch, page 3

## AIS releases its first nat'l goat breeders' catalogue

For anyone who wants to venture into animal production, knowing the right kind of breeding stocks to raise is one major key to success.

This is the guiding principle tied to the newly released National Goat Breeders' Catalogue-The Philippine Goat Breed Registry that was consolidated and organized by the Institute of Animal Science (IAS) at UP Los Banos. This semi-annual book is a compilation of goat breeding reports from seven provinces (Batangas, Bohol, Bulacan, Cagayan, Cebu, Laguna, and Nueva Ecija) and other goat breeding farms in Rizal, Pangasinan, and Tarlac.

The catalog features individual goat performance and information on bucks and does (female goats) with outstanding breeding and reproductive characteristics, and goats with above average body weight and measurements in each farm.

Likewise, the catalog serves as an information tool in promoting the potentials and profitability of goat production among small and large-scale farmers. Farmers can easily access accurate and uniform procedures for measuring, recording and assessing goat performance data.

Information that are necessary in goat breeding operation such as tagging (ear notching, tattooing), blood collection and blood protein analysis, prescribed mineral supplements, appropriate materials for construction of goat house, artificial insemination, embryo collection in goats, and recommended herd management techniques for goats are also included in the catalog.

The packaging of this catalog is part of IAS' on-going program on "Characterization, Improvement, and Conservation of Goats," a DA-Bureau of Agricultural Research (DA-BAR) funded project. (Mary Charlotte O. Fresco)



## Web NEWS

### Agroforestry---Combining nature and livelihoods

<http://www.futureharvest.org>

### Get serious about averting trouble in the forest

<http://www.futureharvest.org>

### RP signs fishing cooperation accord with Indonesia

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

### Local sea cucumbers yield anti-cancer agents

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

### DA sets up 14 trade posts to market agri-aqua rproducts

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

### "Burdagol", a.k.a. brown rice is more nutritious than white rice

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

## Culturing...

fingerlings will serve as food for the grouper juveniles. Stock grouper fingerlings should be 5, 000/ha. Aside from tilapia fingerlings, grouper juveniles can be fed with chopped trash fish with 5% biomass. Feeding is done twice a day, half of the feed requirement in the morning and the other half in the afternoon.

It is also important to have constant monitoring of water parameters (water depth - 1.0-1.3 meter; water temperature-24-31° C; salinity- 21-41 ppt; and dissolved oxygen- 4.9-9.3 ppm).

Harvesting of mature groupers (400-600 grams) is done in the morning using a drag net. The harvested fish are transferred in holding nets where they are sorted and graded.

A farmer can harvest a total of 4,000 pieces of lapu-lapu per hectare and sell them at P200 per kilo. A net profit of P267, 930 can be projected for the period of eight months ■

(Source: "Grouper Culture" published by the Southeast Asian Fisheries Development Center (SEAFDEC), Tigbauan, Iloilo)

## Ulang to replace sugpo in the market?

■ Thea Kristina M. Pabuayon

Producers of the popular *sugpo* may soon find competition in the market when the Bureau of Fisheries and Aquatic Resources (BFAR) introduces the *ulang* or freshwater prawn (*Macrobrachium rosenbergii*).

BFAR National Integrated Fisheries Development Center Chief Westley Rosario, in an interview with one of the country's major dailies, said that they have produced close to a million *ulang* since their operations began in 2000. At present, the Center has 3,000 freshwater prawn breeders.

To date, BFAR has already developed the commercial production technology of the prawn and is also field testing its inland production. BFAR said that they are encouraged to promote *ulang* since there is an apparent decline in the production of the more popular *sugpo* or tiger prawn due to the luminous and non-luminous bacterial disease afflicting it.

To further develop this commodity, BFAR is soliciting the help of Myanmar in providing good strains of freshwater prawns. Although the Philippines has the technology, our country lacks the superior strains of the



species. The cooperation with Myanmar entails the transfer of the technology to them in exchange for the stocks. As a preliminary move, 200 stocks of juvenile *ulang* have already been delivered by Myanmar.

Other than the term *ulang*, freshwater prawn is also locally known as *udang*, *kising-kising* and *pahe*. Its reported 15 species are indigenous to the country.

Of the 100 or more *macrobrachium* species around the world, *m. rosenbergii* is the most popular. It is known for its remarkable growth performance and ability to survive in turbid water conditions ■

(Source: PDI. Ulang to outclass sugpo...December 18, 2001; Culture of freshwater prawn in earthen ponds.)

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## NTLs assess performance for year 2001

The national team leaders of the National R&D System for Agriculture and Fisheries (NaRDSAF) conducted their 4th Quarter Meeting on December 18 to assess their performance for the year 2001. The agenda included an account of the highlights of accomplishments of each network in relation to the implementation of their agenda and programs for the last four months.

The 3rd Quarter Meeting held last August would also form part of the agenda to be discussed, including an identification of new technologies generated by completed researches and developments of on-going projects. Likewise, the participants discussed important issues raised and recommendations made to address constraints on specific projects and activities of BAR and the networks.

The different networks prided themselves of the following milestones and accomplishments:

### Rice

Although the networks suffer from budget cuts, the rice network still made good mileage in terms of

program implementation, training, information campaign, and technology promotion. To date, the rice network has launched its own webpage, and published '*Palaytandaan*' which details technologies and information on rice production. It has conducted workshops for farmers in the regions and coordinated with the LGUs, NGOs, and ATI for the conduct of other training activities. In terms of technology promotion, the network has developed primary machineries, water saving schemes, and the minus-1 test kit.

### Corn

The network and the National Crop Protection Center (NCPC) through the project "Mass Rearing and Conservation of Earwigs" discovered new biological control methods for corn stem borers. What the network did was to publish a manual or brochure detailing the corresponding recommended control methods using natural enemies and distribute them to municipal agriculturists. The project is interfaced with the Department of

*see NTLs, page 5*

## IPB recommends 9 varieties of high-yielding yellow corn



*Ginintuan or IPB Var 1*

feed. It is yellow corn that the country is deficient.

The Institute of Plant Breeding (IPB) in Los Baños, Laguna recommended nine varieties of high yielding yellow corn.

IPB introduced these varieties along with other high-yielding white corn like the *Ginintuan*, *Tanco White* *IPB Var 4*, *Improved Makapuno*, *Lagkitan* or *Composite No. 2* and *DLU Pearl Sweet*.

### *Ginintuan (IPB Var 1)*

This is a yellow flint open-pollinated corn variety with moderate resistance to downy mildew and corn borer. It matures in about 110 days and has an average height of 2.37 meters. Its average yield is 4.08 and 4.55 tons per hectare for wet season and dry season, respectively.

### *Philippine Supersweet No.1 (Asukar)*

It is an open-pollinated yellow supersweet variety with excellent taste.

*see IPB, page 4*

Corn is the third major cereal crop grown world-wide, particularly in the developing countries of Africa and South-East Asia where it is a staple diet for man and animal. In the Philippines, corn is the second most important crop next to rice. Yellow corn in the country is used primarily as animal feed while white corn serves mainly as staple food for 20% of Filipinos in the South. When the price of white corn is low and yellow corn supply is low, white corn is also used as

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## The many pros and cons of biotechnology

The article on golden rice in the previous issue said that with the insertion of a gene from a daffodil plant, the vitamin A in rice was enhanced greatly. This implies that eating this biotech rice decreases the incidence of blindness or vitamin A deficiency diseases. With biotechnology to improve the nutritional value of foods, we will soon buy cooking oils with reduced saturated fats and fruits with higher vitamins C and E.

**Are biotech foods different from traditional foods? Are they natural?** Biotech and traditional foods look and taste the same and biotech foods are as natural as the traditional ones. Their only difference is, out of tens of thousands of genes in the entire traditional plant, there are one or two genes that are different in the biotech plant that make the biotech plant better. They yield traits that are beneficial to the farmer, the consumer, and the environment without changing the nature of the plant.

And now the cons. Those against biotechnology say that it is a bad science since the genetic structure of plants is so complicated that scientists cannot yet fully understand and modify it. The British National Farmers Union's argument is on ecosystem dangers – that the scientists are too focused on a crop and not much attention is given to the wider environmental context in which the crop is grown. Other issues include greater reliance on chemicals since insect pests may develop greater resistance to pesticides and the weeds on herbicides, loss of biodiversity, health risks, and the profit motive of agriculture companies. As to the environmental risks, Dr. Phil Dale of the John Innes Centre, an agricultural research institute in UK, said that these risks can be predicted, assessed, and managed through large-scale

experimental field plantings under carefully controlled conditions.

An article averred that that the world does not desperately need GM crops for food security and sustainability. These are produced more for greed not need. Besides, meddling with the genetic makeup of plants is immoral and sacrilegious. Monsanto, the world's largest GM seed company has good reasons to counter the attacks. It reasoned out that GM crops are resistant to insects and diseases and tolerant to herbicides. These crops are needed to meet the growing demand for food. The genetically induced quality traits in foods are for improved nutrition to fight against diseases. More can be produced, the environment is not destroyed due to lesser use of fertilizers and pesticides and the product is more nutritious resulting to healthier consumers.

In April 1999, the Church of England issued a statement encouraging its members to think through issues in the light of their Christian faith. It said that foodstuff have been derived from genetically modified plants and animals since the time that agriculture began through selective breeding and modified by genetic engineering where natural breeding could not be done.

As to the theological issue of the process as radically unnatural, and the hubris of playing God, the Church said that human intervention had been done into natural processes and that everything that can be done should be done. Genetic engineering, after all, is not very different from other forms of scientific advances.

The debate on the pros and cons of biotechnology rages on. For its part, the Philippines is going toward the right direction. We have our national policy to promote the safe and responsible use of modern biotechnology and its products. Of the 10 percent budget allotted for R

## Quail...

chicken feeds. Quails require a higher percentage of protein in their feeds and if they are sustained with chicken feeds for a long period of time, mortality rate may reach up to 70% and "survivors" will not be efficient layers.

Quails that are fed with chicken mash undergo early molting, which in turn affects their egg production efficiency. Birds that are raised for meat production should be sustained with high-carbohydrate diets and special feeds formulated that are commercially available. Laying mash for layers can be supplemented with chopped green vegetables.

When it comes to health maintenance, there is no known serious disease of quail, except some respiratory disorders that do not spread fast as long as regular cleaning and disinfection are practiced.

Newly laid eggs should be stored in carton boxes prior to marketing. Place boxes in cool dry places to maintain good air circulation. This keeps the eggs fresh for seven days.■

(Source: Livestock Development Council, Department of Agriculture, Elliptical Road, Diliman, Quezon City. Tel.No 920-3990/920-3991 or email: livestock@netasia-mnl.net)

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# Saving the precious mangroves

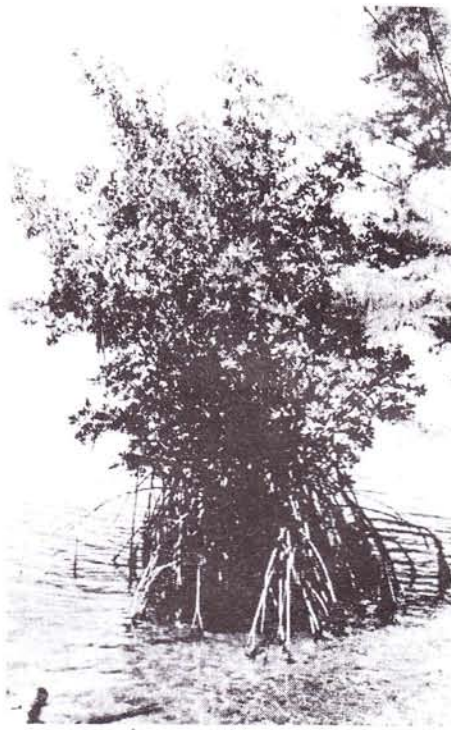
■ Junelyn S. de la Rosa

Mangrove communities are one of the richest natural grounds supporting various flora and fauna in our environment. Mangrove communities are vital nursery grounds and refuge to countless small shrimps, crabs, fishes, and other organisms. However, today these communities are heavily exploited and are on the brink of becoming extinct.

Recent statistics show that many mangrove communities have been destroyed by excessive timber cutting for fuelwood and charcoal, land reclamation, agricultural farms, saltponds and extensive use for aquaculture purposes (Philippine National Mangrove Report).

Growing awareness and concern to save the country's remaining mangroves has resulted to various legislative and administrative measures.

Researchers from Mariano Marcos State University- Andres Tungpalan, Melissa Bucalig and Menisa A. Antonio assessed the existing flora and fauna in four mangrove areas in Northern Ilocos Norte. Data gathered from this



study will be essential in managing the mangrove communities properly.

To assess the fauna present in the various mangrove communities, the researchers used a net, known as *bocatot*. It is made of fine mesh set with two wooden ends. Organisms caught in the trap were sorted out and preserved in formalin for labeling. The drag net or *sudsud* was also used to capture other kinds of organisms thriving in the mangrove communities. During the dry season, the researchers caught 48 species of aquatic organisms, 14 species were crustaceans while 34 species were fishes. To sustain these mangrove communities, the researchers recommend that coastal residents be educated on how to manage mangrove resources properly and implement a viable land-use program that would minimize pollution of the mangrove areas.

*Source: Biodiversity of Mangrove Communities in Northern Ilocos Norte by of the Mariano Marcos State University*

## Vietnam agri scientists visit research and scientific institutions in RP

A six-man delegation from the Ministry of Agriculture and Rural Development (MARD) of the Department of Science, Technology and Product Quality, Hanoi, Vietnam visited research and scientific institutions in the country on 11-18 December 2001.

Among the institutions and agencies visited were the International Rice Research Institute (IRRI), Philippine Rice Research Institute (PhilRice), Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD), University of the Philippines Los Baños (Institute of Plant Breeding, National Institute of Molecular Biology and Biotechnology, and Forestry), Bureau of Soils and Water Management (BSWM), and Bureau of Agricultural Research (BAR).

The visit allowed the MARD Vietnamese to learn and exchange experiences on basic investment for agricultural research and education like infrastructure, laboratories, field experiment and needed facilities for research with our local institutions. They also gathered information on institution construction in terms of area required, building investment, spatial arrangement, managing structure, and operating mechanism which they can adopt appropriately in building their own research institutions.

The six-man delegation is composed of Nguyen Binh Thin, Dang Van Dam, Duong Dinh Hong, Phung Van Hao, Nguyen Quan Hoat and Phan Van Nghe.

BAR Director Eliseo Ponce briefed the visitors on the Bureau's role in the R&D system of the country, the processes and operations within and how researches are being funded according to priority (Rita T. dela Cruz)

### WHO'S NEW AT BAR?

Meet the young librarian of BAR, **Ms Joahnna Fe M. Umali**. A 24-year old fresh graduate of Bachelor of Library & Information Science from UP Diliman, she hails from Santor, Tanauan City, Batangas. She spent 12 of her growing years in Papua New Guinea.

This is her first job. When asked about her hopes and expectations she said, "I hope that BAR will be the gateway for achieving more knowledge and to prove myself as a good librarian. I also hope that my experiences here will enhance me not only as a librarian, but also as a person." ■



## IPB...

Fresh ears can be harvested 70-72 days after planting. It yields 7.2 tons per hectare (fresh ears) and grows to about 2.28 meters.

### IPB 911

This yellow hybrid has an average yield of 7.2 tons per hectare. It matures in 105 days and is resistant to downy mildew and tolerant to corn borer.

### IPB 913 (PSB Cn 92-94)

This hybrid has an average grain yield of 6.58 tons per hectare. It grows to an average of 2.0 meters and matures in 104 days during the wet season and 108 days during the dry season. It is resistant to downy mildew, moderately resistant to rust and stalkrot, and moderately tolerant to corn borer.

### IPB 921 (PSB Cn 93-37)

This hybrid can adapt to all regions of the country and can be grown throughout the year. It yields 6.89 tons per hectare, matures in 104 days, and is resistant to downy mildew and tolerant to corn borer.

### IPB 929 (PSB Cn 93-38)

This variety has a wide adaptability to different soil types. It yields 7.01 tons per hectare, matures in 106 days, and is resistant to downy mildew and tolerant to corn borer.

### IPB 919 (PSB Cn 93-36)

This hybrid grows in any soil type and adapts to all regions of the country. It has an average yield of 6.35 tons per hectare, matures in 104 days, and is resistant to downy mildew and tolerant



to corn borer.

### IPB Var 7 (Dafrosa)

This is a yellow open-pollinated variety that matures 105 days after planting. It yields 5.57 tons per hectare and can be grown in any soil type in all regions of the country.

### IPB 33161 (Nutrisweet)

This is a double endosperm mutant variety that has brittle and opaque genes which are responsible for the supersweet taste of young kernels and high concentrations of two essential amino acids, namely lysine and tryptophan. Its kernels at green stage are creamy yellow, sweet and very tender when cooked. It yields 5.74 tons per hectare and can be harvested 72-76 days after planting. It is resistant to rust and can be grown during the wet and dry seasons. (Rita T. dela Cruz with information provided by IPB-UPLB Corn Production Guide Leaflet).

(For more information, please contact the Office of the Director, Institute of Plant Breeding, College of Agriculture, University of the Philippines Los Baños, College, Laguna or call telephone nos. (049) 536- 2512, 2339 or fax (049) 536-3438)

## PGR...

such as repairing of infrastructure and laboratories and storage. He averred that, "the universities have all the interest and energy but has no fund to do researches; therefore, DA have to come in to sustain funding. They have to play a stronger and proactive role. Genetic resources are irreplaceable."

Dr. Ponce further said that, "we should prioritize education. (In this aspect) we have to be bold and not just be contented with what we are doing. I hope that we can work out a program with the Department of Education, Culture and Sports (DECS) to make our school children conscious about conserving our genetic resources."

According to him, there are several sections in the Agriculture and Fisheries Modernization Act (AFMA) providing the development of right values and attitudes toward agriculture of elementary and high school students. He added that, "we should remove practices that paint negative image on agriculture like using agriculture work to punish children and singing songs that say agriculture is a difficult work. The impression that only those who do not qualify in computer or engineering courses go to agriculture is also not helpful."

To jumpstart the DA's goal of agricultural development, it is not just the personnel's skills that need to be enhanced, but the appreciation of this goal is also crucial. Dr. Ponce hopes that agencies concerned with PGR will be active in promoting this mission. "We have to involve people in our conservation efforts, especially the indigenous people. This is not just for us, this is also for our country."

Dr. Javier declared that, "we have to bond these people together because this is the only way we can be competitive in our work." (Ma. Rowena SA Briones)

## Quail...

cages. They should not be exposed to more than 12 hours of light.

Normally, quail hens start to lay eggs 45 days from hatching. Among the critical factors that need to be considered are feeding; water (consider the size of water dishes because young chicks can easily fall into the water and get drowned); culling (should be done once every four months); removal of waste; and lighting (extra light should be given to layers).

Since quail birds are sensitive to salt, levels should not exceed .7% to 1% in feeds.

Feeding is another major factor in quail raising. Most of the quail industries today fail because raisers are still practicing inappropriate techniques such as feeding the quail birds with



## RDMC: harmonize R&D coordination in the country

Key officials from the Department of Agriculture (DA) met recently to discuss measures for greater efficiency in managing the country's R&D resources. The agenda focused on the areas of complementation between the DA Regional RDE Networks (RRDEN) and the Regional R&D Consortium (RRDC) of the Department of Science and Technology (DOST).

Officials of DA attached agencies, regional integrated agricultural research center (RIARC) managers, and regional technical directors (RTDs) for R&D were among the participants. They discussed matters arising from the areas of complementation between the two bodies during the 7th Research and Development Management Committee (RDMC) Meeting at the BAR Conference Room recently.

This issue stemmed from recent pronouncements from the office of DOST Secretary Estrella Alabastro that they only recognize the RRDC in conducting regional R&D coordination. BAR Director and RDMC Chair Dr. Eliseo Ponce, however, espoused that there should be separate institutions in charge of coordinating natural resources R&D, and agriculture and fisheries. He said that lumping these two fields will only complicate the coordinating tasks of both associations since both are distinct, thus requiring different approaches in planning and program implementation.

Dr. Ponce added that it would be more effective if both institutions come up with a framework detailing the areas of complementation between them, instead of redesigning the existing RRDC structure to include an extension component, a vital part of

RRDEN's structure. In the RRDEN's structure, there is direct access to the extension system since it is already part of the network, thus creating an easier RDE coordination.

The consortia could focus instead on areas where it has greater advantage such as program implementation and monitoring, while letting the networks focus on agriculture and fisheries R&D and technology transfer, Dr. Ponce stressed.

For 2002, Dr. Ponce encouraged all regional networks to be more effective in program implementation and networking. He further mentioned that a national meeting shall be held in 2003, which will serve as a venue for drawing a set of recommendations on commodity-specific RDE initiatives for the regions. (*Laarni C. Anenias*)

### NTLs...

Agriculture's Integrated Pest Management Program 'KASAKALIKASAN'.

Aside from these, the network also succeeded in identifying new high-yielding corn varieties, and has already started using the GIS technology in analyzing yield gaps in major corn producing areas.

#### Coconut

The Coconut network's findings on coconut oil's safety is good news to every health conscious Filipino. A high-impact project called "Meta-analysis of Coconut Oil" indicated that taking in coconut oil in any form is not harmful to health. The proponents of the study further recommended that a clinical test be conducted to further clear the issue.

In support to the poverty alleviation program of the government, the coconut network convened with the International Food Policy Research Institute (IFPRI) and identified ten possible sites for diversification of coconut farms in areas close to the

coastline. Coconut diversification has already proven effective for our Asian neighbors like Vietnam and Thailand who have succeeded in increasing their income by mass-producing coconut coir fiber for erosion control.

#### Banana

The Australian government and the Coconut RDE network led a pest risk analysis to possibly allow the entry of our bananas to the 'land down under.' Local fruit experts say that penetrating the Australian market would serve as the gateway to other markets and eventually, the US.

Other notable accomplishments are the setting up of 29 demo farms for the bunchy top and *bugtok* virus projects; adoption of the virus index systems by Lapanday, and the banana SCA System which is a requirement for our local fruits, especially mango, before they can enter foreign markets.

#### Social Science and Policy

A social science database is now accessible through the Internet. It contains basic data on trade, reference bibliography, and literatures on research and extension. Likewise, research planning and identification of appropriate location-specific technologies is now made easy with basic data on the characteristics and agro-climatic conditions of regions.

#### Plantation Crops

Identified varieties and clones of coffee have gained the acceptance of farmers. The NAFC Industrial Group was even surprised and pleased with the positive results of trials of the coffee varieties. Likewise, the national president of coffee foundation has asked for a one-hectare area per region for pilot testing the varieties. Training and a comprehensive information campaign will still be done to prepare and support this development.



# Quail is more than just a game bird

■ Mary Charlotte O. Fresco

Unknown to many, quails (*Coturnix coturnix japonica*) are classified as game birds and used in outdoor sports and recreational activities. But for business enthusiasts, quail is more than just a game bird. They find delight in raising quails because they are easy to nurture, don't require big space and capital, and can give immediate returns. In fact, quails can stand well with chicken as a source of organic meat and eggs.

Quail hens require less than two pounds of feed to produce a pound of egg, while chicken needs almost three pounds of feeds to produce the same weight of egg. Once a quail starts laying, it can produce an egg daily for at least a year.

Here in the Philippines, quail eggs or *itlog ng pugo* have become a popular "street food." Sold in the busy streets of Makati to the slums of Cubao, most popular are the orange-colored *kwek-kweks* and the boiled ones. Quail meat is also eaten, normally boiled, baked, roasted, stir-fried, or stewed.

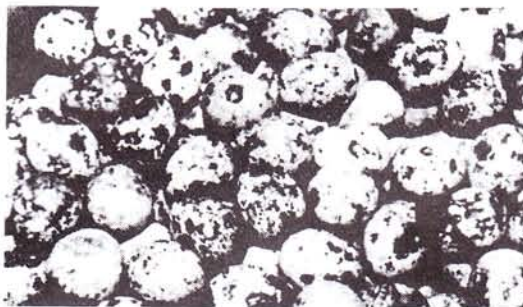
At present, there are six breeds of quail being raised for commercial production here and abroad. These are Japanese Seattle, Silver, Negro, Japanese Taiwan/Chinese quail, Tuxedo, and Brown crosses 1 and 2.

In spite of the economic potential of quail raising, it has not attracted the interest of large-scale investors and producers because of lack of information particularly on feeding.

To address this problem, the Department of Agriculture-Livestock Development Council (DA-LDC) has developed modern yet simple strategies that could help our farmers attain optimum benefits from quail raising.

## Start it right

Anyone who wants to venture into the quail business



should consider foremost the proper selection of stock. Closely examine the bird's physical attributes to avoid growth abnormalities. For beginners, it is recommended to start with quail pullets about 30-35 days old. The feathers should be tidy and neat, without any streak of white and black, as these could be signs of inbreeding. Birds should also be uniform in size. A mature (60-day old) Japanese quail normally weighs 120 grams while an American quail (30-35-day old) has an average weight of 100 grams. It is important to record the laying performance of the parent stock. A 65% average laying efficiency within 300 days laying period is desirable.

## Management

Because they are small, quails can be kept in small pens. Pens are usually made of plywood, 1/4 inch mesh wire, and 1" x 1" lumber as framework. Preferably, cages for layers should be 5 to 6 inches high. Since quails are very agile birds, one should not provide too much space to minimize the risk of injuries.

Raisers must regulate the temperature to 85° F on the 10th day after the birds have developed enough feathers by using gas lamps or electric bulbs. The pens should be cat and rat proof.

The brooding, which lasts up to 15 days, is the most critical stage in a quail's life. Proper feeds, enough water, and optimum temperature should be maintained to minimize the mortality rate of 5% to 8%.

Healthy 15-day old birds should be transferred to growing

see Quail, page 4

## NTLs...

### Ornamentals

The network has cited the new technology for the propagation of the potted *Mussaenda* as one of its notable accomplishments. Likewise, important on-going projects were also included such as the assessment of the structural integrity of greenhouses, bio-control of important pests and diseases, loss assessments of cutflowers, and determining the status of the ornamental industry in Southern Luzon.

### Aquaculture

According to the network leader, there may be a new opportunity for the country to earn from aquaculture through its export of aquarium fishes, which actually earned the Philippines a lot of money this year.

### Capture Fisheries

Implementation of the network's high impact projects is right on schedule. Likewise, the network is also involved in a research program in Palawan to support the province's marine capture integrated development and management.

### Fisheries Postharvest

To date, the network has started the implementation of six high impact projects. One of these has yielded a significant finding on *siguatera* toxin and will be continued for the second year.

### Rootcrops

Among the network's high impact projects, "Multiplication of *Ubi*" was cited as one of the most notable. The researchers revealed that mass propagation of *ubi* was most effective using rooted vines which involved growing the cut vines in a rooted medium and allowing sets (small *ubi* used as planting material) develop before planting. However, the researchers also recommended some manipulation of hormones to further improve the technique.

Other accomplishments include mapping of the feathery mottle virus in *ubi* in Central Luzon and the development of three cultivars resistant to the virus.

### Vegetables

Several vegetable varieties were

see NTLs, page 7



## Projects on genetic conservation proposed

It has been said that man remains nature's greatest enemy. With the onset of civilization, vast tracks of forests and agricultural lands have been transformed for commercial and industrial use to satisfy the needs of the fast growing human population.

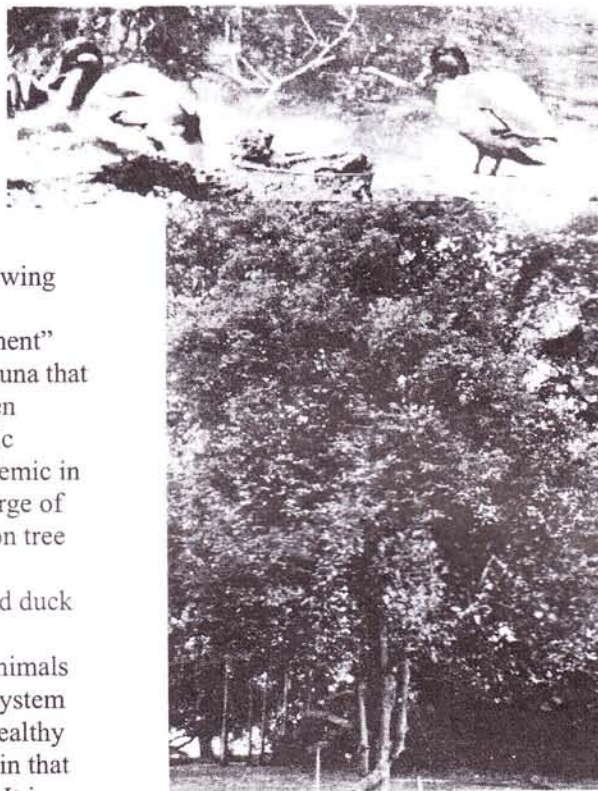
This so-called "development" has displaced various flora and fauna that inhabited the once rich, lush, green forests of the country. Some exotic species of plants and animals endemic in the Philippines are now on the verge of extinction, like the Cebu cinnamon tree (*Cinnamomum cebuense*) and the brownish-grayish Philippine wood duck (*Anas luzonica*). Eventually, the biodiversity of these plants and animals will be put in danger. For an ecosystem to be sustained, the diverse and healthy gene pools of plants and animals in that ecosystem should be maintained. It is also important to preserve gene pools for domestication.

A diverse gene pool means there will be more varieties of plants and animals to choose from in terms of resistance to pathogens/pests and adaptability to the prevailing climatic conditions.

The Bureau of Agricultural Research (BAR) through its Project Development Unit (PDU) is initiating projects on genetic conservation. Two successive meetings were conducted last December 18 to seek essential inputs from participating agencies.

The proposed project on plant genetic resources entitled "The Philippine Gardens," centers on the establishment of a theme park showcasing the diversity of Philippine plants. This concept in germplasm conservation promotes public awareness and appreciation of the country's flora, and at the same time, provides technical services for scientific/business purposes. Representatives from the Bureau of Plant Industry and the Institute of Plant Breeding at UP Los Baños (UPLB) attended the meeting.

Likewise, the Bureau of Animal Industry, Institute of Animal Science



(UPLB), and the GMA Livestock Program representatives gathered to discuss the proposed project on animal genetic resources. The members agreed that it is about time to institutionalize animal genetics resources conservation. An organizational meeting on January 2002 was scheduled, to be participated in by four livestock agencies: Philippine Carabao Center (PCC), Bureau of Animal Industry (BAI), National Dairy Authority (NDA), and Livestock and Development Council (LDC).

Both projects are proposed to the United Nations Development Programme (UNDP) through the Global Environment Facility (GEF). The GEF provides grant and concession funds to developing countries for projects and activities on the world's environment. It mobilizes funds to protect the environment such as the atmosphere and oceans, rivers and lakes, and the diversity of plant and animal life. Existing government funds for genetic conservation will be tapped as the GOP counterpart for the project. (Carmela B. Brion)

## NTLs...

found resistant to certain pests and diseases. Eggplants, in particular, are now grown with relatively lower pesticide doses. Other studies yielded significant results such as the use of trichoderma and Tb works to protect off-season tomato from pests, and protected cultivation to promote fruiting in off season honeydew lemon.

### Crop Protection

The network was able to publish 25 bulletins detailing recommended steps to combat certain pests, produce a testing kit to determine pesticide on produced goods, and produce a bio-control agent.

### Biotechnology

The network has proposed a new program on genetic engineering that will cover previous programs of biotechnology of the different commodities. BAR Director Eliseo Ponce commended this move, saying that that program promotes inter-sectoral work, easy to understand, and is more generic.

Aside from this, the network also made notable accomplishments in two projects, namely the "Comparative Risk Assessment" and the Ex-Ante Assessment. The first project looks into the effect of biotechnology on biodiversity, environment and on human health, while the latter identifies several factors that hinder the development of the local vaccine industry.

### Soil and Water

The network will soon start its work as their agenda and programs have just been approved. In relation to this, they have coordinated talks with different R&D institutions to strengthen further their partnerships, while preparation for a Mindanao consultation is underway.

In terms of technology, the network has developed a cheap set up for composting to generate fuel and fertilizer. (Thea Kristina M. Pabuayon)



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## Sciencescoping...

*&D, 4 percent of it is for the biotechnology program of the DA. The components of this program include policy formulation, analysis and advocacy, capability building, risk analysis and biosafety, research and development and information dissemination. We are presently working on rice, corn, papaya, mango, banana and coconut. As to our manpower capability for biotechnology, we have at least 346 MS and 301 PhD holders. We are hopeful that this manpower strength is harnessed to get the most out of biotechnology.*

# PGR network sends first batch of PGR-trained personnel

An Indian proverb profoundly expresses how we are related to this earth—we do not own it; we just borrowed it from our children. As stewards of our natural resources, our responsibility is not limited to utilizing them but also conserving these resources.

Thus, a national program for research, development and extension for the conservation and sustainable use of plant genetic resources (PGR) was put up under the support of the Bureau of Agricultural Research (BAR).

Re-tooling and enhancing the skills of personnel that will be involved in this undertaking is one of the priorities of the said network. Network team leader Dr. Ceferino Baniqued stressed these points during the graduation of the participants of the training on sustainable conservation and utilization of PGR.

The faculty and staff of the National Plant Genetic Resources Laboratory of the Institute of Plant Breeding (IPB) spearheaded the training. The participants were from Bureau of Plant Industry (BPI), Department of Agriculture in the Autonomous Region of Muslim Mindanao (DA-ARMM), National Crop Research and Development Centers (NCRDC) in Baguio, La Granja and Los Baños, Energy Regulatory and Development Board (ERDB), and Fiber Industry and Development Authority (FIDA).

Dr. Nestor Altoveros, the training coordinator, said that since the network will do an inventory of collections of all

agencies doing genetic resources conservation, personnel who have knowledge on how to do this are needed. The inventory will be the basis for identifying the gaps and issues in gene collection and coursing resources from the network to agencies. This will pave the way for the rationalization and synchronization of the PGR conservation in the country.

Participants expressed their confidence that with the knowledge and skills passed on to them, they can do inventory of genetic resources in their stations. Saudi Magindra, one of the participants, said that he is excited about how his newly acquired knowledge could open doors for him and his fellow Moslems. He said that there are still many places in ARMM that have not been visited by scientists. According to him, "the time calls for us to really know our resources and how we can use them."

Dr. Emil Q. Javier, founding director of IPB and former president of the UP System, reiterated, "the concern in the future is not just water but also genetic resources. As early as now, there is already a lot of debate on ownership and stewardship of plant genetic resources."

BAR Director Dr. Eliseo Ponce disclosed that it is for this reason that the Bureau committed P10 million to launch the plant genetic resources network and has started with some crucial activities

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