

PhilAgriNet promotes better pool of agri knowledge resources



Ms. Mila Ramos of PhilAgriNet presented the poster titled, "Agricultural Knowledge Sharing in the Philippines" during the "International Expert Consultation on Building the CIARD Framework for Data and Information Sharing" in Beijing, China.

PHOTO: MILA RAMOS

researches to serve as guide to similar studies yet to be conducted and to avoid duplication of studies. In the long run, this will aid the generation of savings on the part of the research institution and the country as well.

With the goal of upholding the advocacy and activities of PhilAgriNet, Consultant Mila Ramos participated in the "International Expert Consultation on Building the Coherence in Information for Agricultural Research for Development (CIARD) Framework for Data and Information Sharing" held on 20-23 June 2011 in Beijing, China.

Organized by the Global Forum on Agricultural Research (GFAR) and the Chinese Academy of Agricultural Sciences (CAAS), the Consultation held the activity "Marketplace" that showcased online agricultural information resources from different countries. In this activity, Ms. Ramos presented PhilAgriNet through the poster titled, "Agricultural Knowledge Sharing in the Philippines," which portrayed the network as the solution to the recurring problems of deficient awareness and inadequate access to Philippine agricultural research literature.

As one of the plans and programs for the further development

and promotion of PhilAgriNet, Ms. Ramos advised that the database be registered at the CIARD website so to establish a new affiliation with this movement. Preceding the consultation, CIARD posted a summary report on Philippine agricultural knowledge sharing written by Ms. Ramos on their website.

On the track of advancing the PhilAgriNet database, an alternative software was proposed to house the database. This is due to the inveterate installation problems under its present open source database management software WebAGRIS. Subsequent to the prolonged discussion among PhilAgriNet officers, the database files were decided to be transferred to a less complex and easy-to-use platform, which is Dspace.

Dspace, an open source software package commonly used for institutional repository, has management tools for digital assets, supports a vast range of data, like thesis, book, film, digital scan, video, and many other forms of information, and manages metadata for print files. **(Leila Denisse E. Padilla)**

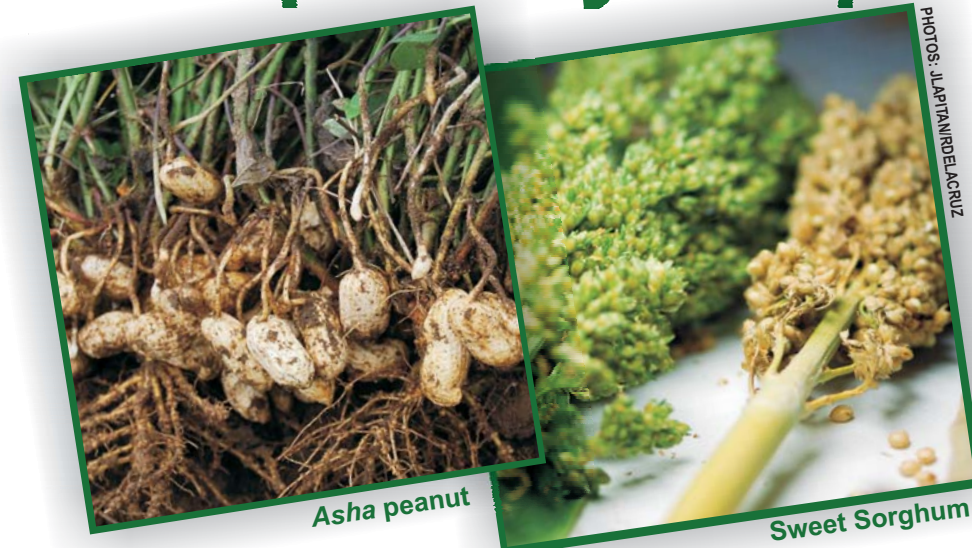
For more information please visit the PhilAgriNet website:
<http://www.bar.gov.ph/philagrinet/index.html>

HVCDP includes sweet sorghum and peanut as priority crops

The High Value Crops Development Program (HVCDP), a banner program of the Department of Agriculture (DA) created to help address food security, poverty alleviation and sustainable growth in the country, has recently included *sweet sorghum* and *peanut* as priority commodities. This was made official through Memorandum No. 143, Series of 2011 which was signed by its OIC National Coordinator, Jennifer E. Remoquillo.

"HVCDP does not pose any objection to the propose inclusion of the two commodities as we recognize their importance to the development of the agriculture sector, thus appropriate interventions specifically on the research and development (R&D) will be provided," stated Remoquillo.

Sweet sorghum and peanut are agricultural crops which are both being supported by the Bureau of Agricultural



Asha peanut

Sweet Sorghum

Research (BAR) given their economic potentials to increase farmers' incomes, create livelihood opportunities, and contribute to national agricultural development.

"Since 2005, BAR has been funding R&D initiatives geared toward the promotion of the two crops to boost their productions nationwide from the

adaptability field trials to the development of package of technologies (POTs). Part of the commercialization is a seed support system to reach more farmer-beneficiaries and adopt the technology interventions introduced to them," said the bureau chief, Dr. Nicomedes P. Eleazar.

BAR, as the designated focal agency of the DA on biofuels R&D, is promoting sweet sorghum for its bioethanol production. Since the introduction of the crop in 2005 through the India-based, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), BAR has been supporting R&D initiatives to boost its

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Eleazar delivers accomplishments and issues marching orders



DR. NICOMEDES P. ELEAZAR

Director Nicomedes P. Eleazar of the Bureau of Agricultural Research (BAR) delivered the bureau's accomplishments for the first semester of 2011 and issued specific directions for the next six months during the "BAR Mid-Year Review and Planning Workshop" held on 12-14 July 2011 at the Punta de Fabian in Baras, Rizal.

Specifically, he instructed concerned division to closely coordinate with DA-High Value Crops Development Program (HVCDP) to include peanut and sweet sorghum as priority commodities. The bureau chief also instructed the Planning and Project

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RDMIC Bldg., Visayas Ave., cor. Elliptical Rd.
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PHILIPPINES

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Farmers receive benefits from R&D investments in Quezon



DA Secretary Proceso J. Alcala (center) leads in the ribbon-cutting during the inauguration of the Farmer's Training Hall (left, upper photo) and the Embryo Culture Lab (left, bottom photo) inside the QAES Compound. Also in the photo are: BAR Director Nicomedes P. Eleazar (right) and DA-RFU IV Director Abelardo R. Bragas (left).

PHOTOS: MMOJICA



Farmer's Training Hall

Embryo Culture Laboratory

Farmers can now benefit from a wide selection of services from the government's continuing investments in agriculture research, development, and extension (RD&E) as the Department of Agriculture (DA) ushered them to the newly built Farmer's Training Hall in Quezon Province on 5 July 2011.

No less than Agriculture Secretary Proceso J. Alcala graced the

occasion were farmers were educated about free access to technologies, technical assistance, and other services provided by the government through the Quezon Agricultural Experiment Station (QAES) in Lagalag, Tiaong, Quezon.

QAES is one of the research outreach stations (ROS) of the Southern Integrated Agricultural Research Center (STIARC) under DA Region 4A.

The Bureau of Agricultural

Research (BAR), the R&D arm of DA, in partnership with the Philippine Coconut Authority (PCA), DA Region 4A, and QAES organized the event where the BAR-funded Farmer's Training Hall, Embryo Culture Laboratory, and several RD&E projects of various proponents were officially presented to farmers.

The training hall provides farmers with a venue to build the

HVCDP includes..from page 1

production nationwide. BAR funded the sweet sorghum regional adaptability trials in 2007-2008. The five varieties planted were: NTJ 2, SPV 422, ICSV 700, ICSV 93046, and ICSR 93034 which were evaluated as the best among the initial varieties conducted by the Mariano Marcos State University (MMSU). Preliminary results also showed that the varieties are well-adapted in most of regions where the trials have been conducted.

"Should sweet sorghum be used to its full potentials in production and processing, this could propel us to the same level as other countries that now have more environment-friendly industries yet progressive economies. The country would be a cleaner place to live in," said Dr. Eleazar.

While there are still no distilleries for bioethanol from sweet sorghum in the country, village-level technologies were developed to process sweet sorghum juice and grains into food products and the grains and stalks as animal feed. Hence, the 4Fs in sweet sorghum production: Fuel, Food, Feed/Forage, Fertilizer. Farmer-beneficiaries of BAR-funded projects are using their harvested grains and stalks to produce processed food products. The grains are processed into flour which in turn is used to make products such as cookies, macaroons, *polvoron*, and porridge. The kernels are made into pop sorghum which is similar to popcorn while the juice from the stalk are served fresh as a refreshing drink and further processed into jaggery, wine, and vinegar.

Another high-potential crop being supported by BAR is peanut, specifically *Asha* peanut, a big-seeded peanut variety known to produce nuts larger than those traditionally grown in the country. Just like sweet sorghum, *Asha* peanut was also introduced in the country through a BAR-ICRISAT R&D collaborative initiative in 2005.

Asha peanut is now a certified peanut variety and is being widely cultivated nationwide through a project funded by BAR. Given its size and high-yielding qualities, *Asha* showed great potential in increasing the harvest and incomes of local peanut farmers in the country. According to Dr. Eleazar, *Asha* peanut production project is in line with DA Secretary Proceso J. Alcala's initiatives to promote agricultural crops and products that have potentials to improve farmers' incomes, but are not yet in the mainstream market.

A Package of Technology (POT) for the production of *Asha* peanut variety is now available improving the productivity of local peanut farmers in the country. The POT was developed by the Department of Agriculture-Cagayan Valley Integrated Agricultural Research Center (DA-CVIARC) through a three-year project on the production and promotion of *Asha* peanut. *Asha* is the only peanut variety released in the Philippines that produced the highest recorded yield of 3,991 kg per hectare which is doubled the yield of commercialized peanut varieties in the country. This peanut variety is also resistant to bacterial wilt and other foliar diseases such as *Cercospora* leaf spot and rust, which is ideal as livestock forage due to high fresh biomass and dry matter content. Other HVCDP priority commodities which are being supported by BAR are *Adlai* (under the staple food crops) and *Soybeans*. These are being supported through BAR's Community-based Participatory Action Research (CPAR) and National Technology Commercialization Program (NTCP).

Other priority crops included: abaca, coffee, cacao, rubber (for industrial crops); *pinakbet* and *chopsuey* types, spices, indigenous (for vegetables); fruits (based on local priorities); rootcrops; and Saba/Cardaba banana (for staple food crops).

(Rita T. dela Cruz)

Eleazar delivers..from page 3



PHOTO: RDELACRUZ

Trainings on capacity building particularly on rainfed agriculture and climate change were also given emphasis by Director Eleazar during the mid-year review and planning workshop. He said, "empowering our researchers in these fields will strengthen and intensify our R&D works." He put to task the Institutional Development Division (IDD) to package capacity building proposals in coordination with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) through the Philippine Rainfed Agriculture RDE Program (PhiRaRDEP).

Director Eleazar articulated to the group the specific instruction of Secretary Proceso J. Alcala to make DA regional stations productive and be able to generate incomes.

On administrative and financial matters, he instructed Finance Unit to comply with the provisions set forth in the accounting and auditing rules and procedures prior to the implementation. Dr. Eleazar further advised all technical divisions to closely collaborate with the Finance Unit on the releasing of checks to partner institutions.

Apart from the specific instructions laid down by the Director, he reminded the participants to identify point persons for specific R&D commodity i.e., *adlai*, rubber.

Dir. Eleazar also requested IDD to review the current scholarship packages particularly on the availment of degree and non-degree assistance programs of BAR.

To effectively plot its future plans and directions, respective divisions and units of the bureau reported their first semester salient accomplishments and prospective plans for 2011.

Mr. Joell H. Lales, head of PPDD, presented the Philippine Development Plan for 2011-2016 specifically containing the Competitive and Sustainable Agriculture and Fisheries Framework. Mr. Lales also presented the DA's Plans and Programs for 2012.

All divisions presented their plans and programs for the year.

Assistant Director Teodoro S. Solsoloy delivered a message to officially cap of the activity. (Patrick RA Lesaca)



BAR CHRONICLE is published monthly by the Applied Communication Division of the Department of Agriculture - Bureau of Agricultural Research, RDMIC Building, Visayas Avenue, cor. Elliptical Road, Diliman, Quezon City 1104 Philippines.

This publication provides regular updates on DA-BAR's activities as the country's national coordinator for agriculture and fisheries R&D. It also highlights features and news articles concerning NaRDSAF-member institutions.

PRODUCTION TEAM

Managing Editor/Layout Artist: Rita T. dela Cruz

Consulting Editors: Victoriano B. Guiam and Julia A. Lapitan

Writers:

Ma. Eloisa Aquino, Rita T. dela Cruz, Diana Rose A. de Leon
Maria Anna M. Gumapac, Patrick RA Lesaca,
Miko Jazmine J. Mojica, Leila Denisse E. Padilla, and
Zuellen B. Reynoso

Reproduction/Printing:

ACD Head:

Adviser:

Ricardo G. Bernardo and Anthony A. Constantino
Julia A. Lapitan
Nicomedes P. Eleazar, PhD, CESO IV

ISSN 1655-3942

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For subscription and inquiries please contact us: Tel. Nos: +63 (2) 928-8505, 928-8624, 920-0234

local numbers 3011, 3012, 3027 Fax No. +63 (2) 927-5691 Email: acd@bar.gov.ph

Articles are also available online, visit our official website: <http://www.bar.gov.ph/barchronicle>

old only because we eat porridge made from lowland rice which is grown with chemical fertilizers,” revealed Danilo Eranga, farmer leader of Subanen Tribe and member of the Tumanod Pusaka Subanen Midsalip (TUPUSUMI) Farmer Association.

In a report conducted by the Bureau of Agricultural Research (BAR) during its “Documentation on Adlai Production Practices in Zamboanga del Sur,” it was found that from the 33 barangays in Midsalip, 19 are growing *adlai*. The documentation also showed that the Subanen are growing at least four varieties of *adlai*: *ginampay* (brown), *gulian* (white), *pulot* or *tapol* (red or purple - glutinous), and *linay* (gold). The *gulian* is often referred to as the “ordinary *adlai*” as this is the most commonly grown variety in the 19 barangays. Aside from *gulian*, *ginampay* is a popular variety due to its bigger grain size, good eating quality, and ability to produce higher yields compared to other varieties. Generally, Subanen farmers are growing 1-3 varieties of *adlai* in an average farm area of 100m -2.5ha.

Adlai plant has broad, erect, and dark green leaves and with main stem diameter of 0.5 - 1 inch. It has a profuse root system that anchors and prevents the big and sturdy tillers from lodging. Usually, it is grown with cash crops like ginger, taro, squash, banana, and forest trees to ensure availability of income while waiting for the *adlai* grains to mature.

Farmers in Midsalip practice ratooning of *adlai* and usually two to three times after the main crop. The first is done in July and harvested in October, second in December and harvested in January, and third in March and harvested in April. The length of cut from *adlai* base ranges from 0.6m-1m.

BAR's Adlai R&D project

The documentation of production practices in Zamboanga del Sur is part of an on-going project of BAR in collaboration with selected Regional Field Units (RFUs) of the Department of Agriculture (DA), state universities and colleges (SUCs) and non-government organizations like Earthkeepers and MASIPAG.

Currently, the project is conducting 11 adaptability trials (station and on-farm) of *adlai* varieties for seed production and commercialization: 4 DA-RFUs, 5 SUCs, and 2 NGOs.

Dr. Nicomedes P. Eleazar, director of BAR, explained that “trials have been established in different regions basically to assess the performance of different *adlai* varieties in different locations and elevations. And so far, as initial results have been submitted to us, the nationwide trials reported significant results.”

During the “Consultation Meeting on Adlai R&D Program” held in April 2011, the need to document the *adlai* production and harvesting practices in *adlai* growing regions including Zamboanga del Sur, was identified as one researchable area that needed to be conducted to provide reliable data. “This is also to support the potentials of the *adlai* as staple food crop in the area, and to provide technical basis for the packaging of location specific technologies using indigenous/traditional *adlai* production practices,” explained Ms. Mendoza.

As the result of the documentation conducted in Midsalip, it was found that although their production practices are still very traditional, they are low cost, environment-friendly, and sustainable.

“For instance, their seed

selection for planting material is found to be very effective in maintaining the purity of the seed quality, reported Ms. Mendoza. Farmers select seeds for planting materials by selecting long panicles, fuller grains from neck to head, good tiller stand and free from blackish spots or diseases. This careful seed selection is in contrast to what farmers in the lower elevation areas are doing where there is a very frequent varietal change due to varietal deterioration. In the lowlands, there is a perennial problem of seed source because of the absence of judicious seed selection.

“They also use the leaves and other *adlai* parts of the plants as organic fertilizer. Other production practices include, clearing only the *adlai* root system areas to prevent soil erosion, and non-application of pesticide to preserve the population of beneficial insects,” added Ms. Mendoza.

Harvesting practices of *adlai* harvesting is also traditional shredding first the panicles with their hands after which they are milled and winnowed.

The documentation of the production practices in Midsalip is critical in assessing the yield performance of different varieties of *adlai* growing in the area given the different elevations. This, according to Ms. Medoza will be useful in the promotion and expansion of *adlai* in the future.

For more information, please contact:
Project Monitoring & Evaluation Division (PMED), Bureau of Agricultural Research-
Department of Agriculture, RDMIC Bldg.,
Visayas Ave., Diliman, Quezon City
Tel Nos. 9288505, 9288624, 9200226
Locals 3111, 3126, 3129

Adlai as a traditional staple crop



PHOTOS: RDELACRUZ

capacity of farmers in the appropriate production, management, and processing technologies of various commodities. Some of the technologies and products from agriculture R&D which were showcased during the event included those on embryo cultured *makapuno*, *adlai* (rice-like crop), cacao, oregano, banana, native chicken, Indian mango, *sapinit* (wild berry), medicinal plants, organic fertilizer, and edible landscaping.

In his message, Secretary Alcala shared his vision for the next three years for all DA-ROS in the country such as QAES to be income generating so that it could augment the support for its continuous operations to serve the needs of farmers.

He also stated his expectation for the PCA to deliver on its promise to cut the cost of *makapuno* seedlings in half and his desire to further increase the budget allocation for farm-to-market roads. The Secretary also stated that investments in agriculture R&D is further leveled up with the continuous increase in its budget.

While farmers and rural women comprised majority of the visitors during the event, it was also well-attended by local government leaders including Gov.

David Suarez, Rep. Irvin Alcala, and the municipal mayors of Sariaya, Dolores, Candelaria, San Antonio, and Calauag.

Meanwhile, DA officials present in the event who also gave their respective messages were: Dir. Nicomedes Eleazar, BAR; Dir. Abelardo Bragas, DA Region 4A; Dir. Euclides Forbes, PCA; Exec. Dir. Manuel Jarmin, Livestock Development Council (LDC); Dir. Efren Nuestro, Bureau of Animal Industry (BAI); and Exec. Dir. Noel Juliano, National Agricultural and Fishery Council (NAFC).

In his message, PCA Director Forbes encouraged farmers to explore opportunities beyond copra such that of embryo cultured *makapuno* which has high market potential. He said that as of the moment, only one private company is making investments on this locally.

Congressman Alcala also lauded BAR's support to agriculture and fisheries RD&E through various programs such as the Community-based Participatory Action Research (CPAR). He emphasized that while support for agriculture pours in

Quezon, the intention is to extend its impact to neighbor provinces particularly the CALABARZON (Cavite, Laguna, Batangas, Rizal, Quezon) area.

On the other hand, LDC Director Jarmin highlighted some of the top reasons why QAES was chosen as the center of agriculture R&D and extension in the province such as its proximity to major markets, competency of its scientists and researchers, and availability of materials and facilities to conduct agricultural activities.

BAI Director Nuestro meanwhile updated the audience about the current initiatives of the DA under Secretary Alcala's leadership to expand the genetic improvement of livestock as well as the production and marketing of Peking duck and Brahman cattle with ready markets in Malaysia and Singapore.

Governor Suarez also lauded DA as one of the most outstanding departments in delivering services to the people. He also commended the DAR-DA-DPWH convergence initiative which was launched in Quezon as well as the development of the Eastern Seaport of the Philippines including the establishment of the state-of-the-art fishport in Quezon.

(Miko Jazmine J. Mojica)

Eleazar delivers..from page 1



PHOTO: JBORROMEO

DA-BAR Midyear Review and Planning Workshop

Development Division (PPDD), Project Monitoring and Evaluation Division (PMED) and the Technology Commercialization Division (TCD) to collaborate on this endeavor. Dir. Eleazar likewise informed the body that *adlai* and *soybean* are already included as priority crops of HVCDP. Director Eleazar meanwhile instructed

the Applied Communication Division (ACD) and PMED to beef-up the campaign on *adlai* since this will be featured during the World Food Day celebration on 11-14 October 2011. He gave specific instructions to concerned divisions to facilitate the event as this will be a major activity of the bureau. The director further instructed PPDD

and PMED to coordinate and encourage all DA-Regional Field Units (RFUs) through the Regional Integrated Agricultural Research Centers (RIARCs) to submit project proposals on *adlai* particularly on pest management. In terms of enhancing the “commercial-ability” of CPAR projects nationwide,

Director Eleazar directed PMED, ACD, and TCD to sit down together and evaluate completed CPAR projects and validate whether these projects have any potential for commercialization. These mature technologies, he said, will intensify BAR's technology commercialization efforts.

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Dr. Alfredo Mahar Francisco A. Lagmay
NIGS, UP Diliman, Philippines

Dr. Kamarudin Ab Malek
TARRC, Malaysia

Dr. Abdul Aziz S.A. Kadir
of IRRDB, Malaysia

Foreign, local experts discuss use of seismic rubber bearings against earthquakes

To explore the innovative use of natural rubber as a semi-intelligent “seismic bearing” for the eventual prevention of disaster such as earthquake, the Bureau of Agricultural Research (BAR) held its monthly seminar titled, “Application of Seismic Rubber Bearings to Protect Infrastructures from Earthquakes,” on 14 July 2011 at 4/F RDMIC Bldg., Visayas Ave., Dliman, Quezon City.

Around 70 participants attended the seminar composed of members from public and private institutions including the Department of Public Works and Highways

(DPWH), National Agricultural and Fishery Council (NAFC), University of the Philippines – Los Baños (UPLB), Isabela State University (ISU), Philippine Rubber Industries Association (PRIA), Google Serve, among others.

The objective of the BAR seminar series is to take the next step after a breakthrough has been achieved—creating a platform where innovations may be shared towards the general public. This information revolution wagon makes way for the further development of these breakthroughs as people from all the

different sectors from around the globe gather and participate during the discussions and lectures.

BAR invited noted local and foreign experts in the fields of rubber production (Dr Abdul Aziz), engineering applications (Dr Mahar Lagmay), and geology (Dr Kamarudin Ab. Malek).

With the death toll rising due to the devastating effects of earthquakes worldwide, the relevance of this month's seminar on rubber bearings and earthquakes is definitely straightforward.

“People don't get shaken to



Champion crop of the Subanen

| BY RITA T. DELA CRUZ |

As most of us have neither seen nor heard of a crop called *adlai*, the Subanen tribe has known it all their lives. Adlai (*Coix lacryma-jobi* L.) is their staple crop. Adlai grains are pounded, threshed, and winnowed, cooked and served it steam just like rice. The grains are also fermented and served as *pangasi* (adlai wine) to the *datu* and *timuay* (traditional leaders) during *buklog* (Subanen festival) and other special occasions including, weddings and funerals.

The Subanen people are known as the aborigines of the Island of Mindanao and considered as the first inhabitants of Pagadian City in Zamboanga del Sur. Originally, they lived along the river banks, hence the name “suba” which means “people of the river” but now they reside in the mountains, most of them as *kaingineros*. They are described as generally a conservative and shy tribe.

Although rice and corn remain as the staple crops in Zamboanga del Sur,

production of crop yield is generally low (2.5 tons/ha.) due to low temperature and low solar radiation intensity prevailing in the highlands. In Midsalip, a cordial town in Zamboanga del Sur, *adlai* is extensively cultivated. The town's name came from a Subanen word, “Migsalip” which means “to collect” or “to gather” and as the name implies, the people here depends on nature as their source of livelihood.

Due to the farming conditions in the highlands of Midsalip—sloping terrain, lack of irrigation water—production of rice is not suitable. This is the reason why farmers opted to grow *adlai*. According to Ms. Apolonia A. Mendoza, BAR coordinator for *adlai*, Subanen farmers preferred *adlai* because it produces high yield in the highlands, tolerates low pH, thrives even in poor quality soil, grows well in sloping areas, tolerates waterlogging, and it is to pest-resistant. “These good features of *adlai* became well-known and making *adlai* a widely

cultivated crop in Midsalip just like other cereal crops in the area,” reported Ms. Mendoza.

Adlai production practices

“The Subanen people have been growing *adlai* for as long as I could remember. When I was still a child, I saw how they plant this crop as source of food,” said Terso Balides, a Subanen farmer and spokesperson for the BAR Adlai Project.

According to the Subanen, their ancestors have been growing *adlai* as staple food in the highlands, the way the lowland people eat rice. They commonly grow it in *kaingin* areas, freely branching upright, thriving robustly even in marginal areas.

“We, Subanen people, believe in the medicinal benefits from eating *adlai*. Our early ancestors lived up to 150 years old eating only *adlai* porridge. This is because *adlai* is grown organically, with no chemical fertilizers helping it to yield. Now, Subanen people live up to 60 years

A BAR-funded research

In a recent study of a SSCAF-based instructor, Dr. Feliciano R. Bejar, organic ingredients were induced to both the meal and drinking water of quails with aim to improve growth, production performance, and egg qualities of quail. Dr. Bejar uses *Trichanthera gigantea* Nees. (*T. gigantea*) leaf, aloe vera extract, and acid cheese whey to achieve better quality quail products at low cost. With the financial assistance granted from the Department of Agriculture – Bureau of Agricultural Research (DA-BAR) Thesis/Dissertation Assistance Program, Dr. Bejar discovered how cheap organic materials could positively affect the production of quails and its eggs that could help fill the high market demand and encourage more investors into quail farming.

DA-BAR opens its grant to all members of the National Research and Development System in Agriculture and Fisheries (NaRDSAF), such as members of the agriculture and fisheries research and development (R&D) systems, and local government units (LGUs), with financial support of up to 50,000Php, delivered in two installments (90 percent upon signing of contract, and the remaining 10 percent upon delivery of accomplished thesis/dissertation hard copy).

Organic components of quail feeds

In Dr. Bejar's study, he added *T. gigantea* leaves, and aloe vera extract and acid cheese whey to quails' feed and drinking water, respectively. He considered the quails' growth performance, laying performance, egg qualities, and project viability as determining factors of the positive effects of these three components to quail performance and productivity.

T. gigantea is a shrub native to the swampy areas of Latin America, but has adapted to the Philippines as it grows well in local tropical conditions. Used mainly as forage, living fence, and shade tree, it has now being used also as feed to produce organic pigs and chicken in the country. *T. gigantea* possesses medicinal values as it was used by Columbians to treat nephritis in humans. It contains high water soluble carbohydrate compared to other fodder trees. Its nutrient components include crude protein, water soluble protein, water soluble carbohydrates, starch, total sugars, reducing sugars, lignocelluloses, ether extract, among others. *T. gigantea* was

added to the other ingredients of the feed at 0, 15, and 25 percent, respectively, in both grower and layer mash.

On the other hand, additives to quails' drinking water were aloe vera extract and acid cheese whey.

Aloe vera extract is widely known as an anti-inflammatory for minor skin infections and natural remedy to hair loss problems in men and women, as compounds such as polysaccharides, mannans, anthraquinones and lectins are present. A specie of a succulent plant and believed to have originated in Sudan, aloe vera flourishes in dry countries like Africa, India, and Nepal. Orally or topically administered for wounds, aloe vera extends this therapeutic effect to animals. In a previous study in 2005 by the same author, it was found that supplementation of aloe vera extract to broilers resulted to positive growth response and high performance.

Another additive to the quails' drinking water was acid cheese whey. After coagulation and removal of curd, what remains is the water portion of the milk known as cheese whey. The two types of whey are sweet and acid, where the first is produced during the creation of rennet-type cheese and the latter during production of acid-type cheese. Acid cheese whey contained lactic acid bacteria and was considered probiotic – these are live enhancers of intestinal microbial balance.

Quail and egg productions

T. gigantea, aloe vera extracts, and acid cheese whey were added to 300 13-day old quails' meal and drinking water in a four-month experiment performed at the Northwest Samar State University, San Jorge Campus in Samar. Cages for brooding and growing were constructed at the University for the experimental birds. *T. gigantea* meals of 0, 15, and 25 percent were fed to quails, simultaneously were served with drinking water incorporated with aloe vera at levels 0, 15, and 25 mL throughout the growing and laying stages, and acid cheese whey (same levels) throughout the experimental period.

Dr. Bejar's study showed that 15 percent of *T. gigantea* meals with simultaneous additives of aloe

vera extract and acid cheese whey ultimately contributed to positive and increased growth response, laying performance, qualities of eggs, and project profitability. Quail eggs produced were longer and wider, with thicker shells and larger surface areas and increased breaking strength, which makes for sturdier transport during dissemination of egg products. Results of higher net income and return of investment is attributed to the positive effects to both the quails and their eggs. Above all, application of these three components enabled for the lowered cholesterol content of the egg yolks that makes *pugo* all the more nutritious and healthy, and in turn, make these little birds a big hit for an even bigger market.

This article was based on the study, "Growth and Reproductive Performance of Quail Fed with Varying Levels of Trichanthera Gigantea Nees. Leaf Meal Supplemented with Aloe Vera Extract and Acid Cheese Whey in Drinking Water," by Feliciano R. Bejar of the Samar State College of Agriculture and Forestry, San Jorge, Samar.

For more details on the DA-BAR Thesis/Dissertation Program, please contact the Institutional Development Section, Program Development Division of the Bureau of Agricultural Research at RDMIC Bldg., Visayas Avenue corner Elliptical Road, Diliman Quezon City. Trunklines: (02) 928-8624 and (02) 928-8505; or email us at pdd-ids@bar.gov.ph

References:

1. "Trichanthera gigantea" (n.d.). Retrieved from the Tropical Forages. http://www.tropicalforages.info/key/Forages/Media/Html/Trichanthera_gigantea.htm
2. "Quail Production" (n.d.). Retrieved from the Bureau of Agricultural Research, AGFISHTech Portal. <http://www.bar.gov.ph/agfishtech/default.asp>
3. "Whey" (2011). Retrieved from Wikipedia. <http://en.wikipedia.org/wiki/Whey>

Dr. Bejar's study showed that 15 percent of *T. gigantea* meals with simultaneous additives of aloe vera extract and acid cheese whey ultimately contributed to positive and increased growth response, laying performance, qualities of eggs...

death by earthquakes," said in Dr Mahar Lagmay's visual presentation in big bold blue font. This natural disaster causes other natural disasters—landslides, floods, and tsunamis—and even deadly fires to erupt and claim lives. Hospital and school buildings become unsafe as it is threatened by earthquake and aftershocks. Dr Lagmay is a professor of Geology at the National Institute of Geological Sciences (NIGS), College of Science, University of the Philippines Diliman. He is also a licensed geologist specializing in physical volcanology, volcano-tectonics, remote sensing, and natural disasters.

He mentioned that in the past, there have been 28 significant earthquakes with intensity 6 that occurred within Metro Manila, and 13 of those caused severe damage. "Metro Manila is prone to earthquakes. According to studies made by the Philippine Institute of Volcanology and Seismology (PHIVOLCS), the five earthquake faults are actually the faults that generate earthquakes in Manila," explained Dr Lagmay. These faults—the Valley (Marikina) Fault System, the Philippine Fault Zone, the Lubang Fault, the Casiguran Fault, and the Manila Trench—all contribute to the possibility that the metropolitan area of the Philippines will be greatly affected by seismic activity and in turn, cause devastation to our structures as we are immensely unprepared. Our buildings, roads, and bridges have not been built to withstand earthquakes. Just like in the 1990 earthquake registered at 7.7 intensity where a reported 1,700

people were killed, 3,000 individuals injured, and almost 150,000 displaced in the areas of Baguio, Dagupan, and Cabanatuan (Clark and Taylor, 1999).

Meanwhile, Dr Kamarudin Ab. Malek, chief executive officer of the London-based Malaysian Rubber Board laboratory, Tun Abdul Razak Research Center (TARRC) explained how it is possible to avoid all these losses and "protect structures and also what is inside," and withstand high intensity earthquakes and tremors, by using seismic rubber bearings.

"Rubber, for structural applications, can last very long," said Dr Malek as he discussed in his presentation on how a unit of rubber bearing is produced using natural rubber, metal (for the surfaces), and bonding agent as primary materials. These materials are then assembled, and whether it will be used in a yet-to-be-built structure, or for retrofitting (term used for installation of rubber bearings in an already-constructed building), undergo compression molding and vulcanization. Performance test is the last step in the manufacturing process where the entire unit is examined.

These rubber bearings are "designed to provide sufficient vertical stiffness to support the load of the structure and at the same time flexible horizontal direction so as to accommodate the ground motion due to the earthquake" (Malaysian Rubber Board, 2002). Compared to other installations, rubber bearings are relatively advantageous as the designs are simple, it requires less or no maintenance at all, it contains no moving parts, and it is fairly economical as it uses natural rubber

produce.

With this knowledge on the use of rubber to protect infrastructures, Dr Abdul Aziz, secretary-general of the International Rubber Research and Development Board (IRRDB), wherein BAR is a member, shared information about rubber production and how to create the best natural rubber at low cost, and high yield produce. "Be kind to the trees," exclaimed Dr Aziz. Making rubber does not rely solely on nutrient and pest management, but also on the know-how in tapping the trees. "You overtap these trees, they dry up," Aziz further explained.

Rubber is one of the top five priority commodities of the Department of Agriculture (DA). The ongoing research on rubber production has been growing throughout the years; the entire process from the preparation of nursery beds, planting, tree, nutrient and pest management, all the way to the harvest management has been carefully studied to enable quality production of rubber. Despite the fact that rubber production provides a high investment potential, the Philippines only houses a few players to supply for the increasing domestic market and export demands.

Our buildings and bridges could only take so much shaking before it collapses—and before it collapses on us. As 70 percent of rubber produce proceeds to the footwear and tire industry, it is time that we learn to harness this natural resource for our safety. Although using seismic rubber bearings only prepare us for horizontal ground shaking and not fault rupture as discussed during the open forum, this seminar has activated in the minds of the agriculturists, engineers, geologists, and all the participants, that there are always innovations to improve and natural disasters to conquer. **(Zuellen B. Reynoso)**

References:

1. Cathy Clark and Jim Taylor, 1999. Vol3, No4, p6, Earthquake Devastates Philippines. Disaster Recovery Journal. http://www.drj.com/drworld/content/w1_116.htm
2. Malaysian Rubber Board. 2002. Products: Seismic Rubber Bearings. http://www3.lgm.gov.my/irpec/prd_seismic.html



PHOTO: ACONSTANTINO

33rd NAST-ASM

underscores competitiveness, and sustainability in agriculture

Meeting the challenges of agricultural productivity, competitiveness, and sustainability, the 33rd Annual Scientific Meeting (ASM) of the National Academy of Science and Technology (NAST) was held on 13–14 July at the Manila Hotel. Fortunate to have attended as well as provided an exhibit was the Department of Agriculture–Bureau of Agricultural Research (DA-BAR) led by its Applied Communication Division (ACD).

The program kicked off with the ribbon cutting and opening of the poster session and exhibits led by Honorable Mario G. Montejo, secretary of the Department of Science and Technology (DOST), and Dr. Emil Q. Javier, president of the DOST.

Dr. Javier delivered the welcome remarks, followed by the opening address of Secretary Montejo. In his speech, he acknowledged the shared vested interest of the NAST's 33rd ASM with that of the government, particularly of an agriculture renaissance. Keynote address was then delivered by Secretary Francis N. Pangilinan, chairman of the Senate Committee on Agriculture and Food and Committee on Social Justice and Rural Development.

After the opening ceremonies, the plenary sessions followed right after. The first speaker was Dr. Javier, who gave a talk titled, "Philippine Agriculture 2020: A strategy for poverty reduction, food security, competitiveness, sustainability, and justice and peace." His talk tackled a medium-term strategic plan that aimed for modernization and development of our country's agriculture and natural resources. This plan was conceived through a series of consultations and workshops convened by NAST involving scientists, farmers, entrepreneurs, non-government workers, managers, and industry stakeholders.



BAR Director Nicomedes P. Eleazar represents Agriculture Secretary Proceso J. Alcala during the closing ceremony wherein the outcomes of the roundtable discussions conducted by NAST on the modernization and further development of Philippine agriculture were presented. PHOTO: NDELROSARIO III

Session 2 was delivered by Dr. Rafael D. Guerrero III with his topic, "Managing our marine frontier: Challenges and opportunities." Session 3 dealt with "Further intensification of agriculture: A must to meet the challenges of agricultural productivity, sustainability, and competitiveness" by Dr. Ruben L. Villareal.

The last plenary session for Day 1 was on "How sustainable is organic agriculture in the Philippines?" led by Corresponding member of NAST, Dr. Reynaldo L. Villareal. In Session 5, Dr. Arsenio M. Balisacan gave a talk on "Sustaining ecological services for agricultural productivity, sustainability, and competitiveness." The last session was delivered by Dr. Rodel D. Lasco who talked about the "Imperatives of extension, e-Information, communication, and statistics in agricultural development."

Awarding and closing ceremonies were held to wrap up the ASM, including a presentation of ASM resolutions to concerned agencies and sectors by NAST President Emil Q. Javier. Response to these resolutions was given by Secretary Montejo and Dr. Nicomedes P. Eleazar, director of the DA-BAR, who represented DA Secretary Proceso J. Alcala who was unable to attend.

Towards the end, as part of the two-day program, presentation of NAST awards for best scientific poster, outstanding scientific papers, outstanding books/monographs, NAST-Hugh Greenwood Environmental Science Award, NAST Talent Search for Young Scientist, Third World Academy of Sciences Prize for Young Scientist in the Philippines, and Outstanding Young Scientist were given out. (Maria Anna M. Gumapac)



Organic components of Dr. Bejar's quail feeds (L-R): Aloe vera, cheese whey, and Trichanthera.

Producing quality quail eggs using organic ingredients

BY ZUELLEN B. REYNOSO

Quails (*Coturnix coturnix*) are small birds that have been around in the country for quite some time now. This small (17 cm on average) plump breed usually comes in hues of brown, black, and grey with white streaks. They are fairly agile animals – so much so that smaller cages are more appropriate for them to avoid injuries. Previously known only as hunting or game birds, quails (also known as *pugo* in the Philippines) have now come to the forefront of the poultry industry due to the high demand not only for its meat, but also for its high-nutrient eggs (*itlog ng pugo*).

Quail farming has been increasing in popularity as this breed is also considered a possible solution for the growing demand in poultry products. Quail egg production heavily relies on the hen's nutrition; thus, making the feeding management very important in quality egg production. Despite the

increasing demand for quail meat and egg, less investors venture into quail production as very little is known about raising this breed. Unknown to many, quail is relatively easier to raise compared with chicken as they require less nurturing because they are not susceptible to common poultry diseases, their cages entail less space, and they could be fed with cheaper organic compounds as in the study of Dr. Feliciano R. Bejar of the Samar State College of Agriculture and Forestry (SSCAF).

What makes up quail feeds?

In order to produce quality quail eggs that maintain high nutritional value and egg shell strength for higher and faster return of investment, feed content and management of quails should be closely monitored. Chicken feed content and management are largely different from that of quail, for

example, the protein requirements vary for both at different stages of growth. Using chicken feeds for quails result to inefficient layers and even higher mortality rates as the quails' necessities are not met. A carefully studied and balanced diet for a quail feed needs to be comprised of ingredients that provide the correct amount of protein, calcium, phosphorus, and methionine at a given growth stage. Yellow corn, rice bran, fish meal, soybean meal, copra meal, dicaphos, limestone, lysine, DL methionine, oil, vitamin premix (vitamin A, E, D₃, K, riboflavin, pantothenate, niacin, pyridoxine, B₁₂ and choline), minerals (manganese sulfate, zinc oxide, ferrous sulfate, copper sulfate and oyster shell) and salt are the usual ingredients mixed together to create a suitable feed for raising quails. Mashed or crumbled feeds are sold commercially, with prices ranging from 800Php–1200Php per sack.

Effects of food production process to human health and environment discussed in int'l conference



PHOTO: WIT

The many advances in food production have resulted to quality and safety issues from production to transport and storage. One specific issue that was given emphasis by world experts is the effect of modern food production processes on human health and the environment, which was also the focus of a recently concluded event, “First International Conference on Food and Environment-The Quest for a Sustainable Future” held on 21-23 July 2011 in New Forest, UK. The conference provided a venue to initiate discussion on the best ways to provide food of required quality, sufficient quantities and in sustainable way taking into account its effect on the environment.

Organized by the Wessex Institute of Technology (WIT), the conference was attended by 42 experts/researchers from 23 countries including USA, UK, Canada, Australia, New Zealand, Norway, The Netherlands, Spain, Greece, Germany, Portugal, Latvia, Cameroon, Nigeria, Ghana, Iran, Saudi Arabia, Japan, India, Pakistan, China, Thailand, and Philippines.

Representing the Philippines was Ms. Julia A. Lapitan, head of the Applied Communication Division of the Bureau of Agricultural Research (BAR). “The topic of the conference is relevant for us in the agriculture R&D sector as it delves not only on the human health issue of food

production process but its environment implications as well,” said Ms. Lapitan.

With the growing world population, comes the increasing demand for food. Over the years, advances in food production have been developed addressing higher and larger production to produce more food. “But given the importance of higher food production, food related problems have not been adequately discussed in relation to the possible consequences to the environment, hence the importance of this conference topic,” Ms. Lapitan

added.

Meanwhile, Professor Viktor Popov of WIT opened the conference and mentioned the importance of understanding the consequences that food production, processes and demands can have on the food we consumed daily. WIT is a centre for knowledge transfer across a wide variety of disciplines. “The conference programme is essential to achieve this as it brings together scientists and technologists from many different parts of the world with a wide variety of expertise,” he said in his opening address. Prof. Brebbia also welcomed any collaborating efforts that WIT may offer, as far as its expertise is concerned to the delegation present during the conference.

Among the topics discussed during the three-day conference were: 1) impact of food production on the environment, 2) contamination of food, 3) food processing issues, 4) traceability and temperature control; and 5) characterization of food plants. Papers that presented at the conference were published in a special volume of WIT Transactions in Ecology and the Environment. **(Rita T. dela Cruz)**



Ms. Julia A. Lapitan (right), head of BAR's ACD, represents the Philippines during the “First International Conference on Food and Environment” held in New Forest, UK. PHOTO: clo JLAPITAN

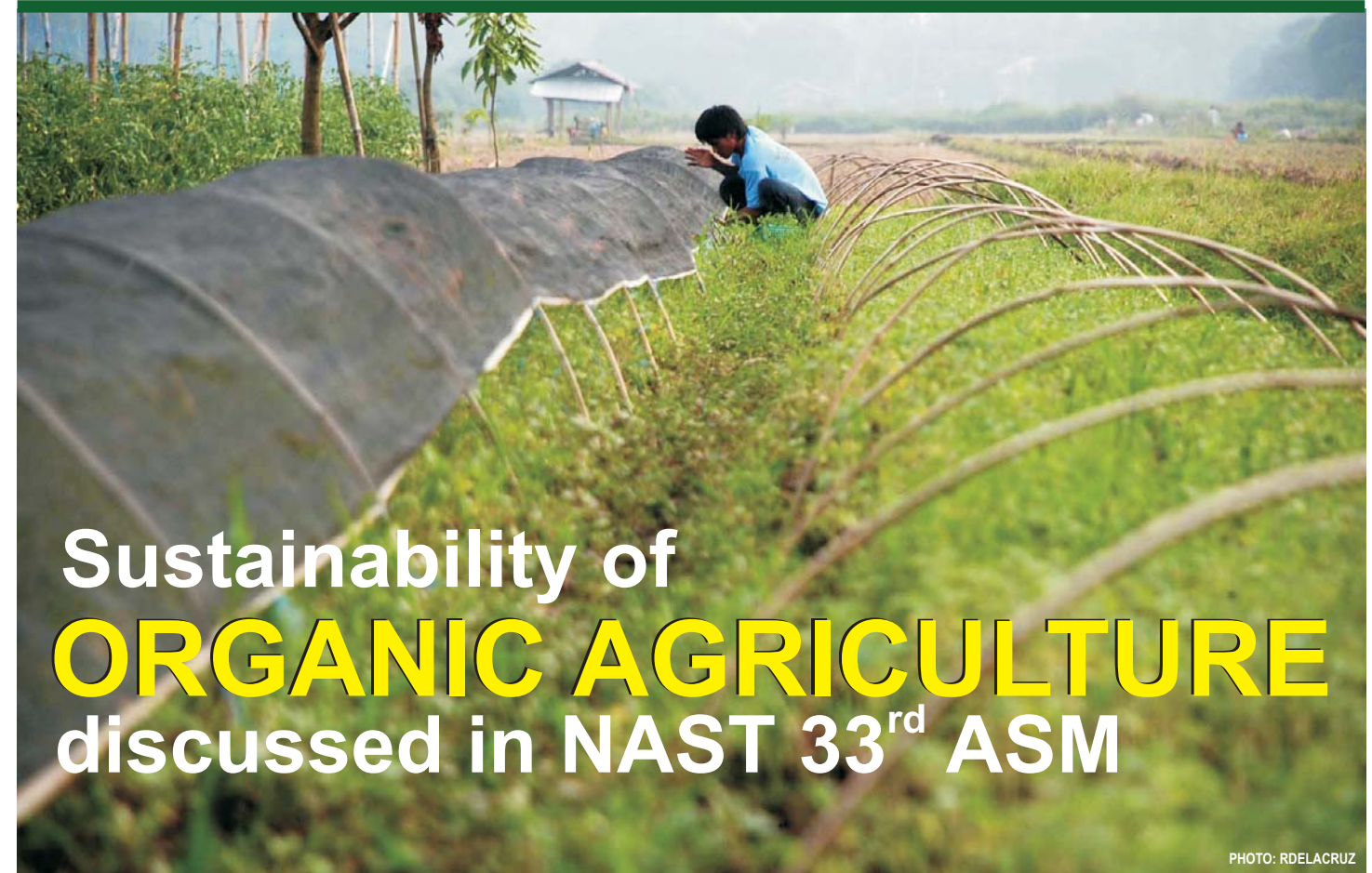


PHOTO: RDELACRUZ

Sustainability of ORGANIC AGRICULTURE discussed in NAST 33rd ASM

With the growing interest in organic products, it is thus timely that in the National Academy of Science and Technology's (NAST) 33rd Annual Scientific Meeting (ASM), one of the plenary sessions delivered dealt with the possibility of organic agriculture in the Philippines, “How sustainable is organic agriculture in the Philippines?” delivered by NAST corresponding member, Dr. Reynaldo L. Villareal. NAST's ASM was a two-day affair held on 13–14 June 2011 at the Manila Hotel.

Dr. Villareal mentioned that organic agriculture (OA) in our country is young. It is progressing well but still in its initial stage. Using data from other countries, he states that this can help us strengthen our position in OA. He also added that they are using “organic agriculture” in a sense of treating it as a production system that has a place in our agriculture for food security.

Dr. Villareal gave figures of OA growth in a global setting. Global sales of organic food and drinks as of 2002 amounted to 23 billion USD. In 2007, it reached 46 billion USD and as of 2008, it amounted to as high as 51 billion USD.

More than one-third of the world's organic land can be attributed to

Oceania (38 percent), followed by Europe (24 percent), and then Latin America (20 percent). Overall, there are 1.8 million producers involved in the organic endeavor.

In the Philippines, Dr. Villareal went on to show a figure depicting what he said was a “modest” increase in organic production area from an estimate of 3,500 ha, involving 500 farmers back in 2004, to about 52, 546 ha in 2008–2009. This increase of organic production area is estimated to be 0.45 percent of our total agricultural land.

The organic products we are exporting to Japan, South Korea, Malaysia, North Africa, as well as Europe, include coconut vinegar, banana, banana chips, fresh pineapple, yellow corn for feeds, *muscovado* sugar, virgin coconut oil, coffee, and *banaba* leaves and herbs. He stated that banana exports are provided even by smallholders and big farmers from Davao, South Cotabato, Nueva Vizcaya. Ninety percent of organic pineapples are from Bukidnon and even a percentage can be credited to Laguna and Cavite.

Even in the local market, OA has already carved a particular niche

with the demand for organic products such as rice, vegetables (lettuce, cucumber, tomato, *ampalaya*, *okra*, *kamote*, *kangkong*, mustard, *pechay*, squash, and eggplant), fruits, *muscovado* sugar, coconut vinegar, and herbs and spices (basil, mint, oregano, turmeric, lemon grass).

Successful government initiatives stemming from as early as 2003 influenced the development of OA in the Philippines, such as the Philippine National Standard for Organic Agriculture and Processing (PNS/BAFPS 07:2003 ICS.65.020) and Administrative Order 13 series of 2003—accreditation of certifying bodies. Dr. Villareal also presented examples of government initiatives in terms of research and development extension (RDE), citing DA-BAR Gap Analysis on Organic Agriculture RDE.

The newest initiative is that of Organic Agriculture Act of 2010 (RA no. 10068), a policy that aims to promote, propagate, develop further, and implement OA in the Philippines.

However, questioning its sustainability in our country's setting, Dr. Villareal first defined OA as “a production system that sustains the health of soils, ecosystems and people.”

OA relies on ecological processes, biodiversity, and cycles adapted to local conditions rather than the use of inputs with adverse effects. OA, he defines further, combines tradition, innovation, and science to benefit the shared environment as well as promote fair relationships and a good quality of life for all involved.

He showed a comparison between Sustainable Agriculture (SA) versus Organic Agriculture, depicting that although both share the broad goals, they are not identical. Difference is apparent beginning with the banning of certain practices in OA, wherein its “justifications are being disputed, rightly or wrongly, as not entirely supported by science.” The non-use of these banned inputs often leads to lower initial yields, usually during the transition period from SA to OA.

Presenting developments and date on the sustainability of OA in the Philippines, Dr. Villareal took as an example the Negros Island Sustainable Agriculture for Rural Development (NISARD), which has been successful in its efforts of introducing OA, thus possibly making it the “Organic Food Island of Asia.” In addition, since genetically modified organisms (GMOs) are not included under OA, they have started a campaign to ban the entry of GMOs in the island. In MASIPAG, an association that brings farmers and scientists together for agriculture, results

of OA show that although some crop yields have been slightly lower, net income has nonetheless increased. Add to this the success stories he presented in terms of yield levels in organic rice and vegetables, sugarcane, and coffee, results show improved yield and income.

The talk also covered organic livestock, poultry, particularly the growth potential of native chickens. Dr. Villareal discussed that prospects for developing a sustainable organic chicken and egg production include native chickens that should suit organic requirements, larger productive land areas that can be used for production of organic feedstuffs, as well as a slow but steady growing market for organically produced meat and eggs.

According to Dr. Villareal, there are still parts in question regarding OA. After all, in terms of nutritional value, studies show that no clear or consistent difference could be found between organic and conventional foods. In fact, there is no evidence that a diet high in organic foods is any healthier than a diet of conventional foods. In fact, organic farmers may spray ten times more pesticides than non-organic farmers. He added even further that the difference between organic and synthetic pesticides lies in its origin.

It is with these notable findings and resulting inquiries that he indicates

certain points on the question of sustainability of OA in our country.

The ecological aspect is the strongest because it is agro-ecologically based. His recommendations include the need for extensive studies to assess the financial sustainability which should greatly influence the social and cultural aspects. Hence, his suggested RDE areas, some of which include the comparison of conventional versus OA and chemical versus organic sources throughout the whole system including production, processing, and marketing. Also, constraints on yield must be assessed. A clearer picture must be produced as to where a farmer can actually make money. He asks, where can the industries be more competitive on a global scale? The economic viability of farming methods and practice, land tenure for farmers, the accessibility of markets, availability of safe water, trends in food consumption, and alleviation of poverty are essential to the assessment and promotion of a sustainable food system.

Towards the end of his talk, Dr. Villareal states that the practice of OA on a bigger scale requires support from research institutions that are dedicated to agro-ecological methods of fertility and pest management, a strong extension system, as well as a committed public. (*Maria Anna M. Gumapac*)

Organic agriculture relies on ecological processes, biodiversity, and cycles adapted to local conditions rather than the use of inputs with adverse effects.



PHOTO: RDELACRUZ

Agricultural Research (BAR) who witnessed the launching of the Crops for the Future Research Center (CFCRC). This was led and inaugurated by His Excellency Dato Sri Mohd Najib Tun Abdul Razak, Malaysian Prime Minister. The CFCRC is joint a venture collaboration between the Government of Malaysia and the University of Nottingham Malaysia Campus. The Center will be an international research crop-based institution that will be engaged and responsible for the promotion of neglected and underutilized plant species.

The new research center will be situated in Semenyih, adjacent to the University of Nottingham Malaysia Campus, about 45 minute drive south of Kuala Lumpur. The centre, which is exclusively dedicated to research and development of neglected and underutilized plant species, is the largest of its kind. It represents an investment by the Government of Malaysia to the tune of US\$ 40 million covering the construction of the centre and its operation for the first 7 years, after which the centre should become self-sustaining. (*CFF News*)

It has been observed and recorded that these neglected and underutilized vegetables and fruit crops are low input crops and thus are important for agricultural diversification. Much of the natural ecosystem in which these indigenous species thrive is endangered due to increased urbanization, deforestation and climate change.

The five-day symposium consisted of scientific paper presentations including the following themes: 1) nutrition, processing and end-users values, 2) economic and marketing potential – building value chains, 3) physiology, agronomy and agro-ecological potential, 4) biotechnology, breeding and seed systems, and 5) strategic approaches for research and development.

There were 99 scientific papers presented during the event, two of which were presented by Dr. Amparo A. Wagan and Professor Lorenza Lirio of the Philippines. Meanwhile, 73 posters were also displayed for viewing throughout the entire symposium, two of which were posters from the Philippines.

Dr. Amparo A. Wagan, of the University of the Philippines Los Baños (UPLB), presented the paper titled,

“Supply Chain Analysis of Value-adding Products from *Maranta arundinacea (uraro)*: An Underutilized Crop in the Philippines.” According to Dr. Wagan, there are still a number whose production and consumption has remained limited to local communities and of almost insignificant national economic value, despite their potential, like the arrowroot or *uraro*. The development of products from this crop further revealed opportunities to develop products of more economically significant value and models for future enterprise development, Dr. Wagan concluded.

Prof. Lorenza Lirio of the Benguet State University (BSU) presented her paper, “*Coix lacryma-jobi*: An Underutilized Grass for Food Security and Economic Empowerment.” In her presentation, he articulated that *Coix lacryma-jobi* or *adlai* is known to have a wide array of uses, but the economic potential has been poorly addressed. Its value is largely confined mostly to traditional or local uses only. According to Dr. Lirio, in a study conducted from September 2008 to October 2010, said that the crop is found to be nutritious and can be used as a supplement or even reliable substitute to rice. The report also revealed that there are two types of *adlai*— *cultivated* and *wild*. The former is used as food, cooked as porridge, as coffee or as wine, while the latter is made into ornaments like earrings, bracelets, rosaries and bags. He also reported that it would be inherent for people to protect and conserve *adlai* because they would know that their livelihood and survival depend on the plant.

Lessons learned and conclusion

The numbers of species identified and presented during the symposium were enormous. The sheer number of underutilized species, not only in the Philippines, but elsewhere in the world, could greatly contribute to peoples' food production and security. However, this poses a big challenge to the Philippine government particularly of the Department of Agriculture (DA).

The role of underutilized plants crops and species can be seen as a potential source for food and medicine other than the traditional crops. These plants, however, can also contribute to the conservation of biodiversity,

income, nutrition and health.

Many underutilized crops and species still have not been given preferential attention by concerned agencies of government not until the last decade where the introduction of these species are inching forward the mainstream for crops development and this was manifested in the presentations made by Dr. Wagan and Prof. Lirio on *uraro* and *adlai*.

Prior to the participation to the event, BAR has already been at the forefront of identifying and addressing the potential of underutilized crops and species. In 2009, BAR launched the Indigenous Plants for Health and Wellness Program (IPWH) Road Map which serves as a guide document on the utilization, promotion, and development of the indigenous plants and its health promoting properties. The program is geared on analyzing the potential and health benefits of the indigenous plants (IPs) found in the Philippines. Indigenous plants refer to species or sub-species of wild flora naturally occurring or have naturally established population in the country. On-going researches hope to place some of the country's untapped IPs in the mainstream as potent source of medicinal and functional foods.

Consumating the last day were group discussions on the development of a joint action plan among concerned groups to work together for collaborations. Four topics, were discussed keeping in line the overall themes of the symposium. These were: 1) using underutilized plant species as risk buffers in times of climate change, 2) using underutilized plant species for better nutrition, 3) meeting the challenge of enhanced and sustained market access for underutilized plant products, and 4) addressing the challenges regarding using underutilized species without undermining agrobiodiversity.

It is hoped that participants will share and discuss strategies that aim to maximize knowledge acquisition, minimize duplication of efforts and identify priority areas for further research and development. (*Patrick RA Lesaca*)

Sources:

1. *Crops for the Future*.

http://www.cropsforthefuture.org/?page_id=2

2. *Underutilized crop*.

http://en.wikipedia.org/wiki/Underutilized_crop

BAR joins 2nd International Forum on Plant Species

The Bureau of Agricultural Research (BAR) participated in the “2nd International Symposium on Underutilized Plant Species” organized by the International Society for Horticultural Science (ISHS) with support from its Working Group on Underutilized Plant and Genetic Resources. The symposium, held every four years, was co-convened and supported by the University of Nottingham Malaysia Campus, British Council, Crops for the Future, Bioversity International, and the Malaysian Agricultural Research and Development Institute (MARDI).

The Crops for the Future is an organization dedicated to the promotion of neglected and underutilized plant species as a contribution to humanity. It evolved from the International Centre for Underutilized Crops.

The 1st International Symposium, which dealt with the underutilized plant species for food, nutrition, income and sustainable development, was held on 3-7 March 2008 in Arusha, Tanzania.

This year, the gathering of renowned scientists, researchers, plant breeders, universities, international research organizations and the scientific communities around the world convened and gathered for the 2nd International Symposium on Underutilized Plant Species in Kuala Lumpur, Malaysia on 2011 June 27-July 1. The main theme for this year's event was 'Crops for the Future – Beyond Food Security'. Mr. Festo Massawe of the University of Nottingham Malaysia Campus served as the overall symposium convenor.

The 1st International Symposium in 2008 convened 206 participants representing 55 countries. Based on visual estimates, the 2011 delegates numbered more than 200 participants from more than 50 countries. The information provided will be validated once the final report from the 2011 Organizing Committee has been finalized and available. There are on-going talks that the next symposium in 2016 will be

held in Ghana, Africa. However, date and venue will be subjected to further deliberation by the committee.

This year's symposium

Professor Ian Pashby of the University of Nottingham Malaysia Campus and the chairman of this year's international symposium welcomed everybody for joining and participating in the event.

The presence of developed and developing countries in the conference signals strong and pro-active regional cooperation among member-nations to fight poverty and address food security matters.

Dr. Hannah Jaenicke, chair of the ISHS Commission on Plant Genetic Resources, stressed in her welcome remarks the need to “look beyond food security” and thus the concerns on “food nutrition” must also be addressed. Dr. Jaenicke added that research on the so called 'underutilized' crop is not a new discipline and stated that the interest in new crops is closely linked to human development. She likewise discussed the cultural, historical and importance of underutilized crops.

The neglected and underutilized crops have been defined as plant species that are used traditionally for their food, fiber, fodder, oil or medicinal properties, but have yet to be adopted by large-scale growers.



BAR Staff: Mr. Patrick Lesaca (top, left), Ms. Evelyn Juanilo (top, right), and Ms. Jennilyn Castañeto (bottom, center) represent the Philippines at the 2nd International Symposium on Underutilized Plant Species held in Malaysia. Also in the photo is Ms. Sarah Grace Lapie Quiñones (center, top photo) of SEAMEO-SEARCA. PHOTOS: PLESACA/JCASTANETO

They may have the potential to contribute to food security, nutrition, health, income generation and environmental services. For a variety of reasons, economic and cultural, they have been neglected or underutilized, although no definition has been offered of what would constitute “proper” or “correct” levels of utilization (*from wikipedia*). There are roughly 400,000 plant species worldwide and 50,000 of which are edible.

Launching of CFCRC

The Philippine delegation was composed of technical staff and coordinators from the Bureau of

BAR holds PhilAGriNet 2-day training-workshop

The Bureau of Agricultural Research (BAR) of the Department of Agriculture held a two-day Philippine Agricultural Information Services Network (PhilAgriNet) training-workshop on information documentation and management on 7-8 July 2011 at Hotel Kimberly, Tagaytay City.

PhilAgriNet is conceived due to the demand for consolidated agricultural literatures which can be easily accessed by various stakeholders. PhilAgriNet aims to develop a strong network of agricultural institutions that contributes to improve and expand the availability and accessibility of all agricultural literatures of the country. Having an up-to-date, comprehensive database will enable researchers and different agricultural sectors do a literature search with less time and effort involved. However, one of the major hurdles faced by information officers and contributors is how to index and catalogue the agricultural documents and uploading it in the PhilAgriNet database for the others to use.

In line with this, a two-day training-workshop was conducted to equip the information officers of the Department of Agriculture (DA) on the necessary knowledge and skills in indexing, cataloguing, and documenting agricultural literature generated by their respective institutions for input into the



Ms. Julia A. Lapitan, head of BAR's Applied Communication Division, delivers a message in behalf of Director Nicomedes P. Eleazar during the opening program of the two-day PhilAgriNet training-workshop held in Tagaytay City. PHOTO: PhilAgriNet

PhilAgriNet and AGRIS databases.

The event was attended by information officers from the DA-Regional Integrated Agricultural Research Centers (RIARCs) and Regional Fisheries Research and Development Centers (RFRDCs), and PhilAgriNet officers and contributors to the database.

Ms. Julia A. Lapitan, head of the Applied Communication Division of the Bureau of Agricultural Research (BAR) delivered a message in behalf of Director Nicomedes P. Eleazar. In her

speech, she emphasized the importance of research and development (R&D) in agriculture sector and the dissemination of these researches to the various sectors of the society. She also mentioned that through the development of PhilAgriNet, the necessity in having a central database that will gather and capture all agricultural literatures of the country is addressed.

The training-workshop was divided into three sessions. The first two sessions focused on imparting knowledge about documentation and indexing. The last session was dedicated in practical exercises and hands-on experience in documenting, cataloguing, and indexing books, book chapters, journal articles, theses and non-book materials and electronic resources.

Various experts on indexing and documentation were tapped to share on their knowledge and expertise to the participants. Among these experts are Julia Lapitan of DA-BAR, Concepcion Saul of UPLB Library, Ryan Joseph Abrigo of DA-BAR, Mila Ramos of PhilAgriNet, Carmelita Austria of IRRI Library, and Cherry Ann Barrientos of UPLB. (Diana Rose A. de Leon)



Participants of the two-day PhilAgriNet training-workshop PHOTO: PhilAgriNet

BAR joins PAFT exhibit



BAR booth during the PAFT Exhibit featuring technologies from BAR-funded projects including adlai and herb-enhanced smoked *tamban* and *dilis*-fortified *malunggay* powder. PHOTOS: MMOJICA/DELACRUZ



The Bureau of Agricultural Research (BAR) featured results of its funded R&D projects on the production and processing of agriculture and fisheries commodities which could help the food sufficiency program of the government during the 50th Annual Convention of the Philippine Association of Food Technologists (PAFT) at the SMX Convention Center, Mall of Asia Complex, Pasay City on 6 July 2011.

BAR's project proponents from the Bicol Integrated Agricultural Research Center (BIARC) and Southern Luzon State University (SLSU) in Quezon Province showcased their latest projects in an effort to address malnutrition and provide livelihood opportunities in rural areas.

BIARC featured the rice-like *adlai* which is being promoted by the Department of Agriculture (DA) through BAR as a traditional staple food which could be eaten and prepared like rice or corn. Adaptability trials on this crop are on-going in Regions 2, 4, 5, 9, and 10.

In his recent visit to the Bicol region, BAR Director Nicomedes Eleazar saw for himself the second phase of the on-going adaptability trials and seed production of *adlai* at the experiment site of BIARC.

BIARC planted three varieties of *adlai*, namely: *gulian*, *ginampay*, and *tapol*. According to Ms. Ailyn Adante,

BIARC project leader, results of their first trial showed that *tapol* variety produces the highest yield.

On the other hand, SLSU featured two projects funded under BAR's National Technology Commercialization Program (NTCP), namely: herb-enhanced smoked *tamban* and *dilis*-fortified *malunggay* powder.

The two project aims to take advantage of the healthy benefits and livelihood opportunities from processing *tamban* and *dilis* which are commonly found in the province. The project proponents hope to increase the levels of consumption on nutritious food through fortification.

Apart from the exhibit, the PAFT convention featured plenary sessions on different food technology issues and concerns on 6-8 July 2011. During the opening ceremonies, PAFT

President Rodolfo Panganiban welcomed the participants.

Prof. Geoffrey Campbell-Platt, president, International Union of Food Science and Technology (IUFOST) based in the United Kingdom was the event's keynote speaker. Meanwhile, Dr. Miflora Minoza-Gatchalian, PAFT founding president was also present to give her message. After the opening program, they led the ribbon-cutting ceremonies to officially open the exhibit.

Participants in the exhibit comprised mostly of private companies involved in food ingredients and food products manufacturing and export. BAR was the only government agency representative under the Philippine block of exhibitors that featured different food ingredients such as *Carageenan* from seaweeds. (Miko Jazmine J. Mojica)

BAR participates..from page 11

The National Scientist Award was bestowed to Dr. Raul Fabella.

Through the Proclamation No. 169, the third week of July was declared as National Science and Technology Week. The NSTW 2011 is co-chaired by DOST Undersecretary Fortunato T. dela Peña and Director Raymund E. Liboro of the DOST Science and

Technology Information Institute (STII).

Other activities NSTW included: Outstanding Young Scientist, Annual Scientific Meeting, Science for Kids, Starbooks launching, Tagisang Robotics, S&T Summit and S&T Quiz Bee, and In Touch With Excellence. (Diana Rose A. de Leon)

BAR participates DOST Expo Science to showcase Filipino ingenuity



President Benigno Simeon C. Aquino III (2nd from right) with DOST Secretary Mario G. Montejo (2nd from left) during the opening of the Expo Science 2011 featuring the most recent services and technologies from the DOST system. PHOTOS: LPADILLA



In line with the celebration of the National Science and Technology Week (NSTW), the Department of Science and Technology (DOST) held the Expo Science 2011 on 27-30 July 2011 at the SMX Convention Center, Mall of Asia Complex.

The Expo Science 2011 showcased the Filipino ingenuity and latest breakthroughs in science and technology (S&T) not only for the benefit of the local S&T sector but also to raise public understanding of S&T. The event featured S&T fairs and exhibits and other events that presented updates on what is going on within the local science community. The expo science overall concept pictures the mission and vision of the department towards the country national development.

This year NSTW's theme "*Nasa Siyensya ang Pag-asa*" was chosen due to two things: 1) there are still a lot of things to cover in conveying to constituents the transformative and empowering potential of S&T; and 2) it is time for the S&T to be placed in the center-stage in the country's national development efforts. Latest initiatives in researches, technologies, and services in the areas of food and agriculture/aquaculture, health/pharmaceuticals, electronics, alternative energy, manufacturing/engineering, nanotechnology, information

communication technologies, environment, disaster management and mitigation, and biotechnology were emphasized as the DOST's centerpiece exhibit.

The other exhibitors were from the academe (SUCs and private universities), business sectors and government agencies.

As the Department of Agriculture's (DA) lead coordinating and funding agency in research and development (R&D) on agriculture and fisheries, the Bureau of Agricultural Research (BAR) participated in the science exposition. The BAR's exhibit booth highlighted the rice-like *adlai* and the two banner programs of BAR: Community-based Participatory Action Research (CPAR) and National Technology Commercialization Program (NTCP).

His Excellency Pres. Benigno Simeon C. Aquino III served as the keynote speaker. In his speech, the President emphasized the importance of innovativeness of Filipinos in the field of S&T to gear up the country towards national development. "...ang taglay na pagkamalikhain ni Juan dela Cruz ay may makabuluhanang mga bunga at naka-sentro ang

kanyang mga imbensyon at inisyatiba sa pag-aangat ng antas ng buhay ng kanyang mga kababayan" the President said.

As part of the NSTW, the Science and Technology Award were given to deserving individuals who had notable achievements in science, technology, and innovation. The Outstanding Research and Development Award for Applied Research or the Julian A. Banzon Medal was given to Dr. Lorenza Gonzalez-Lirio of Benguet State University (BSU) and the Outstanding Science Administrator Award or the Dioscoro Umali Medal was given to UPLB Chancellor Dr. Luis Rey Velasco.

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BAR booth during the 2011 Science Expo Exhibit. PHOTO: RBERNARDO