



RDMC zeroes in on bilateral programs

The Research and Development Management Committee (RDMC) met for the 6th time to discuss three new business agenda---Department of Agriculture's (DA's) bilateral cooperation program, interagency networking, and alignment of state colleges and universities (SCUs) R&D projects and programs with the DA's.

RDMC was created specifically to consolidate all the issues and concerns pertaining to the implementation of all R&D programs of the country. The Committee is composed of administrators and heads of the DA staff bureaus and attached agencies. Dr. Eliseo R. Ponce, director of the Bureau of Agricultural Research (BAR) chairs the Committee.

DA's bilateral cooperation program

The DA's program on joint cooperation entails four major objectives, according to Ms Janet Garcia, head of the DA International Relations Division

(IRD). These are: technology search, capacity building, network strengthening, and goodwill promotion.

She said that, these four objectives are vital in engaging in bilateral programs because they could make our country competitive. However, she pointed out that a limit should be set on the extent of information that will be disclosed during such joint agreement to protect our indigenous technologies and natural resources from piracy and other anomalies.

It is also important that participation in any bilateral program is governed by the Department of Foreign Affairs (DFA) guidelines to avoid possible sanctions. To prevent any illegal exploitation, it is important that the representative from the bilateral partners keep an eye on the activities being undertaken based on the bilateral agreement.

On the other hand, Carlos Carpio of the Philippine Coconut Authority (PCA)

and national team leader of the Coconut RDE Network stated that, bilateral programs of DA should be prioritized in terms of fund allocation. He added that, invitations to trainings should be readily disseminated to the regions to provide them enough time for preparations.

As to the part of BAR, Mr. Alvin Divinagracia of the Public and International Relations Division (PIRD) explained that, information dissemination is regularly being done by the Bureau but due to constraints like short notices from the DFA, circulation of such updates to the regions is delayed. As a precautionary measure to this, he advised the Regional Technical Directors (RTDs) to be always ready to submit proposals on R&D initiatives that could be presented during a joint meeting.

Inter-agency Mycotoxin Network

The Corn Mycotoxin Program

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NPGRL's 20-year old research facilities undergo renovation



The long wait is over.

This time, some 20-year old existing research facilities of the National Plant Genetic Resources Laboratory (NPGRL) at the Institute of

Plant Breeding (IPB), UP Los Banos that have long been used to conserve and protect the germplasm materials of various crops in the country will soon undergo upgrading and renovation.

This developed after the Bureau of Agricultural Research (BAR) through its Institutional Development Grant (IDG) allocated a total of P4 million in support to the NPGRL's project entitled "Continuing Operation of the National Repository and Base Collection for Plant Genetic Resources for Food and Agriculture".

The proposal, which was recently approved by the Bureau's

see NPGRL, page 6



Watch your use of published materials and secondary data

You are about to write your article or your report but you just can not start for lack of the appropriate way of putting into words the concept you have in mind. You scan some reading materials. Presto! There is an article similar to what you are about to write. In fact, there are specific portions that are exactly the same as what you are thinking of. Maybe, there is no harm in quoting it, anyway not too many people may have read the article and the author does not have the monopoly of the idea and rarely will he come across your article. Or you can reword what is written and it becomes yours. What more, you put your byline to the article.

After seeing your work published and knowing that somehow you got some portions of it from somewhere else, how would you feel? Then after sometime, you receive a letter questioning the originality of your work. Of course, what you did was plain mental dishonesty. It is tantamount to using somebody's belonging without asking permission. And worse, what you did was mental thievery.

The same is true with the use of secondary data. You can just imagine a researcher or a scientist being questioned for using data that are not his and presenting them as part of his study. Borrowing from other sources is not altogether prohibited or considered mental dishonesty if you know what to do. For how can we move on in science if we do not review literature and include this in our scientific reports? But we must do things right.

The Council of Biology Editors states that in scientific articles and books, quoting of text and use of data from other publications is considered as "fair use" as long as acknowledgment of the source is given. As much as possible, however, the quoting of text should be avoided. Report the work of others in your own words. If this is not possible, then there is a way of doing it. There is a style to follow and which can guide you as you quote some portions of certain works.

What is "fair use"? It is limited copying of copyrighted work with the permission of the owner(s) and the

copied material is to be used for research, teaching, or socially important endeavors such as criticism, news reporting and article writing. The copyright notice is usually found at the preliminary pages of the journal, book or any published material. And then you might think that materials that have no copyright notice are free for use without acknowledging the source. Is it not that when you are going to use something that is not yours, you should be prudent enough to ask permission first? The rule is: everything borrowed should be acknowledged or permission should be asked before using it. It is that plain and simple.

Materials which are public property or in the public domain, although not published, are also copyrighted. What are considered in public domain are all works prepared by officers or employees of the government as part of their official duties. You can just imagine reporting something that you lifted out from the report of government officials without citing the source. What if there is something wrong or derogatory with the report. What damage have you wrought?

Four factors are being considered in fair use. First, is the purpose and character of the use of the material. Is it being used to advance science and thereby improve humankind? Is it used in the school for the students to better understand their lesson or challenge their creativity? Or is it used by an individual or an organization for them to improve their financial standing? Second, is the nature of the copyrighted material. One type of works is easier to copy than the other or easier to request permission for use due to either simplicity or complexity of the original material. Third, is how much of the original material is to be used as well as the substantiality of the portion to be used in relation to the copyrighted material as a whole. Lastly, is the effect of the use upon the potential market for or value of the copyrighted material. If a portion of the original work will be used will it lessen its value? Or will it have a competitor?

For us who work in research, we must maintain academic respectability and honesty. We acknowledge all source materials carefully not only to avoid infringement of the copyright law but also to enable readers of our works to follow up the references. The journals and publications where you publish your works have their own style guide in citing borrowed materials. Also take note that references that you may have read but have not been cited anywhere in your report or article should not be included in your reference list. To be sure, the list of cited materials should be titled Literature Cited instead of References.

How about data that have not been published because the study has not been completed or a final report has not been made? Propriety tells us that while science is public we should not go ahead of the owner in presenting them to the public. As always, if we are not aware of any policy or guideline governing the use of any data, then the well tested guide in deciding what to do is: If I were in the shoes of the other individual, how would I feel? ■

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Fighting vegetable pests naturally in the Cordilleras



An adult leafminer

One of the most important aspects in raising crops or vegetables is pest control and management. A huge amount of production money goes to pest management techniques. We must note however, that not all insects are harmful and it is important for farmers to determine good ones from bad. Aside from using pesticides, farmers and planters have also employed beneficial insects to act as natural enemies of various pests. This alternative pest management practice has been gaining quite a following since it's cheaper and more environment-friendly.

The Potato Leafminer Task Force (PLMTF) of the Department of

Agriculture-Regional Field Unit-Cordillera Administrative Region has employed these natural enemies to combat vegetable leafminers in the Cordillera highlands. Leafminers are fly-sized pests that damage crops by creating mines and punctures on the leaves. Mines are tunnels caused by larval feeding, while punctures are wounds on the surface of leaves caused by female leafminers when feeding.

The natural enemies currently being used by PLMTF are farmer-friendly and only injure organisms that affect the crop. These include parasitoids or wasps that multiply inside leafminer larvae and pupae, and predators, which are insects (ants, dragonflies, ground beetles) and spiders that feed directly on leafminers.

To detect parasitoids, farmers can begin by collecting leaves with mines and placing them inside plastic containers and covering them with cloth. Observe the containers daily for two weeks to see if any flying organism will emerge. These organisms will either be leafminers or parasitoids.

But how can farmers identify these parasitoids (wasps) from the pests?

Thea Kristina M. Pabuayon

At present, there are ten (10) species of parasitoids (wasps) that have been found on leafminers in the Cordilleras. These wasps are likened to ants with four wings, and are usually found moving on leaves or feeding on flowers of weeds.

After the crops are harvested, leafminers usually transfer to weeds to multiply. Parasitoids continue their work by following the pests to the weeds and feeding on them and on the weed flowers.

Because of the value of these parasitoids in combating pests, farmers must take measures to conserve them by minimizing the use of chemicals and insecticides that could kill them, and maintaining flowering weeds around the field to serve as a natural breeding ground for the friendly insects.

For more information, please contact: Dr. Elizabeth A. Verzola, Regional Executive Director, DA-RFU-CA, BPI Compound, Guisad, Baguio City at Tel no. (074) 445-2532.

**Naturally occurring predators and parasites are found in gardens, orchards, and fields. Learn to properly identify these species since they are beneficial to your environment. Avoid using pesticides around them. They are as susceptible to insecticides as the pests ■*

Some facts...

groups, a growing misconception among the local consumers toward the safeness of irradiated foods is also at its peak. Just recently, various surveys conducted in the United States revealed that consumers are not given sufficient information on the use, benefits, importance and limitations of irradiated foods.

In our country, the Philippine Nuclear Research Institute (PNRI) under the orchestration of Department of Science and Technology (DOST), is the lead agency that undertakes various research and development (R&D) activities on food irradiation and safe uses of nuclear energy. PNRI experts assured the consumers that irradiated foods are safe to eat. A joint expert committee on food irradiation composed of representatives from the World Health Organization (WHO), Food and Agriculture Organization (FAO), and the International Atomic Energy Agency (IAEA) concluded that the irradiation of

food up to an average dose of 10 kilogray (kGy) causes no health hazards and guarantees no nutritional or microbial problems.

What is the status of the application of food irradiation?

Food irradiation is a booming technology being adopted worldwide. It is estimated that 38 countries are already using irradiation to treat their foods prior to consumption. Of these countries, 28 subject a variety of food and food ingredients such as onions and garlic to irradiation for commercial purposes. Some of the food industries in the US have been directly using irradiation for fruits and mechanically deboned poultry meat which are being sold in retail.

In the Philippines, as a result of PNRI studies on food irradiation, conditional clearances have been issued for irradiation of onions, garlic, and spices. These crops are used in conducting

experiments on sprout inhibition and microbial decontamination.

Irradiation and Public Concerns

Though food irradiation has been developed and adopted by many countries for many years, the question of safety remains to be the most "critical and complicated issue" as far as the general public is concerned. Others may question the safety of the technology since it involves the use of radiation and nuclear energy. But it is important to know that the safety of irradiated foods has been studied for four decades, making it the most intensively assessed of any food safety processes. Extensive nutritional assessments, toxicity studies, and feeding trials have not indicated any risk to human health that is why the process has been approved by many regulatory agencies around the world ■

(Source: Food Irradiation Technology, Philippine Nuclear Research Institute, DOST)

CABI improves human welfare worldwide; Ponce stresses benefits



Vital to every scientific organization is the development of an information database that contains relevant scientific knowledge ready for dissemination and application for a particular need. This is exactly what the Centre for Agriculture and Biosciences, International (CABI), is hoping to achieve.

CABI is an inter-governmental, non-profit, organization established through a treaty-level of agreement among

its member countries. With specific emphasis on agriculture, forestry, human health, and management of natural resources, this international alliance hopes to improve human welfare by ensuring a sustainable development, specially among developing countries.

Started as a simple service in 1913 to support a group of agricultural scientists in identifying insects and providing scientific information and technical assistance, it has evolved from being an exclusive association into a world-wide organization as we know today.

Programs under CABI are implemented through its four operational divisions, namely: information, information for development (IFD), publishing and bioscience.

The *CABI Information* is the international center for the collection, organization and dissemination of information within its mandated subject areas. It functions mainly to compile all bibliographic databases which consist of abstracts from the world's relevant scientific literature. *CABI IFD* acquires and manages scientific information. It is implemented with national, regional, and international organizations. *CABI Publishing* is in charge of the publication and marketing of CABI's printed and electronic publications. Products ranging

from newsletters to books, this program generates the financial resources of the organization. CABI Bioscience provides the multi-disciplinary repository of scientific information that offers research, capacity building, management and advisory services.

Operating from nine locations around the world, CABI has 41 member-countries including the Philippines.

Just recently, two CABI regional representatives visited the Bureau of Agricultural Research (BAR) for the first CABI forum. The delegation came from its South-East Asia Regional Center (SEARC) which is based in the Malaysian Agricultural Research and Development (MARDI) campus, Serdang, Malaysia.

Dr. Loke Wai Hong, CABI regional representative for Southeast Asia and Mr. Felmer Emmanuel Cagampang, information officer of SEARC gave a short overview of CABI and SEARC through lectures and slide presentation. Likewise, information kit on how CABI information could be easily accessed from its internet facilities were distributed.

During the open forum, BAR Director Eliseo R. Ponce stressed four areas on how the National Agricultural Research and Development System for

Rita T. dela Cruz

Agriculture and Fisheries (NaRDSAF) can benefit from CABI assistance. He said that, CABI's assistance could be very beneficial in providing technical assistance for the development of an information database or a one-center repository of information such as journals, newsletters, books, etc. that local scientific libraries could maintain. In connection with this, Dr. Ponce stated the importance of having the work of our Filipino scientists published in CABI publications and being a member of this organization, seeking assistance on this matter would be easy. Other areas of concern that he mentioned during the forum included the interfacing of the Crop Protection RDE Network of BAR with that of CABI facilities for sustainable use of biodiversity, and an integrated approach for optimizing the Philippines-CABI partnership.

The Philippines could prepare a three-year acquisition program and seek CABI's assistance in looking for international donors. Dr. Ponce suggested that a common repository of information be established with agencies grouped into clusters and share the information material. This would also a way of cutting down the costs, he added. (*Information provided by CABI's official website, <http://www.cabi.org>*) ■

RDMC...

aims to support DA's continuing efforts to develop local corn, feedmilling, livestock and poultry, and other corn-based industries; ensure the quality and safety of corn for human and animal consumption; increase the income of farmers who produce mycotoxin-safe corn by pricing the commodity at a premium cost. Ms. Raquel Bermudo of the Bureau of Postharvest Research and Extension (BPRE) said that the program is collaborating with Monsanto International in a study on the susceptibility of the Bt corn to mycotoxin.

BPRE initially started with corn as part of the Corn *Gintong Ani* Program and they are planning to expand the program to include other oil-based commodities like peanut and copra. In extending the program, the R&D Committee came to an agreement that the Mycotoxin Network be endorsed to

BAR for possible funding.

Alignment of SCU R&D projects and programs

Pursuant to the memorandum issued by the Commission on Higher Education (CHED) and the recent meeting of BAR with SCU presidents, Mr. Divinagracia reported that, all SCUs with major AFMA provisions should align their programs along the new modalities in R&D program formulation and funding facilities from BAR.

According to him, SCUs are willing to cooperate in pursuing AFMA priorities provided that the DA will initiate pro-active measures to identify and implement areas of R&D complementation.

The next meeting of the Committee is tentatively set on September 2001 at the BPI, Bago Oshiro, Davao City. (*Rita T. dela Cruz*)

Mass rearing of earwigs

Junelyn S. dela Rosa

The Asian corn borer (*Ostrinia furnacalis*) is one of the most destructive pests that has caused many corn farmers more than a simple headache. Recent estimates show that the Asian corn borer causes 20-80 percent of yield losses experienced by corn farmers every year.

Farmers dread the Asian corn borer (ACB) since it attacks corn in the early part of the mid whorl stage destroying the quality of corn ears. Young ACB larvae begin feeding on the leaf around the egg mass and later within the whorl while older larvae bore into the stalk behind the leaf sheath.

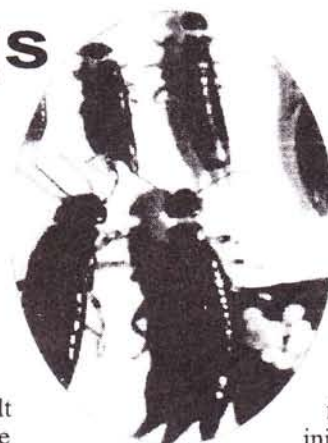
In a study entitled "Development of Biological Control-Based IPM for Asian Corn Borer", Dr. Belen Morallo-Rejesus (Department of Entomology, UPLB-CA), Ms Marcela Navasero (Department of Plant Pathology, UPLB-CA), Dr. Pio Javier (National Crop Protection Center, UPLB)

and Ms Gloria Camarao of the University of the Philippines at Mindanao conducted a series of experiments on how to control ACB using biological means.

The researchers used three biocontrol agents: earwigs (*Euborellia spp.*), Orius (*Orius tantillus*) and some pupal-larval parasitoids. They also developed a mass rearing technique for the earwigs and orius.

Mass rearing of earwigs

The study found that a combination of dog food and corn cob is the best diet in the mass rearing of earwigs. Galvanized boxes measuring 37.5 cm wide, 73.0 cm long and 28 cm deep were used as containers for the mass rearing and these were placed inside a 10-square meter rearing room that accommodated 5-8 boxes. The boxes were filled with about 7.5 cm high ratio of 3 clay:1 sand. Fifty adult males and 150



adult were released in these boxes. They were fed with 400 grams of dog food-corn cob (200 grams chopped corn cob and 200 grams dog food) for the first day. Subsequent feedings were done after every 10 days with 200 grams of the diet.

Number of earwigs produced in 2 months

The total amount of diet consumed per month is 1 kilo per box. Approximately 2,000 and 5,000 earwigs can be produced by the 200 adult parent earwigs in one month and 2 months, respectively.

Third instar, fourth instar and adult earwigs were collected prior to field releases. Five to six persons spent three hours in collecting 10,000 earwigs for a singular release in a hectare of corn field.

Cost of mass rearing

Initial mass rearing cost of 10,000 earwigs is 65 centavos per earwig. However, if one computes the length of use of the semi-durable materials (acrylic pans, mass rearing boxes and corn grinder) which may last 10-20 years, the cost would only be P0.20 centavos/earwig.

Releasing the earwigs into the field

The earwigs were released into the field late in the afternoon to avoid exposure to the heat of the sun. One earwig was released per square meter of corn field.

Monitoring of insect pests

Monitoring of insect pests was started at 25 days after planting the corn. The presence of pests other than the ACB was monitored before and after the earwig release. First and second earwig releases were made at 10 days interval. Counts were based on 20 randomly tagged plants per plot (randomized factorial design). Corn borer plant damage was assessed based on the Standard Rating Scale (SRS) of 0 to 9 (Javier et al. 1993).

Source: Development of Biological Control-based IPM for ACB (Progress Report) by Dr. Belen Morallo-Rejesus et. al

Using GIS in directing abaca RDE projects in Region 8

Laarni C. Anenias

Increasingly more and more researchers and research managers recognize the relevance of using geographical information systems (GIS) in planning development projects.

As defined by ESRI, a company that specializes on GIS, "GIS is a computer-based tool for mapping and analysing things that exist and events that happen on earth." Moreover, GIS integrates common database operations such as query and statistical analysis to come up with an output with visual and geographic perspective, such as those offered by maps.

As in the recently-concluded study funded by the Bureau of Agricultural Research (BAR), GIS figured significantly in the planning and prioritisation of abaca research, development, and extension programs. Phase 1 of the study titled, "GIS applications in targeting technology interventions: Case study on abaca RDE prioritization in Eastern Visayas,"

characterized the various production environments in Region 8 using GIS.

To meet these objectives, the researchers used secondary data to put up a database using GIS. These data were used to characterize the biophysical and socioeconomic environments for abaca production in Region 8.

The results of the study indicated that about 31% of Leyte and 65% of Samar are highly suitable to abaca. However, due to the low yields of abaca even in areas that are identified as highly-suitable for its planting, the study recommended further research on factors that cause low yields.

Moreover, the study identified more research activities in the region such as:

- Alleviation of production constraints in areas identified as less suitable for abaca including information on costs, returns, and benefits

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CGIAR transforms research agenda into GCPs

Junelyn S. dela Rosa

Background

Like a pie, the research agenda of the Consultative Group on International Agricultural Research (CGIAR) is divided into the various research agenda of its 16 Centers and its other partners. Since International Centers Week (ICW) 2000, the call for revitalizing the whole CGIAR has emphasized more cross Center work to address more complex global issues of food security and poverty alleviation.

Today, the CGIAR is interested in more partnerships that will increase its reservoir of experts/scientists and attract more funding from new donors. With the onslaught of new global problems and a decreasing budget, donors are firm about output accountability.

All of these---has steered CGIAR to take on global challenges with the help of its partners and improve its strategic and operational planning procedures. These changes will establish linkages among the NARS, Global Forum on Agricultural Research (GFAR), regional organizations and the CGIAR Centers in their united effort to meet common goals.

Defining GCPs

The concept of Global Challenge Programs (GCPs) was discussed during the

series of meetings of the Steering Group and the Change Design Management Team (CDMT). It was agreed that GCPs will be:

- derived from the existing CGIAR mission and goal statements; and contribute directly to key developmental issues and engage stakeholders in problem definition and oversight;
- be defined in terms of outputs linked to an identified set of problems and products provided to CGIAR clients;
- produce enhanced impacts on poverty alleviation, food security and environmental issues;
- require cooperative research, going beyond individual Center mandates;
- be cohesive, time bound, independently managed and funded on a multi-year basis;
- be initially incremental to existing research but would build on Centers' core competencies.

Developing the GCPs

GCPs will emphasize cooperative research that will solve major global development challenges.

They will contribute to CGIAR goals and serve its clients and build on the expertise of the CGIAR by involving at least two CGIAR Centers and at least two other major research partners that are not CGIAR Centers.

GCPs should use a multi-sectoral research approach, and have clear mechanisms for the delivery and dissemination of research outputs. Multi-year funding is a must and GCPs could not be implemented unless such funding is at hand. Finally, accountability and institutional arrangements must be spelled out clearly.

Significantly, GCPs will help "open up" the research agenda. To translate this into action, CGIAR members are encouraged to initiate an "open book" process to allow a more active exchange of ideas from all stakeholders on proposed topics for GCPs. Regional fora and the GFAR are tasked to coordinate the input of other stakeholders. Only CGIAR Centers are eligible to submit concept proposals.

GCPs can be global, regional or subregional in focus. The challenge

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GIS...

- Expansion of production in areas that are moderately and highly suitable for abaca
- Further development of the program to link research outputs to specific geographic locations

Moreover, the study identified the following as the prospective extension projects on abaca within the region:

- Defining the role of and setting the expectations of decision makers regarding the application of GIS in the planning of extension projects
- Building the capability of various levels of local government units in the collection, processing, and interpretation of GIS-based data for planning and implementation of extension projects

While there have been pioneering studies using GIS, the study concluded that there is a need to further

involve GIS in the setting of RDE priorities. Moreover, as climatic, soil, and geologic data for Leyte are quite updated, there is a need for more research to gather similar information for Samar. There is also a need to "set up a more comprehensive database from which proxy or derived variables may be accessed," the study further noted.

Dr. Buenaventura Dargantes of the Leyte State University, implemented this study. It was featured for this month's BAR R&D Seminar Series, held at the BAR Conference Room on 13 September, where Dr. Dargantes served as the resource speaker.

Source: GIS applications in targeting technology interventions: Case study on abaca RDE prioritization in Eastern Visayas," presented by Dr. Dargantes at the BAR Seminar Series, 13 September 2001, BAR Conference Room.

NPGRL...

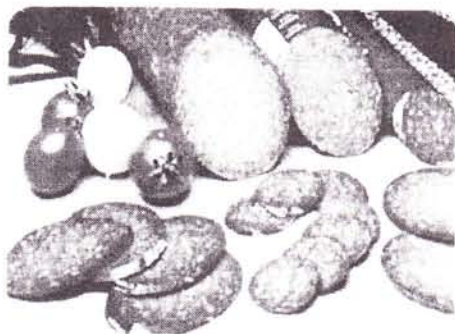
External Review Team (ERT), details the urgency to upgrade and improve several old facilities such as the cold storage chambers that are used for medium and long term seed germplasm storage for improved varieties of important crops. It has been reported that three of the five cold storage chambers are already non-functional. In addition, NPGRL sees the need to shift the chambers from chloroflourocarbon (CFC) coolant to a more environment friendly non-CFC coolant in order to comply with the Clean Air Act.

Recent estimates indicate that the whole operation of renovating and converting the four chambers requires million pesos or more.

The project also seeks to improve other laboratory facilities which are mainly used for the characterization and evaluation of plant genetic resources in their biochemical and molecular levels.

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Fish sausage, anyone?



Eating too much meat these days? Fish can be a better alternative. Other than the freshly caught and canned ones (usually mackerel or tuna) in the supermarket, fish sausage, made from the meat of the dolphin fish, locally known as *durado*, is one of improved fish products you can try.

Dr. Anita Linda Ragasa of College of Fisheries of the Mariano Marcos State University in Ilocos Norte conducted an assessment of the quality of two types of *durado* fish sausage available in the market. Her study also included a survey on fish-sausage consumers to determine their feedback and suggestions on the taste of the sausage.

Durado is abundant in the fish landing areas in the Philippines especially in Ilocos Sur, La Union, Pangasinan and Cagayan. However, its meat does not command a good price in the market when compared to tuna, round scad and mackerel. Why? According to consumers, *durado* meat is not as tasteful.

This reality tested the ingenuity of entrepreneurs. Since market for *durado* meat does not hold a lot of promise, then new ways of marketing were developed. After all, *durado* meat is soft and supple—making it a good fish mince.

Fish mince is the main ingredient in fish balls, kikiam, fish nuggets and fish sausages. Among these products, fish sausage has a wider market because almost everybody knows what 'sausage' is. Thanks to product awareness campaigns for conventional meat sausages manufactured by big companies.

Durado fish sausage's flavoring

Ma. Rowena SA Briones

ingredients are the following: brown sugar, salt, spices, pepper, onion and garlic powder and pineapple juice. To make the product firm, producers use cornstarch or kappa-carrageenan as 'binders'. The binders affect the sensory attributes and the amount of fish sausages formulated. The study assessed which binder causes more formulation and pleasant sensory attributes of fish sausage.

According to the study, kappa-carrageenan has a good dispersion ability. Unlike when cornstarch is used as a binder, kappa-carrageenan prevents cooking loss and makes the pre-cooked fish sausage swell larger. The charged nature of carrageenan stabilizes water/fat emulsions during preparation, cooking and storage. Fish sausage with kappa-carrageenan has a more delectable look, sliceability and taste compared to fish sausage with cornstarch.

Dr. Ragasa used the Hedonic rating scale to assess the consumers acceptability of the fish sausage. The results showed that they like sausages that are tender and juicy with rich flavor and smell. Between fish sausage with corn starch and kappa-carrageenan as binder, the consumers liked fish sausages with kappa carrageenan more.

With the influx of several easy-to-prepare meals in the market, especially the imported ones, fish sausage is worth the try. Buying them would be commending the inventiveness of our very own entrepreneurs and supporting our move to improve processing, packaging and marketing of our agricultural products ■

Source: Ragasa, Anita Linda. *Quality Assessment of Fish Sausage from Dolphin Fish formulated with Kappa-Carrageenan*. Mariano Marcos State University.

CGIAR...

should be global and the applications could be local.

Through a dialogue, the 16 Centers can put forward their ideas and concepts that will be develop into GCPs. Of course, donor interest is an important consideration in the process. Approving GCPs consists of two stages. In the first stage, seed money will be given to the proponents after they submit a brief concept paper. This initial approval will give CGIAR members time to assess whether the GCP is consistent their priorities and determine whether funding is available for the project.

The second stage involves a rigorous peer review of both the science and management components of full proposals. The Executive Council will approve the GCPs with the advice of the Science Council and other reviewers by including the GCP into CGIAR's research agenda. Members who are investing in the specific GCPs would have a key role in the approval process.

What are the possible GCPs?

Developing GCPs is a gradual process that ensures the twin backing of shareholder and stakeholder for each initiative. The CDMT has chosen potential GCPs which they believe the Centers can pursue effectively and efficiently.

These are:

- 1) Adaptation to and mitigation of effects of possible climate change on agriculture, forestry and fisheries of developing countries, with particular reference to impacts on the poor and the natural environments on which they rely for sustenance.
- 2) Farming adaptation to the impacts of HIV/AIDS pandemic, and steps to be taken in agriculture, forestry and fisheries to contain the spread of the HIV virus.
- 3) Improving poor people's food security, nutrition and health.
- 4) Strengthening institutional capacities in agricultural research institutions.
- 5) Functional genomics for the poor.
- 6) Improved water management practices for agriculture. (with information from <http://www.cgiar.org>)

WebNEWS

New reports call for aggressive measures to speed reduction of childhood malnutrition.

<http://www.futureharvest.org>

Tissue-cultured forest trees

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

Native chicken made more productive

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

Farmers information and technology service on the internet soon

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

Minus-one: A nutrient deficiency test

<http://www.philrice.net/news>

US restricts meat imports from Japan

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

NPGRL...

The grant also covers the repair of the cold storage wing, installation of anteroom and dehumidification rooms (with temperature suited for seed processing and packaging), and purchase of equipment needed for the germplasm collection and preservation of asexually propagated crop species.

The whole renovation period is expected to cover 14 months since a lot of installation and physical repair (wiring, piping, footing and construction of protective structure for dehumidifier units) will be done.

As the "nerve center" of the Institute of Plant Breeding (IPB), the NPGRL has been collecting, documenting, conserving and managing more than 43,000 accessions of 500 species of cereals, legumes, ornamentals, and vegetables throughout its 25 years of existence. It is recognized as the world collection center for mungbean, winged bean, bottle gourd, sponge and snake gourd and the collection center for tomato in Asia. (Mary Charlotte O. Fresco)

Some facts about food safety and irradiation

Are the foods you and your family take in everyday safe and free from harmful bacteria and parasites? Are they free from microorganisms that are responsible for spoilage and deterioration?

Although these questions sound simple, it is difficult to answer them. Unknown to us, foodstuffs are naturally contaminated with microorganisms which act not only as the mighty agent responsible for food spoilage but also the main cause of various food-borne diseases (most of which are fatal) especially when foods are not properly treated and handled.

Microorganisms, as characterized by their ability to grow rapidly, are even blamed for the shortening of shelf life of various agricultural produce – another major issue of postharvest handling and management.

Even with the various means to minimize food spoilage such as refrigerator, antioxidants (additives to retard spoilage), canning, to name a few, food safety should always be considered as national public health concern.

At the start of the 20th century, food irradiation has been gaining recognition in many countries worldwide as an effective tool to treat foods from various food-borne diseases which are often caused by food pathogens such as *Salmonella*, *E.coli*, *Campylobacter*, *Listeria*, and *Toxoplasma*.

What is food irradiation?

Food irradiation is a physical method of processing and preserving food

similar to refrigeration, freezing, canning, and heat treatment. The food is exposed (either prepacked or in bulk) to a high-energy radiation process called ionizing to effectively kill microbes. The radiation sources that can be used in irradiating foods are Cobalt 60 or Cesium 167.

What is the importance of food irradiation?

We need to irradiate our foods due to the high incidences of food-borne infections and botulism (food poisoning) especially in developed countries. In the United States, an estimate of 76 million cases of illness and 323,000 hospitalizations have been reported annually.

Here in the Philippines, the importance of food irradiation is tied to the following objectives: reduce postharvest losses; assure food safety; and facilitate and expand trade of certain food items.

According to food experts, irradiation technology is found to be an effective alternative to postharvest fumigants that have been used to prevent postharvest losses. The use of fumigants had been restricted due to the harmful chemicals they emit. Irradiation is used to disinfect rice, corn and other grains.

Are irradiated foods safe to eat?

While the acceptability of the Bt corn and genetically modified organisms (GMOs) has been the favorite subject of debates among scientific communities and other conservative



See some facts, page 3

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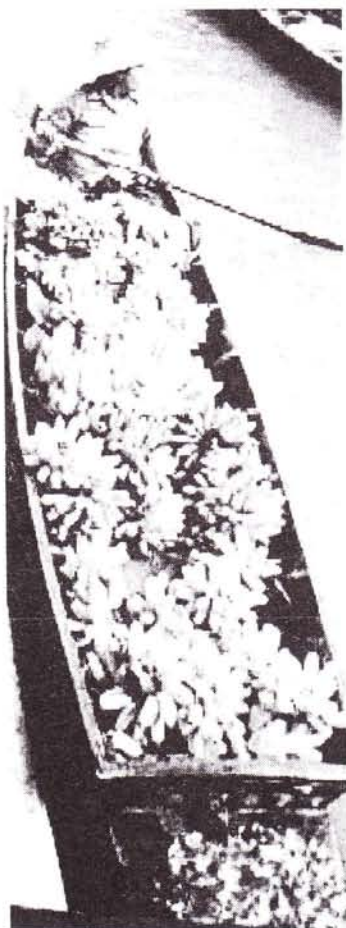
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ASPNET redefines banana R&D in the region

Eleazar represents RP in ASPNET Workshop in Sri Lanka



(photo courtesy of inibap.org)

On its tenth year, the Asia-Pacific Banana Research Network (ASPNET) is calling for a more proactive stance in the region. This was the agenda during its strategic planning workshop in Kalutara, Sri Lanka, 11-13 September 2001.

Participants from the different member-countries tackled critical issues and launched a new revitalized network during the final day.

Established in 1991, ASPNET was created to focus research efforts on banana. ASPNET has two major functions: information exchange and regional research. ASPNET develops its members in the region by conducting training, workshops, and seminars.

ASPNET includes 11 national agriculture research systems (Australia, Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam) and two research institutes (Taiwan Banana Research Institute and Secretariat of the Pacific Community).

ASPNET operates under the Asia Pacific Association of Agricultural Research Institutes (APAARI) and is guided by a Regional Advisory Committee that is made up of representatives from its member-countries and institutes. The committee meets yearly to review the progress of regional research agenda and discuss future

priorities and other strategies of the network. The International Network for the Improvement of Banana Plantain (INIBAP) provides the secretariat and coordination for the network.

Like other ASPNET members, the Philippines benefits from the *Musa* Germplasm Information System by enabling researchers to exchange information about the accessions in their germplasm collection. The information could also be accessed at the Taiwan Banana Research Institute which has a duplicate collection of Asian accessions from the *Musa* germplasm collection, the world's largest. It contains over 1000 accessions from 38 countries around the

world.

A Regional Banana Research Information and Documentation Network (RISBAP) is located at the ASPNET regional office in the Philippines. It coordinates information exchange and communication among *Musa* researchers in the region.

INIBAP supports research on virus-indexing and the development of new varieties that can be planted by small-scale farmers. It coordinates a worldwide germplasm effort (International *Musa* Testing Program) which has tested improved varieties in more than 50 countries.

Meanwhile, the Bureau of Agricultural Research (BAR) Assistant Director Nicomedes Eleazar and Dr. Patricio Faylon,

see ASPNET, page 6

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Sciencescoping

VA Duldulao



Adding another year

Time flies fast! Is it because we do not feel the four seasons that the temperate countries experience, from summer to fall to winter to spring, that we hardly notice another year is past? Or is it because we have been too engrossed in whatever we are doing that the days move on like a breeze never to be back? And we are left sighing, wishing for time to stand still, for one brief moment for us to do the thing we most wanted to do but was not able to do. That time is lost forever.

We are working in science and for science so we do away with sentimentalities as well as frivolities. We deal with the hard facts, the data, the evidence to as high as the .01 level of significance. We can not afford to commit error in our figures, thus, the concentration and dedication we put into our work. Maybe, this is also the reason we fail to notice the passing of time. At the final reckoning, what have we achieved and where have we failed? What have we gained and what have we lost?

The Bureau of Agricultural Research has added another year to its name. If it were a human being and of the fairer sex, this would be the time for her to start to blossom. At fourteen!

Aptly so, one could discern the transformation going on in the Bureau with its role as the coordinating body of all agricultural and fisheries research in the country. Organizing the different institutions into networks and for them to work on a common agenda and program has advantages which may not necessarily be spelled out.

For sometime, I had the opportunity to work in one network, representing a highly political institution. I brought with me my experiences in working with all local

government units in Metro Manila and those I gained in tobacco and rice research. With each member of the group representing a different institution with research and training function, there was no more UPLB, or CLSU, CaVSU, BPI, DA, Malacanang or CYMMIT. We were just the Urban Agriculture core group working on our national program. We dealt with many acronyms but we did not care memorizing them. I did not even know what NIRDEAP means then. And there was BAR staff facilitating and the BAR director coming to give us inspiration. I could have loved working with the network having two of my research proposals approved. But fate took a twist and I joined BAR instead.

With the network, the feeling of being better than the other is erased, that one's institution is more endowed no longer exists and to each his own is changed to one for all. There is simply that oneness that envelops the team or the institutions represented by each member of the team. There is the sweeping unity that goads each one to contribute to the attainment of the goal. And the camaraderie developed among the researchers erases the perception often associated to people working in science, that they are rigid and unfeeling people. These are but a few of the intangibles that we gain in implementing the 'one system, one program approach'.

*The appropriateness of terminologies do change. When I was working for my degree program, the term we used to describe the technology to be extended to the farmers was **appropriate**. Now, we can question this term and ask, at whose end? Who determines the kind of a technology that should be given to the farmers and fishermen?*

My point is, before, we conducted research to develop

technologies we thought would benefit the farmers. And when we now offer this technology to the farmer, he would not adopt it. He has many reasons for not adopting it which we will never know because the farmer still has the Filipino value of not telling you frontally the real reasons for fear you might get hurt or insulted.

*Today, while we do not directly involve all the farmers in telling us what they need, there is a committee that represents them. There is also a member of this committee to tell what kind of crop and how much should he produce. I do not know if this kind of technology could now be termed **usable**. Moreover, to make sure the conduct of the study is done correctly, there is another committee to look into this aspect.*

BAR has added on another year! Is this another feather to its cap? ■

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NRS winner forwards guide to improve cattle breed in RP

The National Integrated RDE Agenda and Program (NRDEAP) for Livestock and Poultry identified lack of quality animals as one problems besetting the industry. Sustaining a selection of highly productive animals and hastening their genetic improvement is therefore an imperative to develop the industry.

In answer to this, a group of researchers, headed by Agapita Jandayan-Salces from Ubay Stock Farm in Bohol, came up with a study on the "Development of a selection index for Brahman cattle." The study is specifically designed for local breeding conditions. This study won in the Best Paper Category (Upstream, Animal Science) in the recently held National Research Symposium (NRS) organized by the Bureau of Agricultural Research.

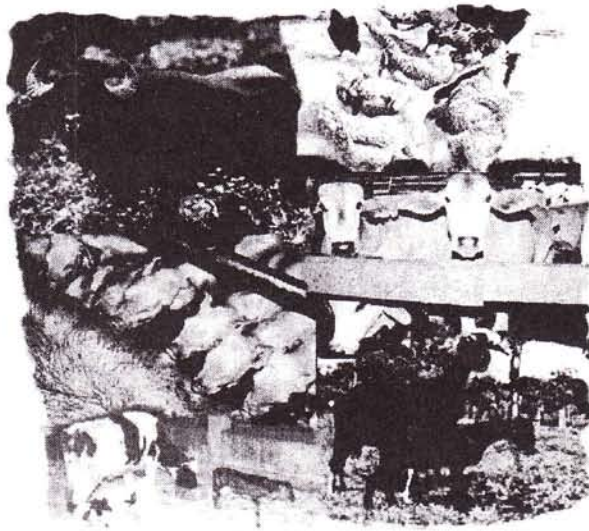
Selection index

A selection index is a means to improve the production efficiency of cattle. In the index, characters are combined to emphasize on those characters that are more economically important. To construct an effective

index, the study stressed the importance of creating a set of breeding objectives.

Breeding objectives, the study noted, "refer to a set of traits that the breeder wants to improve." In selecting the trait, the breeder has to consider its genetic association with other traits, economic importance, and heritability. The degree of heritability of a certain trait determines the degree by which these traits will be passed on from parents to offspring. By developing a selection index, breeders will find it easier to select parents with superior traits for breeding purposes.

Considering the factors above, the research group constructed a selection index using local data. This is a pioneer study since most selection indices used in this country are generated abroad. It considered different sets of breeding objectives and economic values.



Recommendations

The researchers recommended this index for use by local ranchers in developing a comprehensive breeding program for cattle. Moreover, they recommended the documentation of livestock performance data in government and private ranches. (Laarni C. Anenias)

(Source: Development of selection index for Brahman cattle in the Philippines by Agapita Jandayan-Salces, et al.)

Regions gear up for R&D strategic plan

Given the possible impact of the current political problems in the Philippines and, consequently, the R&D of the country, the Bureau of Agricultural Research (BAR) through its Regional Programs Division (RPD) recently convened all Regional Technical Directors (RTDs) for R&D and Regional Integrated Agricultural Research Center (RIARC) managers to discuss the problem.

The talking points of the meeting were: the use of the CY 2001 budget from BAR funds; the agency R&D strategic plan; the technical plan and master development plan of the central experiment station and the agency

budget for 2002-2003.

The one-day event was presided over by BAR Director Eliseo R. Ponce.

On the agenda of utilizing CY 2001 budget, Dr. Ponce stressed four major points, namely: the follow-ups on-farm research (OFR) projects, institutional development grant (IDG), advance development projects (ADPs) and the equipment grant. It was agreed that OFR projects must be developed under the bottom-up approach and regions must make the strategic decisions in the implementation of the projects. It was also emphasized that the OFR plan should work within the strategic plan of the region and be directed to agricultural development.

Dr. Ponce also facilitated the follow-up on the different IDG by sequentially requesting updates on the grants provided to each region. As agreed, each region has to report on the financial status as well as the progress of prospects where each grant was used.

Another high point of the discussion is the establishment of ADPs to demonstrate and enhance the commercialization of the latest developed technologies.

Specifically, the ADPs' main function includes improving the state of technologies for fresh and processed forms of high value-

see Regions, page 4

New tool to detect moisture in abaca fibers

■ Ma. Rowena SA Briones



One of the standouts in the Philippines' natural resources is abaca. It supplies 90 percent of the world market demand and is considered as a potent sector in agriculture and handicraft industry.

The color and tensile strength of abaca are its crucial characteristics. Abaca fiber makes the most durable rope and can resist salt water better than any fiber. Its finer fibers are used to make handicraft, cloths and other textiles, and paper-based materials such as filter paper, stencil paper and specialty paper. Abaca fiber is also used in monetary paper currency production to make the bills more durable.

However, the fiber color and strength are easily affected by the way the fiber is handled and how much is the moisture content present in the fiber. When its moisture content is high, fiber discoloration and brittleness occur resulting to a lower market price.

To address this, the National Abaca Research Center (NARC) developed a portable moisture meter that abaca producers and traders could use to detect presence of moisture in the fiber. This ensures that the abaca fiber is properly dried.

The portable moisture meter

utilizes the presence of moisture to transmit electrical current from one end to another. The meter detects this electric current. The stronger it is, the higher the moisture content of the fiber. The case and indicator of the meter were adapted from the Sanwa multimeter tester. It needs only a single nine volts battery to be operational and weighs only 500 grams.

The moisture meter is made up of the following parts—test probe, control

knob, indicator, oscillator, power supply and amplifier. The flow of current starts from the power supply then to the sampling electrodes or test probe. This goes to the oscillator then to the amplifier and finally to the indicator.

The test probe is two centimeters long. The terminal head is exposed and does not have any insulator. Since the probe terminal is short, it automatically compresses the fiber during moisture determination. The fiber has to be compressed to

establish the continuity of moisture present in the surface of the fiber.

Tests showed that the moisture meter is capable of reading moisture content of abaca fiber at different classifications with accuracy and reliability. It can give accurate reading of the moisture content ranging from eight to 35 percent even with those of bigger textures.

Selected abaca farmers and traders after using the moisture meter considered it portable, practical and helpful in ensuring the right moisture content of abaca during their trading activities.

The NARC recommends further evaluation of the accuracy and stability of the moisture meter. It also hopes that the Fiber Industry and Development Authority (FIDA) will look into the possibility of endorsing this gadget for use of farmers in the buying and selling activities of abaca fiber for fair trading and quality assurances.

Source: Sinon, Feliciano and Alberto Martinez, Jr. Development of Portable Moisture Meter for Abaca Fiber. 2000: National Abaca Research Center- LSU-VISCA; <http://popweb.i-next.net/~heritage/abaca/htm>; Cabacungan, Gil Jr. Government Sees Abaca Revival Inquirer news Service (1 Aug. 2001). www.inq7.net

Regions...

crops, livestock, grains and fishery products; providing the technology information needs and requirements of farmers-fisherfolk, cooperatives, organization, and other agribusiness sectors to help them achieve comparative advantage; and facilitating inquiries and information access for the purpose of attracting and encouraging investors.

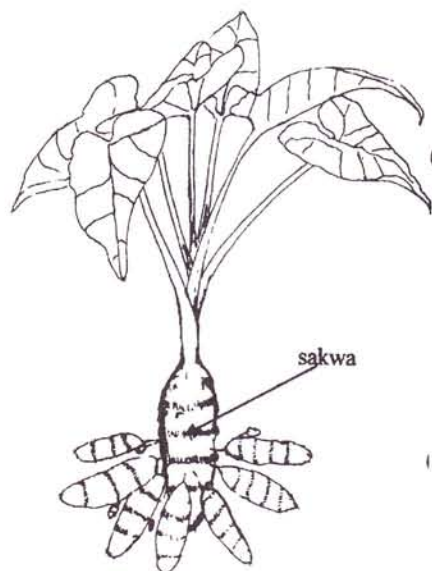
The agenda on the R&D strategic plan of the agencies will provide the basis for the general

direction of the region. As agreed on, the strategic plan will cover seven programs: germplasm and seed system, pest surveillance and early warning system, knowledge generation, knowledge products and services, operation of central support service laboratories, human resource development, and experimental station laboratory development.

Dr. Ponce stressed that the budget for 2002-2003 of each agency will be based on the strategic plan of each region. (Rita T. dela Cruz)

Fatten your swine cheaply and effectively with Sakwa

■ Thea Kristina M. Pabuayon



Many Filipinos find swine raising the most lucrative business among other livestock ventures. Aside from providing raisers with additional income, investment return also happens in a short span of time.

Also, swine raising contributes greatly to our agricultural Gross Value Added (GVA). In 1995, backyard raisers, which make up the majority of our local swine industry, contributed 90% of the total P75 billion income from swine production.

However, its development is often hampered by problems in production, disease control, marketing system, and import policies. One aspect that proves problematic is the high cost of feeds in swine production. With corn and soybean as the main ingredient in swine feeds, a staggering 70% of the total production cost goes into feeds alone. Our local raisers need therefore to find an alternative feed ingredient that can be produced cheaply and locally.

Sakwa, the cheaper alternative to corn

Last year, researchers from the Farming Systems and Soil Resources Institute (FSSRI) and the Institute of Animal Science (IAS) in UP Los Baños started a project that aims to replace corn with *sakwa* in swine feed. Entitled "Technology development for the utilization of *Sakwa* (*Yautia* sp.) as replacement of corn in swine grower and fatterer

rations," the project was conducted with the aid of farmers in Pinagdaglayan, Dolores, Quezon and was funded by the Bureau of Agricultural Research. In June 2001, the researchers concluded the study with encouraging results.

Sakwa is a by-product and the main corm (a short swollen underground stem base in some plants) of *Gabing San Fernando* – a tuber that thrives abundantly in plateaus and cogon-planted areas. The use of *sakwa* as swine feed is actually popular among farmers. Previous studies have shown that *Gabing San Fernando* is resistant to common pests and diseases, adverse climatic conditions and drought, and ranks second to sweet potato in terms of nutritive value and digestibility. Further tests by the IAS showed that dried *sakwa* contained 7.67% protein – a figure comparable to the 8.5% protein content of corn. However, researchers saw the need to further develop this technology since there are no literature on the feeding value of *sakwa* at present.

In the study, the researchers measured the performance of swine fatteners with varying levels of *sakwa* replacement of the corn component in the swine grower and fatterer ration in both on-farm and on-station trials.

Remarkably, *sakwa*-based rations were found to be more profitable than commercial feeds. Farmers using *sakwa*-based feeds incurred a net benefit of P740 per head of swine compared to only P320/head for commercial-feed treated swine. This came about due to the apparent savings in feed cost since *sakwa* is cheaper than corn.

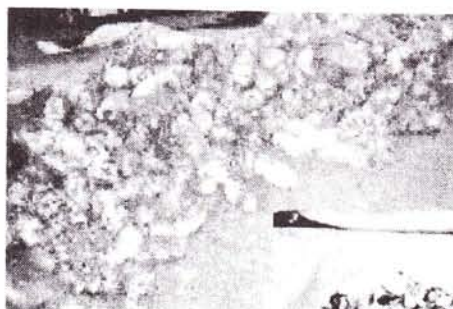
Results also showed that when farmers replaced 60% and 90% of the swine grower and finisher diet, respectively with *sakwa*, the animal

performed as well as those nourished with commercial corn-based feeds. However, it was noted that the carcass yield and tenderness of meat decreased when corn was replaced entirely (100%) by *sakwa*. Nonetheless, the meat remained juicy, with good color and flavor quality.

These are the recommended steps for the proper preparation of *sakwa* as swine feed ingredient:

1. Wash the *sakwa* properly, making sure that no soil particles are left as this may affect its quality as feed.
2. Chop the *sakwa* into thin, round pieces or more preferably thin strips. The latter will be more appropriate to avoid the chopped pieces from clumping together, thus hastening the drying process.
3. Dry the *sakwa* either by air-drying or with the use of a dryer. It must be noted that a 14% moisture content must be attained. This can be done by air-drying for five days, or sun-drying for three days.
4. Mill the dried *sakwa* well using the "hammer mill."
5. Mix the milled *sakwa* according to the recommended ration – 60% for swine grower ratio, and 90% for the swine fattening ration.
6. Store the mixed feed in a dry place.

(This study won the AFMA Best R&D Paper Unpublished Category for Animal Science during the 13th National Research Symposium last 2 October 2001. For more information, please contact FSSRI, College of Agriculture, UPLB, College,



Pile of sakwa (top);
dried chipped sakwa (bottom)



Web NEWS

A glowing achievement, or a can of worms? Proposed field test of gene-altered cotton pest debated
<http://www.washingtonpost.com>

A major step forward has been taken in ensuring that the fruits of agricultural research reach target farmers ...
<http://www.icarda.cgiar.org/>

Saving our daily bread from the Sunn pest
<http://www.icarda.cgiar.org>

Sprays that spare pest predators
<http://www.icarda.cgiar.org>

Golden rice goes east
<http://www.cgiar.org/irri/irrihotline>

ASPNET...

Executive Director of the Philippine Council for Agriculture, Forestry and Natural Resources for R&D (PCARRD) represented the Philippines in the Asia-Pacific regional banana research planning workshop in Kalutara, Sri Lanka on 11-14 September 2001.

The workshop was held to critically assess ASPNET and define a more proactive banana research network for Asia and the Pacific. This new network will ensure that regional needs in terms of banana research are addressed effectively and that it will be based on the priorities of its member countries.

The workshop was organized by the INIBAP Regional Office for Asia and the Pacific and hosted by the Department of Agriculture in Peradeniya, Sri Lanka. Twenty participants from all over the Asia-Pacific region attended the workshop.

Dr. Jayawardena, director general of the Department of Agriculture in Sri Lanka delivered the welcome remarks while Dr. Mike Carter of the Center for International Development and Training (CIDT) acted as facilitator for the three-day workshop. (Junelyn S. de la Rosa)

Soil & Water RDE Network proposes P29M land rehab project for Mindanao

In a consultation meeting held last September 21-23, 2001 with representatives from the Mindanao Association of State Colleges and Universities (MASCUCU) and DA Regional Integrated Agricultural Research Centers from Regions IX to XIII including ARMM, a project proposal to develop and rehabilitate the land and water resources of Mindanao was proposed. Dr. Rogelio Concepcion, national team leader and Bureau of Soils and Water Management director said that the project will be a top priority for the 2002 network funding.

The project was proposed after members of the MASCUCU and representatives from DA regions in Mindanao identified key problems on soil in Mindanao such as nutrient imbalance and soil erosion. According to them, Mindanao has the potential to be the country's food basket but this could only be realized with adequate support from government and with proper research and development projects to address gaps and problems in agricultural productivity.

The project will focus on two areas: soil and nutrient disorder, and assessment of vulnerable eroded areas in Mindanao. This proposed P29-million project for possible BAR financial support shall be implemented for ten years under the leadership of the University of Southern Mindanao (USM). The first project component to be led by USM will cost approximately

P18.5 million and will be made up of four studies on micro/macro nutrients in lowland/upland ecosystems, monitoring of soil fertility, amelioration studies, and development of information materials in nutrient deficient areas. The proponents believe that the results will help them formulate appropriate risk-reducing management options that will ultimately increase farmers' yield and lead to sustained agriculture.

The second P16-million project component shall be led by the University of Southern Philippines (USEP), Central Mindanao Agricultural Research Center (CEMIARC) and Mindanao State University (MSU) and will last for about five years. The researchers will examine the extent of erosion in various areas in Mindanao, which continues to threaten the region's agricultural land productivity. In 1995 alone, the Bureau of Soil and Water Management reported that 5.1 million hectares of Mindanao's land is suffering from moderate to severe erosion. At this rate, 74.5 million tons of topsoil is lost annually. With this project, the network is hopeful that proper technologies and information generated will enhance community-based watershed management, minimize siltation and flooding problems in Mindanao, and again improve the region's agricultural productivity. (Thea Kristina M. Pabuyan)

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