

## Series of seminar-trainings on KM kicks off at BAR



PHOTO: UP-NCPAG

and Organization and Organizational Development.” As a culminating part of the day, Dr. Lopez and Dr. Aquino gave another lecture on “Enterprise Development and Agribusiness Development.”

Training evaluations were conducted before and every after training sessions to assess the participants' understanding of the topic prior to and subsequent to the seminar-training.

According to Dr. Marideth Bravo, project director of the activity, “This seminar-training is the first of four seminar-trainings that will be conducted all over the country.” The next seminar-trainings are slated to take place on 13-17 July in Malaybalay, Bukidnon, 17-21 August in Muñoz, Nueva Ecija, and on 14-18 September in Cebu City.

Attending the future seminar-training will be the different Regional Integrated Agricultural Research Center (RIARC) managers and the Community-based Participatory Action Research (CPAR) implementers from three key regions in the country.

This seminar-training is a collaborative project between the DA-BAR and the UP Public Administration Research and Extension Services Foundation (UPPAF) through the Center for Local and Regional Governance (CLRG) of the National College of Public Administration and Governance (NCPAG). (*Don P. Lejano*)

A two-day “Seminar-Training on the Application of Knowledge Management and Community-based Initiative for Sustainable Agriculture and Fisheries” was held at the Bureau of Agricultural Research (BAR), RDMIC Building on 24-25 June 2009 for BAR staff.

This seminar-training was attended by staff members from the Applied Communications Division (ACD), Research Coordination Division (RCD), Technology Commercialization Unit (TCU) and the Information Management Unit (IMU) of BAR.

Dr. Marlowe Aquino and Dr. Arlen Ancheta served as the lecturers during the first day of the seminar. Dr. Aquino talked on “setting the trend” in the application of KM while “Profiling and Characterization of People and Communities” was the topic discussed by Dr. Ancheta.

On the second day of the seminar-training, Dr. Ma. Corazon Lopez lectured on “Community Mobilization

### UM for ... from page 5

quality and a longer shelf life of produce will matter a lot in staying in the business. The market for salted eggs has great potential hence necessitates better and improved methods of preparing it in order to stay in the market and be competitive.

The conventional way of producing salted egg involves the submersion of the egg in a supersaturated salt solution or by coating the egg in a 1:1 clay and salt with enough water to achieve a muddy consistency to coat the eggs. Some innovations of curing eggs even go to such extents as applying vacuum, pressure, and coating with absorbent materials. These methods are claimed to improve the quality and shelf life of salted eggs but the additional costs entailed by the materials and labor can be prohibitive.

Production of salted eggs using autoclaved clay is a local innovation seen to upgrade their quality resulting to longer shelf life thus increasing Philippines' chance to invade more foreign markets. The application of this technology in processing salted eggs proved superior to other methods being practiced in the country. In terms of yolk color, yolk texture, yolk consistency, and acceptability after eight weeks of storage, salted eggs in autoclaved clay yielded favorable results. (*Cecilia J. Baquiereza*)



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## UPLB introduces high Yield And Protein (YAP) corn



PHOTO: LBLANSIA JR.

PHOTOS: RDELACRUZ

(L-R) UPLB-CA Dean Domingo E. Angeles, UPLB Chancellor Luis Rey I. Velasco, IPB Director Jose E. Hernandez, BAR Director Nicomedes P. Eleazar, Agriculture Secretary Arthur C. Yap, Dr. Artemio M. Salazar of IPB, NAST President Emil Q. Javier, and DA Asec and GMA Corn Program Director Dennis B. Araullo.

IPB Var 6 or YAP corn, named after Sec. Yap and launched during the 34th IPB Anniversary.

The University of the Philippines Los Baños (UPLB) through the Institute of Plant Breeding (IPB) introduced a high yield, high protein corn variety dubbed as “YAP corn” during the 34<sup>th</sup> Anniversary of IPB on 10 June 2009. UPLB Chancellor Luis Rey I. Velasco and Dr. Artemio M. Salazar of IPB presented the corn variety to Agriculture Secretary Arthur C. Yap

during a simple ceremony at IPB.

YAP, which stands for high Yield And Protein, was named after Secretary Yap in honor of his unwavering support to research and development (R&D) and the promotion of relevant technologies towards a progressive and more sustainable agriculture.

It may sound “too good to be true” but YAP corn or IPB Var 6 is more

than your ordinary corn, quality-productivity-, and affordability-wise.

According to Dr. Salazar, principal breeder of the YAP corn and deputy director of the College of Agriculture-Crop Science Cluster of UPLB, YAP corn contains highly acceptable grits quality for food, high quality protein maize, and is rich in lysine. Specifically, Salazar revealed that the lysine content in YAP corn is 0.374% which is 66.2% higher than the

turn to page 10

## UM for autoclaved salted eggs approved; ushers-in Philippine niche in export market

Four months after the notice of certification of the trademark for SNAP hydroponics, another Intellectual Property (IP) registration was issued to the Bureau of Agricultural Research (BAR). This time, for its Utility Model (UM) production of salted eggs using autoclaved clay.

The production of salted egg using autoclaved clay is a research initiative of the Department of Agriculture-Regional Field Unit (DA-RFU 1) through its lead researcher, Dr. Jovita M. Datuin.

It is in the interest of BAR to provide the researcher with the maximum protection it can get for the

turn to page 5



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### In this issue

UPLB introduces high Yield And Protein.....	1
UM for autoclaved salted eggs.....	1
BAR funds 2 new CPAR projects in Bicol.....	2
NSIC to certify Asha seeds.....	3
PAC showcases innovative recipes.....	4
BAR, USM to develop molecular markers.....	5
Oregano tea: A profitable venture.....	6
Mitigating measures against fungi.....	7
NBN's Mag-Agri Tayo features.....	8
World experts convene to explore.....	9
Championing ICT for development.....	11
Series of seminar-trainings on KM.....	12



# BAR funds 2 new CPAR projects in Bicol

In an effort to provide more opportunities for rural employment, ensure food adequacy, and improve human nutritional level in the Bicol region, two new projects under the Community-based Participatory Action Research (CPAR) were approved and funded by the Bureau of Agricultural Research (BAR). The two CPAR projects are being implemented by the Bicol Integrated Agricultural Research Center (BIARC) headed by its center chief, Dr. Elena B. de los Santos.

CPAR is one of the banner programs of BAR designed to further strengthen the role of research and development (R&D) in creating the needed impact and ultimately bridge the gap between R&D and extension (RDE) in the process.

The two new projects are: "Community-based Participatory Action Research on Coffee+ Cacao Farming System" and "Community-based Action Research on Carabao Mango + Goat Farming System". These are being implemented in the lone district of Camarines Norte and in the second district of Masbate, respectively.

In 2007, BIARC reported how Carabao mango production has become a profitable venture which is now expanding in Masbate and is attributed to the province's pronounced dry season and low precipitation during the rainy season. These conditions are favorable for the commercial-scale production of Carabao mango as well as the raising of small ruminants like goats.

The project will be implemented in collaboration with the 2<sup>nd</sup> district of



Mr. Romulo C. Cambaya (standing), project leader of the "CPAR on Carabao Mango+ Goat Farming System in the 2<sup>nd</sup> District of Masbate", explains the project details to the evaluators.

Masbate by the Dr. Emilio B. Espinosa Sr. Memorial State College of Agriculture and Technology (DEBESMSCAT), the local government unit of Mandaon, and farmer partners in Barangays Cabitan and Bat-ongan. Leading this CPAR project is Mr. Romulo C. Cambaya with Dr. delos Santos, and Municipal Agriculturist Eleanor O. Mortel.

The project will also look on the development of new products and by-products from mango and goat meat for local and export markets.

Meanwhile, the CPAR on coffee and cacao will be implemented in the Municipality of Labo, Camarines Norte specifically in Barangays Tulay na Lupa and Lugui, where a nursery for coffee and cacao will be established. The farmer

partners will be provided with quality coffee and cacao seedlings. A major component of the project is to train farmer-cooperators on the application of the package of technology (PoT).

The project will act as a link between the community/farmers and the coffee and cacao industry institutions such as Nestle Philippines.

Ailyn Rafer, one of the project proponents and a researcher of BIARC, said that landing a marketing contract with these huge corporations will be the gauge of the success of the project.

The implementation meeting of the two CPAR projects, which marks the official start of the project, was held in San Agustin, Pili, Camarines Sur on 28 May 2009. (Amavel A. Velasco)

# Championing ICT for development initiatives

CHERYL MAE U. NATIVIDAD

**S**purred by globalization, the rapid development of ICT is perceived to accelerate the transmission and use of information and knowledge, and when appropriately applied to a sector, it becomes a powerful force that can change the way we live, and redefine the way firms, industries, and nations do business. When properly executed, ICT application is a powerful tool that levels-off the playing field and, is inclusionary!



The Philippines, considered as one of Asia's emerging economies, has initiated an innovative project in the agriculture sector to empower rural communities with the application of information and communication technology (ICT) for development. Using open source technologies, robust databases, and on-demand connectivity, the ICT medium allows farmers, researchers, and extension workers to interact with each other—identify farm-specific production problems and solutions, document practical knowledge, access market-related data, and share relevant information to support decision-making.

Implemented by Secretary Arthur C. Yap of the Department of Agriculture through the Bureau of Agricultural Research (DA-BAR) in partnership with Optiserve Technologies, Inc., the software application known as ePinoyFARMS<sup>®</sup> was deployed nationwide in 16 Regional Integrated Agricultural Research Centers (RIARCs) to complement the coordination, monitoring and evaluation requirements of the Community-based Participatory Action Research (CPAR) and the National Technology Commercialization Program (NTCP) of BAR.

Considered as a vital resource that merges theory and practice: the

ePinoyFARMS<sup>®</sup> operates as a decision support system for planners, researchers, extension workers, and local governments and, at the same time, serves to meet the information management requirements of farmers, co-operators and, adopters for practical knowledge. Taken as a whole, it integrates stakeholders to share, manage, and innovate in one evolving, technology-based, information-driven, platform for agribusiness development.

With the goal to enhance cross-country partnerships in leveraging ICT for development, Optiserve Technologies, Inc., the developer of the ePinoyFARMS<sup>®</sup>, in a visit to India, initiated talks with Agrocom, a

technology incubatee based at the Indian Institute of Technology (IIT) and the front-liner of AQUA, to venture on collaborative undertakings to further develop sharable tools, applications, and intelligently-linked content and data for agricultural RDE.

With the assistance of international research institutions, notably, the International Center for Research Institute for Semi-Arid Tropics (ICRISAT), the meeting was made possible during the trip of former President Fidel V. Ramos in India on 23 to 25 June 2009 to attend the Emerging Markets Forum (EMF) with the Filipino India Chamber of Commerce (FICC) delegation.

Optiserve Technologies, Inc. is an application service provider and systems integrator located at the Technology Business Incubation (TBI) facility at the UP-Ayala Technopark.

Ms. Cheryl U. Natividad, the chief executive officer, is a member of the Asia Pacific Incubation Network (APIN), a network of business incubators in the Asia Pacific region supported by World Bank's InfoDev Program.



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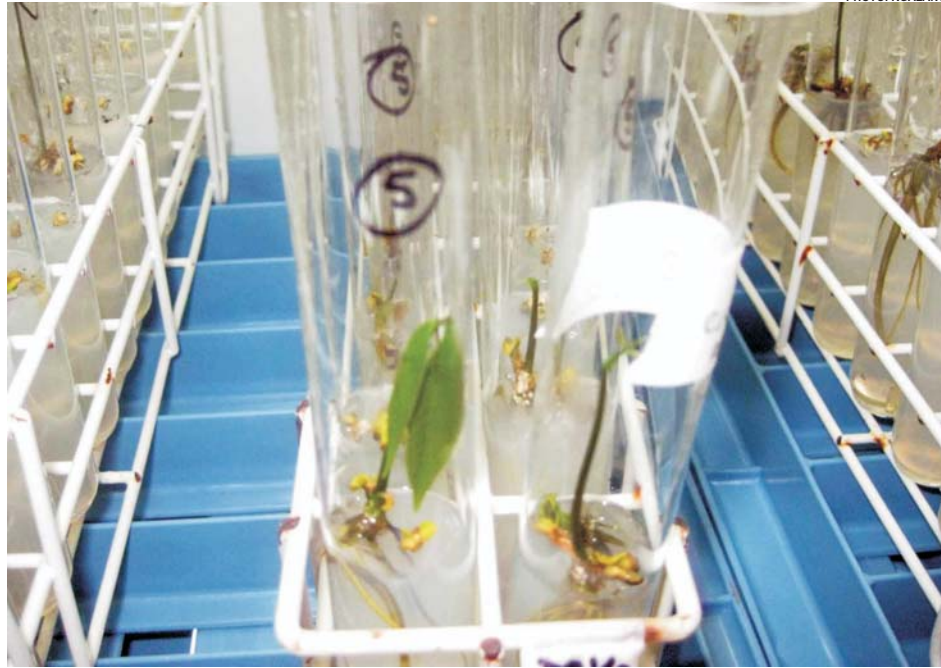
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## World experts... from page 9



Transgenic rubber seedlings, CIRAD

On the third day, the IRRDB Biotechnology Group met to discuss the concept and framework of the project proposal to implement the sequencing of the *Hevea* genome. The participants were divided into groups and worked on

developing the major components of the concept paper on the *Hevea* genome project which will be submitted to the IRRDB.

Among the major issues and concerns discussed during the meeting

were: 1) choice of the clone to be sequenced (PB 260) and scientific context, e.g., productivity concerns such as low yield, biotic and abiotic stresses, tapping panel dryness, etc.; 2) pursuing the project through international consortium or individual initiative (international consortium is desired to make use of the EST (expressed sequence tag) databases available in national programs); 3) setting-up a large EST database; 4) construction of a high-density genetic map; 5) choice of the sequencing technology or combination of technologies; 6) determination of the number of genome coverage; and 7) gene annotation of the draft sequence.

The IRRDB Liaison Officer for Biotechnology Group, Dr. Pascal Montoro will finalize the concept proposal with budget requirement for submission and approval by the IRRDB. The participants agreed that the concept proposal should include determining on-going activities and institutional capacities, and to identify manpower needs for training. Participation of all IRRDB member institutes will be encouraged.

## UPLB introduces... from page 1

normal corn (0.225%). Lysine is important for proper growth, it produces carnitine, which converts fatty acids into energy and helps lower human cholesterol levels. Since lysine cannot be produced by the body, it must be obtained from food.

In terms of productivity, YAP corn is a high-yielding variety. Field studies of this variety showed high yield in Luzon (5.84 t/ha), Visayas (5.45 t/ha) and yield in Mindanao was moderate (4.47 t/ha). YAP corn is harvestable in 105 days during dry season and 110 days during wet season.

Since YAP corn is an open-pollinated variety (OPV), affordability and sustainability are assured.

An OPV corn is better than a hybrid corn because seeds do not have to be purchased repeatedly. Subsequent seeds from original hybrids do not retain the hybrid vigor. With YAP corn, farmers do not need

to keep on purchasing seeds may just store OPV seeds for future planting from their own harvest.

In response, Sec. Yap felt honored to have the promising variety named after him and commended UPLB and IPB for continuously contributing to the advancement and growth of the agriculture industry. UPLB has been a proactive partner of DA particularly in addressing food security and in increasing farmers' incomes in the country. Secretary Yap encouraged UPLB to propose and submit new project proposals that will address and respond to current challenges, one of which is in relation to climate change.

Yap added that the problem does not lie in the lack of technologies but in the meagerness of effective strategies and means to bridge the gap between technology

generation and technology transfer—making sure that farmers will adopt these technologies for increased production and income. (Rita T. dela Cruz)

For more information on the YAP Corn, please contact the Institute of Plant Breeding, Crop Science Cluster, College of Agriculture, University of the Philippines Los Baños, College Laguna. Call them at Tel no. (049) 536-2298 or 536-3438



PHOTO: LBLANOSIA JR.

## NSIC to certify Asha seeds



PHOTO: ROEL ARNIZ

The Field Legume Varietal Improvement Group, the technical working group evaluating peanut seeds, is now recommending Asha peanut for certification after passing a series of tests and strict evaluation by the National Seed Industry Council (NSIC), said Dr. Rosemary Aquino, focal person of Asha peanut production in the Philippines.

Certification is an important mechanism that ensures varietal purity, seed genetic identity, and the overall seed quality in relation to production, processing, storage, and distribution in pursuant to the implementing rules and regulation of the Seed Industry Development Act (Republic Act 7308) of 1992.

Certified seed means the seed is already been tested and passed the quality standards of the evaluating body and therefore ready to distribute and commercialize. Thus, the tag "certified seed" is the highest credential given to the seed that possesses quality.

Dr. Aquino further stated that, with the qualities that Asha peanut has shown in the 17 national cooperative trials (2007 wet season to 2008-2009 dry season), there's no doubt for Asha to pass the quality standard of NSIC. Among the accredited testing areas were DA-CVIARC, BPI-LBNCRDC, DA-BIARC, DA-ROS Bohol, DMMMSU La Union, DA-SMIARC, USM Kabacan, CMU Bukidnon, MMSU Batac, Ilocos Sur, DA-

Samar (San Gorge), and DA-CEMIARC.

Based on the trial results, Asha (ICGV 86564) consistently ranked as number one in terms of yield. Actually, it out-yielded the NSIC national check variety (Pn 11) by 22% during wet season and 10% in dry season.

Asha is the only peanut variety released in the Philippines that produced the highest recorded yield of 3,991 kg per hectare. The yield of Asha peanut was doubled that of the most commercialized peanut varieties in the country. It also has a 3-in-1 variety in terms of seed sizes - comprising of Class A (jumbo), Class B (large), and Class C (medium-small seeds). The biggest seed are same sized as cashew nuts weighing one gram per seed.

Aside from being large-seeded, it has a high shelling recovery of 73-79%. It is ideal for confections and as table food as indicated by its proximate nutrient analysis - 25.67% crude protein, 20.05% carbohydrates, 47.41% crude fat, 4.39% moisture and 2.48% ash.

Asha peanut is also resistant to bacterial wilt and other foliar diseases like - early and late *cercospora* leaf spot and rust, making it ideal for livestock forage due to high fresh biomass and dry matter yield, Dr. Aquino added.

Since its arrival in the Philippines, Asha peanut gave hope to farmers and spur the interest of entrepreneurs because of its yield potential and profit.

It is commercially grown in Region 2 particularly in the municipalities of Echague, Jones, Benito Soliven, and Gamu in Isabela and Lallo, Solana, and Tuguegarao in Cagayan through the funding support of the Bureau of Agricultural Research (BAR) under its National Technology Commercialization Program (NTCP).

At present, farmers in Regions I, 9, 10, and CAR are interested in the production of Asha as manifested by seed orders, sales, and delivery records of CVIARC. In fact, it is now a *by-word* among peanut farmers and other peanut enthusiasts. It also appeared in text messages and even in emails as indication of its popularity, enthused Dr. Aquino.

The success of Asha was made possible through the collaborative effort of various agencies coupled by effective technology commercialization and dissemination strategies, such as the conduct of national and local peanut festivals, technology demonstrations, trade fairs, and mass production and distribution of information and communication materials. However, making the seed always available to farmers and all Asha peanut enthusiasts is the most important aspect of all strategies, which is the basic role of DA-CVIARC, concluded Dr. Aquino. (Edmon B. Agron)



## PAC showcases innovative recipes from sweet sorghum

Following the potential of sweet sorghum (*Sorghum bicolor* L.) as source of human food in various forms, the Pampanga Agricultural College (PAC) has recently developed 25 food products from sweet sorghum of which 24 come from grains and one from the stalk.

Sweet sorghum is a promising cereal crop that could address problems on malnutrition and dwindling supply of alternative source of flour, an answer to the increasing cost of wheat flour.

PAC's initiative is in line with 4Fs (Food, Fuel, Feed, Fertilizer) in sweet sorghum, which the International Crop Research Institute for Semi-Arid Tropics (ICRISAT) first introduced in the country through the leadership of Dr. William D. Dar. ICRISAT considers sweet sorghum as a smart crop as it produces food, fuel, feed, and fertilizer, without significant trade offs in any of these uses in the production cycle.

Dr. Estrella C. Zabala, food technologist from PAC, developed the various food products from sweet sorghum with Drs. Fortunato M. Battad and Norman G. de Jesus who provided the technical support. Sorghum grains are processed into flour and is used as a substitute or is the main material of the products either as whole grain, sprout, or in ground form.

Among the potential food products developed include **soups and porridge** (mushroom in sorghum soup, sorghum soup, veggie-sorghum soup, sorghum porridge with chicken, sorghum porridge, sorghum-choco porridge, pepper

leaves in sorghum, and sorghum con moringa); **native delicacies** (pastillas de sorghum, sorghum native cake, native cake sorghum with langka, sorghum sapin-sapin, sorghum suman, sorghum-yam native cake, sorghum-squash native cake, sweet sorghum tupig, and sweet sorghum espasol); and **meals** (burger sorghum, sorghum in salty taste, sorghum in sweet taste, sorghum-veggie in oyster sauce, fresh spring rolls with sorghum, and shanghai sorghum).

Likewise, the sorghum kernel can also be made into pop sorghum, which is a popular healthy snack. Aside from the grains, PAC has developed vinegar from the sweet sorghum stalks.

According to Dr. Honorio M. Soriano, Jr., PAC president, sweet sorghum has a huge potential as source of human food in various forms with high commercial value. Its grains can be processed and used as alternative to rice.

In terms of production, Dr. Soriano said that, sweet sorghum can be grown throughout the year or at least twice a year and needs minimal time and cost compared to other field crops. "It is the only crop that provides grain and stalk which can be used to produce ethanol, sugar syrup, jaggery, flour, and other food items," he added.

With funding support from the Bureau of Agricultural Research (BAR) and other collaborating agencies, PAC has been conducting its own R&D activities related to sweet sorghum since 2004.



Sweet sorghum grains (*Sorghum bicolor* L.)

These include varietal testings, fertilizer trials, development of sweet sorghum-based food products and animal feed, and ethanol production.

Sweet sorghum grain is higher in protein and lower in fat than corn. The mineral composition differs only slightly from corn and vitamin content is similar to that of white corn. A 200 g of cooked sorghum grain is a rich source of protein, vitamin B1, B2, niacin, iron, zinc, and provides 14 g of dietary fiber.

A compendium on sweet sorghum food products will be published by BAR through its Scientific Publication Grant (SPG) and will be launched during the BAR's Anniversary on 7 August 2009. (Rita T. dela Cruz)



Sweet sorghum flour



"Sorghum pop"



"Sorghum burger"

PHOTOS: RDELACRUZ

## World experts convene to explore recent advances in rubber genomics



Participants of the workshop and meeting on "Hevea Genome and Transcriptome" held in Montpellier, France. Representing the Philippines are Mr. Rodolfo L. Galang of DA-BAR (3rd from right, third row) and Dr. Emma K. Sales of USM (third from left, first row)

Experts and researchers from rubber research institutes, universities and the private sector from different countries convened for a workshop and meeting on "Hevea Genome and Transcriptome" on 3-6 June 2009 in Montpellier, France.

The workshop was jointly sponsored by the Centre de Cooperation Internationale en Recherche Agronomique pour le Developement (CIRAD), Institut Français du Caoutchouc (IFC), and the International Rubber Research and Development Board (IRRDB). It was organized under the leadership of Dr. Pascal Montoro, a senior scientist of CIRAD and liaison officer of the IRRDB Biotechnology Specialist Group.

CIRAD is a French agricultural research centre working for international development. Most of its researches are conducted in partnership with member-agencies. Meanwhile, IRRDB is a research and development (R&D) network which brings together natural rubber research institutes of virtually all the natural rubber producing countries, covering 95 percent of world natural rubber production.

The activity aims to explore recent advances in both genomics (study

of genomes and DNA sequences) and transcriptomics (gene expression profiling) researches on rubber tree (*Hevea brasiliensis*), and how these advances are being incorporated into rubber tree sciences. Specifically, the workshop examined the latest developments in transcriptomics studies on rubber biosynthesis, responses to tapping and ethephon stimulation, and responses to various biotic and abiotic stresses.

There were 40 participants from the participating countries, specifically the Philippines, Thailand, China, Nigeria, Malaysia, Indonesia, Brazil, and France. Representing the Philippines were Mr. Rodolfo L. Galang of the Bureau of Agricultural Research (BAR) and Dr. Emma K. Sales of the University of Southern Mindanao (USM).

Invited experts and scientists presented genome projects on commercially important crops other than rubber, such as poplar, banana, and cassava. Based on the new sequencing technologies and powerful bioinformatics computational systems, the IRRDB Biotechnology Group will draw up a proposal to implement sequencing of the *Hevea* genome.

Highlight of the activity was a

scientific program held at the CIRAD-Amphi Jacques Alliot on 3-4 June wherein participants were officially welcomed by Mr. Emmanuel Guiderdoni, director of the Plant Development and Genetic Improvement of CIRAD; Mr. Hubert Omont, vice-chairman of the IRRDB; and Dr. Pascal Montoro, liaison officer of the IRRDB Biotechnology Group.

The program consisted of four sessions with corresponding paper presentation on each topic: 1) *Hevea* genome and molecular breeding; 2) regulation of the gene expression in rubber tree; 3) transcriptome analysis in rubber tree; and 4) interest, tools and applications of the sequencing of the plant genomes.

Under the topic on "Hevea genome and molecular breeding", Philippine representative, Dr. Emma Sales of USM, presented a paper on "On-going research activities in *Hevea brasiliensis*".

Included in the program were visits to the laboratories in CIRAD including the Genotyping Platform, Functional Genomics platform; and the Histology and Plant Cell Imagery Platform.

turn to page 10



# NBN's *Mag-Agri Tayo* features three UPLB-BAR projects

Three research and development (R&D) projects implemented by the University of the Philippines Los Baños (UPLB) and funded by the Bureau of Agricultural Research (BAR) were documented by *Mag-Agri Tayo* show for airing at NBN Channel 4.

Among these projects were the SNAP hydroponics of the Institute of Plant Breeding (IPB), the Dampalit Watershed Project of the Makiling Center for Mountain Ecosystems (MCME) and the Ubi Powder Packaging of the Food Science Cluster (FSC) of the UPLB College of Agriculture (CA).

## SNAP hydroponics

Prof. Primitivo Santos of the IPB revealed that a lot of people have already sought training and lecture from them on how to use the technology on SNAP hydroponics.

"Many come to us to inquire about it (SNAP hydroponics). Some were researchers, others were entrepreneurs who would like to put up a business in growing vegetables using SNAP and some were just hobbyists who wish to ensure that the vegetables that their families would consume are healthy and free of pesticides," said Dr. Santos.

On a per request, the IPB is conducting lectures and hands-on trainings on SNAP hydroponics, which is the technology of growing vegetables without the use of soil.

## Dampalit Watershed Project

Although this project has already reached completion stage, continuous monitoring is still being done by the implementing agencies like the University of the Philippine Foundation, Inc. (UPLBFI), Samahang Magsasaka sa Mataas na Lupa ng Lalakay sa Bundok Makiling (SAMALUP), and the local government of Barangay Lalakay, Los Baños, Laguna.

According to Project Leader Forester Nick Balahadia, "*Kahit tapos na ang project na ito ay hindi namin maiwan-iwanan sapagkat nagkaroon na din kami ng magandang samahan sa*

*mga magsasaka ng Dampalit Watershed.*" (Even though this project has already been completed, we still cannot leave it because of the bond that we have created with the farmers of the Dampalit Watershed).

In fact, Forester Balahadia disclosed that they have started introducing rubber tree to the farmers. "*Hopefully kapag makita nila puwede din silang kumita sa pagtatanim ng rubber bukod sa mga regular crops na tinatanim nila, i-a-adopt na din nila ito.*" (Hopefully, if they see that they could also earn from planting rubber trees aside from the regular crops that they cultivate, they will adopt it.)

Other key persons who granted interviews for the shoot were: Dr. Portia Lapitan, over-all project coordinator; Chairman Gaudencio Macatangay of Brgy. Lalakay; Ka Martin Onico, first SAMALUP leader; and Ms. Vicky Mariano, university extension specialist and one of the study leaders.

## Ubi powder packaging

The drying stage of ubi powder is critical in its production. With the drying equipment that the Food Science Cluster has acquired through the assistance of DA-BAR, the research team is now focused in coming up with ubi powder packaging technology that would be acceptable by consumers. Hence, they have been conducting market tests and other studies that can help improve the product.

Project Leader Dr. Teodora de Villa said that "It is very

significant that we pay attention to the packaging of the ubi powder because it really has a big potential in the export market."

Dr. de Villa added that they wish for entrepreneurial groups to become interested in bringing this ubi powder into the market since their focus is on research. (Don P. Lejano)



Dr. Primitivo Santos on SNAP hydroponics



Exec. Producer Patrick B. Daffon documents the ubi powder.



Farmer-cooperators of the Dampalit Watershed project

# BAR, USM to develop molecular markers for rubber clones authentication

The Bureau of Agricultural Research (BAR) is in full support of the various rubber Research, Development and Extension (RDE) projects in different locations across the Philippines. One of these is the project on the "Development of Molecular Markers for Identification and Authentication of Rubber Clones" being implemented by the University of Southern Mindanao (USM).

The three-year project in Kabacan, South Cotabato aims to: 1) develop procedures for the reliable and rapid detection and sorting of rubber planting materials, 2) establish molecular markers for identifying rubber genotypes, and 3) package technologies for dissemination to rubber stakeholders.

Rubber, scientifically known as *Hevea brasiliensis*, is an important tree crop as it produces latex for commercial use. It is considered as one of the most profitable agro-industrial ventures because of its indispensability and wide range of technological and industrial uses.

Rubber is a perennial crop that makes conventional genetic analysis difficult, not to mention that it has long breeding and selection cycles. Hence, molecular marker techniques are very

useful tools in *Hevea* crop improvement through germplasm, fingerprinting, genetic analysis, linkage mapping and molecular breeding activities.

The methodology of this project has been divided in two parts. Study 1 covers the survey, collection and evaluation of different rubber clones which includes the leaf blade, leaf storey, stem, crown, branching, and trunk. Study 2, on the other hand, covers the development and screening of molecular marker (SSR and AFLP) protocol for rubber.

As of the latest morphological analysis, 99 out of 109 targeted clones have already been characterized and 46 out of 53 morphological traits have actually been evaluated. Meanwhile, 82 rubber clones have been analyzed and 560 distinguishable alleles were detected under the molecular analysis that was conducted.

Currently, 20 more SSR markers and 64 AFLP primers are being screened through the supervision of



Rubber plant (*Hevea brasiliensis*)

project leader, Dr. Emma K. Sales along with study leaders, Dr. Romulo L. Cena and Nilda G. Butardo of USM.

Since up to the present, no laboratory in the Philippines is engaged in molecular identification of *Hevea* clones, thus a strong need for a rapid reliable technique for such endeavor.

This recent undertaking on rubber RDE, which is in line with the Department of Agriculture's recent launching of the National Rubber Development Program (NRDP), is expecting completion in 2009. (Don P. Lejano)

## UM for... from page 1

generated technology. Since the technology used an already existing or known method with autoclaving as a new component, a UM was applied.

IPR experts consider UM as a supplement to the patent system. It provides protection for innovations that lack inventive step to warrant a patent grant. They are subjected to a state-of-the-art search but not a full substantive examination. A UM grants an inventor an exclusive right for an invention to prevent others from commercially using the protected invention without his/her authorization for a limited period of

time which is seven years from the date of filing.

The UM for production of salted eggs using autoclaved clay was applied for by Intellectual Property Rights (IPRO) of BAR on 23 September 2008 and was issued a Certificate of Registration from the Intellectual Property Philippines (IPP) on 4 June 2009.

With the certificate of registration for the production of salted eggs using autoclaved clay, Dr. Datuin will now be able to negotiate with potential business partners to commercialize her technology.

Production of salted duck eggs has both local and world demand particularly among Filipinos abroad. Duck eggs processed as salted eggs with tomatoes eaten with fried rice is an irresistible breakfast, but it is not only Filipinos who savor this viand with gusto but other Asian nationals as well. Hence, it will not be surprising that Philippines will face stiff competition in exporting this product to other countries, particularly in Europe and US where Asians abound.

Having the same product and same method of producing it, the

turn to page 12





PHOTO: EAGRON

## OREGANO TEA: A profitable venture for the health conscious Filipinos

Given that the Philippines is not a traditional tea-drinking country, tea consumption continues to increase as health-conscious consumers choose this beverage more for its medicinal benefits.

A study conducted by Euromonitor International in 2007, showed that tea consumption in the Philippines has dramatically increased. The abrupt consumption growth is related to the increasingly busy lifestyle in urban areas of major cities in the country and the emerging health and wellness trend.

Generally, the Philippines is importing tea from different tea countries like China, India, Kenya, Sri Lanka, and Indonesia. The increasing demand for tea has prompted the government to look for alternative materials that are available locally which may be developed into marketable products similar to tea. One of these is the Philippine oregano (*Coleus aromaticus* Benth), which is more popularly known among Filipinos as a medicinal plant.

As part of the long-term national project to promote agribusiness in the country, a study proposed by the Southern Tagalog Integrated Agricultural Research Center (STIARC), "Wine, Fermented Juice, and Tea Product Development from Philippine Oregano", was funded by the Bureau of Agricultural Research (BAR) under its National Technology Commercialization Program (NTCP) to develop, package, and commercialize health products from this locally available medicinal plant.

Initially, the product was exhibited in agri-trade fairs for market testing. The few tea enthusiasts who had

the chance to sample the products spread the news about oregano tea, generating more interest.

Oregano tea is gaining local acceptance creating its own market niche as shown in increasing sales and orders. In fact, private groups and individuals have shown interests in this new product by engaging in its production.

With these opportunities, Dr. Estela C. Taño, head of the Quezon Agricultural Experimental Station (QAES), Research Outreach Station (ROS) of DA-RFU IV-A and main proponent of the project, established the Green Rescue Organic Products Enterprise (GROPE) which is composed collectively of unemployed people particularly, women of Tiaong, Quezon.

The products have undergone different procedures such as physical, chemical, microbiological, and nutritional tests to ensure their quality and purity. GROPE has also improved its product packaging and is trying out different marketing techniques.

With increasing demand and the widening of its market horizon, the supply of locally produced oregano is running short. Currently, there are two



PHOTO: QAES

groups supplying its raw materials for their income generating projects these are the *Magsasakang Tagapangalaga ng Kalikasan ng Munting Paraiso*, a farmers' association in one of the mountain barangays in Tiaong, Quezon and the Southern Luzon State University (SLSU), Tiaong Campus. The enterprise buys the oregano leaves at PhP10.00 per kilogram.

Meanwhile, product dealers are also benefiting from the enterprise by getting a 20% of their gross product sales as income.

Today, the enterprise has grossed about PhP 0.5 million in one-year period starting from June 2008. The enterprise is now engaged, through the direct guidance of the researchers, in addition to oregano tea, in the production of oregano wine, oregano juices, and oregano vinegar.

A new product, oregano soap, has also been developed. Like the other oregano products, the soap, which will be introduced in the market as OREG soap, is also a high quality organic product. The enterprise is under the direct guidance of the researchers. (Edmon B. Agron)

**Oregano tea is gaining local acceptance creating its own market niche as shown in the increasing sales and orders.**

## Mitigating measures against fungi in onion intensified

Following the detection of another plant pathogenic fungus in onion causing the anthracnose disease, Secretary Arthur C. Yap instructed concerned agencies of the Department of Agriculture (DA) to intensify mitigation measures and make the necessary actions to prevent further damage to onion industry.

The detection of the fungal pathogen, *Gibberella moniliformis*, in onion was a result of the study of Dr. Ronaldo Alberto of Central Luzon State University (CLSU) and Dr. Vermando Aquino of UP National Institute of Molecular Biology and Biotechnology (UP-NIMBB), which was presented in a public seminar at the Bureau of Agricultural Research (BAR). The study was funded under a research fellowship

program of DA-BAR and the UP-Natural Science Research Institute (UP-NSRI). Previously, *Colletotrichum gloeosporioides* was thought to be the only causal organism. *G. moniliformis* is one of the microorganisms that can produce gibberellins, a substance with hormone properties.

According to Bureau of Plant Industry (BPI) Director Joel S. Rudinas, the presence of giberrelins in affected plants had already been suspected even way back because of the elongation of the plants that is characteristic of gibberellins. Thus, BPI management was glad that the study of Drs. Alberto and Aquino confirmed their previous observations.

Rudinas explained that BPI has been working with the local government units in developing effective cultural management to abate the threat in the industry. BPI has recommended crop rotation, sanitation, and good agricultural practices as among the mitigating measures. BPI also welcomed the measures recommended by Drs. Alberto and Aquino particularly on the safe and judicious use of fungicides to control the disease.

According to Dr. Alberto, effective solutions to address the disease include the use of fungicides like



PHOTO: RALBERTO

Anthracnose symptom in onion leaves

phenylthalamides and benzimidazole which show evidence of efficacy against both *C. gloeosporioides* and *G. moniliformis*. Similarly, the use of Triazole fungicides together with a gibberellin inhibitor could be one of the best approaches in managing the disease because of the high probability of gibberellins produced by *G. moniliformis* playing an important role in disease development.

Dr. Alberto added that the discovery and characterization of these pathogens bodes well for the formulation of an effective solution and suitable management strategies to neutralize or defeat the disease as scientists have now a better understanding of its complexity.

Meanwhile, Secretary Yap expressed optimism that with the result of the study and the steps to be taken by concerned DA agencies, the threat to the onion industry can be managed.

Responding to Yap's call for action, BAR is continuously supporting the onion growers and stakeholders through the implementation of its Onion Production Resource Management System (OPREMS). This is a custom-built software application system developed specifically for use by the onion sector through a community-based resource management system. This database is designed to provide a unified information system applicable for multi-stakeholder development projects in a cross-functional environment. (Edmon B. Agron)



Anthracnose-free onion plants.

PHOTO: RDELACRUZ