CONT...

BAR's R&D...from page 19

The rice and goat component of the CPAR project in Sto. Domingo, Ilocos Sur.

PHOTOS: ACONSTANTINO

CPAR on goat raising

Involving the community in efforts to increasing income is imbibed in the flagship program of BAR known as the Community-based Participatory Action Research (CPAR), and one CPAR project is the rice–corn–corn + goat farming system in Sto. Domingo, Ilocos Sur.

Prior to the project, earnings of the community only supplied for the expenses during the planting season. As a result of this CPAR project, farmers are now able to increase their profit as a third cropping of corn has been included in the process. They were even able to purchase farm equipments that would further increase manpower productivity. After trials, rice-corn-corn pattern topples rice-corn in terms of profitability. Cooperators were also able to learn the advantages of feeding leaves/corn stalks to their animals, composting rice straws and minimizing fertilizer use to safeguard the soil. ###

Reducing rice dependency...from page 6

recommendations through various technologies and researches, among of which is the fertilizer recommendation, a significant opportunity for corn farmers in increasing yield.

The SSNM analysis across sites for white corn has delivered significant results, as presented by one of the TWG members, Dr. Apolonio Ocampo of UPLB. The OFTs conducted in the regions were able to: 1) quantify the existing yield gaps in maize production; 2) quantify attainable yield and yield responses to fertilizer N, P, and K; 3) quantify the contribution of Bio-N to indigenous N supply; 4) evaluate the agronomic and economic performance of an 'SSNM prototype' (SSNM vs. FFP vs. NPK); and 5) evaluate whether Bio-N and organic matter application can replace urea as an N source. Generally, the results demonstrated noteworthy opportunities for increasing white corn production in our country, making it possible to sustain a stable supply of white corn, thus fulfilling the program's ultimate goal.

The impact of this may not manifest in just a snap of a finger, but the National Corn Program believes that it will rouse through good production management. SSNM is only one of the program's strategies towards corn sufficiency, but surely, through the coming years, DA looks forward to increase in corn production, price stability, increase in farmers' income, job generation, corn exportation, thus corn sufficiency. ###

(Daryl Lou A. Battad)

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PHOTO: ABRION

PHL HOSTS INTERNATIONAL CONFERENCE ON RUBBER

Given the promising potentials and benefits of smallholder rubber-based agroforestry system, the Philippines hosted the "International Conference on Smallholder Rubber-based Agroforestry" on 5-7 December 2012 at Bayleaf Hotel, Intramuros, Manila. The event was organized by the Department of Agriculture–Bureau of Agricultural Research (DA-BAR), in partnership with the International Rubber Research and Development Board (IRRDB), University of the Philippines Los Baños–Institute of Agroforestry (UPLB-IAF), and the Philippine Agroforestry Education and Research Network (PAFERN). It was participated in by rubber practitioners and experts from Malaysia, Vietnam, Thailand, India, Indonesia, Cambodia, and the Philippines. Also present were project leaders and proponents of rubber and rubber-based R&D initiatives from DA-Regional Field Units, local government units, and the private sector.

The conference aimed at capturing the recent developments in Southeast Asia with regard to rubber-based agroforestry system. It sought to bring together various stakeholders in the industry to understand more the technical, biophysical, and socio-economic requirements that will further improve the landscape functions of the said production system.

BAR Director Nicomedes P. Eleazar emphasized the significance of the conference and its contribution to the rubber industry. "The developments in rubber research and development, management, and production will enable us to see the current perspective of the rubber industry in each of the member-countries of the IRRDB. In so doing, it will facilitate the identification of gaps, common problems, and opportunities that could be taken advantage of by the rubber research network and stakeholders in Southeast Asia," he stressed.

Rubber is considered as a profitable agro-industrial crop in Southeast Asia. It is one of the crops which can be integrated in agroforestry system that encourages the sustainable use of land. As reported by the Food and Agriculture Organization (FAO) of the United Nations, rubber, along with coconut and oil palm, has spurred interest among stakeholders for their increasing importance on industrial fiber supply. Furthermore, through extensive research and development,

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IN THIS ISSUE...

DA, IRRI ink partnership for rice self-sufficiency

The Department of Agriculture (DA) and the International Rice Research Institute (IRRI) signified their allegiance in strengthening the initiatives on the research, development, and extension of rice through the signing of a Memorandum of Agreement (MOA) on "Sustaining Rice Self-Sufficiency and Food Security in the Philippines" on 3 December 2012 at the Agribusiness Development Center, DA Compound, Quezon City.

The five-year agreement will include eight areas of collaborations to be headed by DA, IRRI, Philippine Rice Research Institute (PhilRice) and other staff bureaus and attached agencies and regional field units of DA.

Leading the signing of the agreement were Agriculture Secretary Proceso J. Alcala and IRRI Director General Robert S. Zeigler. Also present were: Dr. Bruce J. Tolentino, former DA undersecretary for Policy and Planning and now the deputy director general of IRRI; Mr. Dante S. Delima, assistant secretary of DA and national rice program coordinator; and Dr. Eufemio T. Rasco, Jr, executive director of PhilRice.

In his message, Secretary Alcala emphasized the significance of the partnership of these two institutions to reduce poverty and hunger, improve the health of farmers and consumers, and ensure food and environmental sustainability. "*Sa totoo lang kaya nang Pilipinas ang maging sapat sa bigas…sa pamamagitan ng DA at IRRI na muling pagtibayin at palawakin ang ating pagtutulungan na lalo pang maiangat ang produksyon at kita ng ating mga magsasaka at makamit natin ang pambansang kasapatan sa bigas*," he said.

Leading the MOA signing are Agriculture Secretary Proceso J. Alcala (3rd left) and IRRI Director General Robert S. Zeigler (4th left). Joining them are (L-R): BAR Director Nicomedes P. Eleazar; IRRI Deputy Director General Bruce J. Tolentino; DA Assistant Secretary Dante S. Delima; PhilRice Executive Director Eufemio T. Rasco; IRRI National Programs Relations Manager Julian A. Lapitan; and PhilRice Deputy Executive Director for Development Eduardo P. Quilang.

The areas of collaborations will zero in on long term rice breeding program, development of the next generation of high yielding, pest and diseases resistant, and climate change resilient rice inbred and hybrid varieties, conduct of more researches on modern farming system and technologies to improve productivity, among others. *### (Diana Rose A. de Leon)*

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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.

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Harvesting of shallot.

Introducing the use of gibberellic acid (GA3) and improving the seed selection process, planting method, and postharvest techniques increase the productivity and profitability of the native *Ilokano* garlic, providing higher income for farmer adapters. Apart from a 1.5 percent increase in production resulting from these efforts, adapters are able to update farming traditions that are both practical and sustainable for each local community.

Garlic processing is also part of the project, where associations like the San Nicolas Bawang Association and the Association of Garlic Growers and Processors in Ilocos Norte are taught value-adding processes, as well as garlic trading for additional income. To date, garlic pickles and flakes and powdered garlic are among the value-added products created from garlic.

In Batac, varieties of shallots are being cultivated by using organic fungicides like Antica for increased production and for unaffected and hopefully even improved quality. Processed shallots as part of the project also include powdered, pickled, or made into chips. Another shallot farm is also part of the project, located in San Juan, Ilocos Sur where R&D efforts are geared towards eliminating current issues in marketing and importation of shallot products.

Engr. Antonio Archangel stands out as BAR visits Batac, Ilocos Norte. In the project, products such as hand sanitizers and gluten-free sweeteners have been created and are continuously generating increased income from these processed products.

Sweet sorghum is a variety of sorghum grass being developed to answer both fuel and food security issues in the country.

next page

Sweet sorghum in Batac

Another equally important project of BAR and this time, in cooperation with BAPAMIN Farmers' Cooperative, represented by

BAR's R&D projects in Ilocos proliferate

By: Zuellen B. Reynoso

Bigger native garlic.

PHOTO: ACD

The Ilocos Region plays host to a number of tourist spots boasting of rich Filipino cultural heritage. Countless museums, churches, beaches and other attractions rake in tourists from all over the country and abroad. Region I, composed of provinces Ilocos Norte, Ilocos Sur, La Union and Pangasinan, is located at the northwestern part of Luzon.

Apart from sought-after historical and heritage sites, both provinces of Ilocos (Norte and Sur) are home to several agriculture and fisheries research and development (R&D) projects of the Bureau of Agricultural Research (BAR). More than a vacation spot, Ilocos earns its place as one of the many provinces aboard the food self-sufficiency bandwagon for a better-fed Philippines in 2013.

As the focal agency for R&D in agriculture and fishery, BAR is entrusted to ensure that the country is able to achieve food self-sufficiency by 2013. This is possible through R&D initiatives directed to enhance the capability of regional field units, local government units, and other cooperators by understanding recurring issues faced by the farmers and fisherfolk that hinder increased production and income. Through developed technologies in the field of agriculture and fisheries, potentials of local products increase, as well as opportunities and income for local communities.

Staying true to the bureau's mandate, projects in Ilocos Norte and Ilocos Sur were visited and documented by BAR's Applied Communication Division (ACD) joined by the Mag-Agri Tayo TV crew. The four projects were documented were on garlic, shallot, sweet sorghum, and goat raising.

NTCP on garlic and shallots

Under the National Technology Commercialization Program (NTCP) of BAR that aims to transfer available technologies to communities, a project site on increasing the quality of the native garlic stands in Pasuquin, Ilocos Norte. This project aims to equip the farmer adaptors with new and improved technology in producing larger-cloved native garlic while preserving the strength (aroma and flavor) of what is popularly known as the Ilocos garlic.

Phl RUBBER production intensified

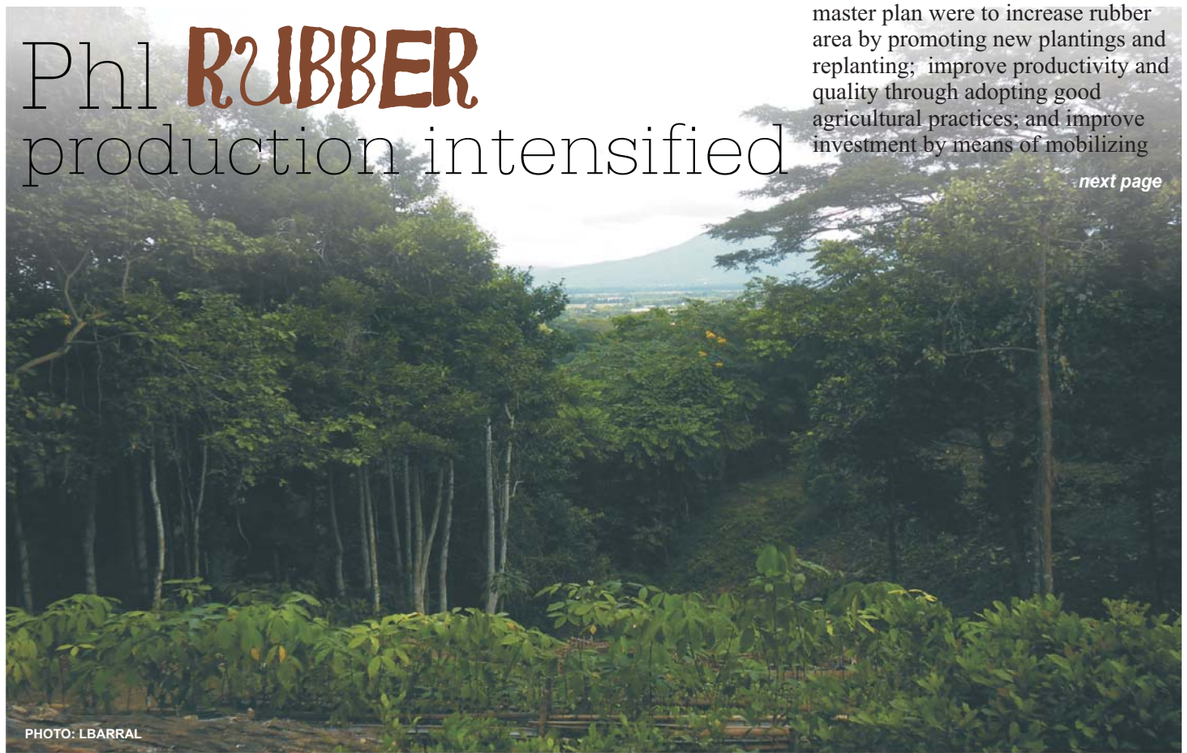

PHOTO: LBARRAL

With the passage of RA 10089 also known as the Philippine Rubber Research Institute (PRRI) Act of 2010, rubber production in the country is now being intensified and is now ready to meet the challenges of the globally increasing demand for natural rubber.

The Department of Agriculture (DA), even before the promulgation of the Act, has included the management and propagation of rubber as one of its priority industrial crop under the DA's High Value Crops Development Program (HVCDP). The inclusion of rubber (*Hevea brasiliensis*) is an indication of the government's thrusts to increase the production of natural rubber which is expected to grow by 3.7 percent in the next 10 years.

To attain its desired objectives, the HVCDP has lined-up measures to merit competitiveness in the world market with the following initiatives to be undertaken: 1) improve the quality of rubber products through training and education on rubber production and postharvest technologies; 2) establish/maintain production facilities to produce good quality planting materials; 3) increase investment in the rubber industry; 4) establish strong linkages with industry players and institutions on policy gap analysis, strategic planning, resource mobilization and capacity building; 5) support research and development on benchmarking on good practices and product development market-based research and research on clone identification technique; and 6) strengthen and harmonize the linkage of the rubber stakeholders, among others.

Speaking before an international rubber conference held in Manila this December, Agriculture Secretary Proceso J. Alcala said that the Philippines can become a major player in rubber production. He cited how the country has the large potential areas for rubber cultivation, adequate technical knowledge, and the country's rubber growers have access to information on proper cultivation. Sec. Alcala also said that indicators showed that the industry is growing in terms of production and area planted. In 2011, for instance, production of rubber was estimated at 425,705 metric tons up by 7.71 percent more than previous year's level of 395,237 metric tons.

The DA is further committed to gradually increase the country's rubber plantation through the development of new lands for agribusiness undertakings. As evidence of this, the DA has commissioned a study facilitated by the University of Asia and the Pacific – Center for Food and Agribusiness (UA&P-CFA) which led to the finalization of the draft Philippine Rubber Industry Masterplan. The masterplan was initiated by the DA/HVCDP and supported by the Department of Trade and Industry (DTI), Department of Science and Technology (DOST), Department of Environment and Natural Resources (DENR), and local government units (LGUs).

The significance of BAR projects and accomplishments has put up the groundwork for the expansion of rubber plantations in the country, especially in non-traditional areas.

The immediate and specific targets of the drafted rubber industry master plan were to increase rubber area by promoting new plantings and replanting; improve productivity and quality through adopting good agricultural practices; and improve investment by means of mobilizing

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PHOTO: LBARRAL

investments via various partnerships and cost-sharing.

Philippine Rubber Research Institute Act of 2010

The passage of the law creating the Philippine Rubber Research Institute is another milestone in the rubber industry. It signifies the support being given by the government to the industry. The law aims to comprehensively realize the goals of human empowerment and economic development through programs and projects that will increase rubber production in the country. Improve quality of life especially in poor rural communities that depend primarily in the industry.

Under certain provisions of the Act, the control and supervision of PRRI shall be under the Department of Agriculture and shall be composed of the PRRI Advisory Board chaired by the Secretary of the DA or his representative; DA Undersecretary as vice chairman with the following members, Director of the Bureau of Agricultural Research; Director of the Bureau of Plant Industry; Executive Director of PRRI; and one representative from the rubber producers, and one representative from rubber processors, as members, to be appointed by the President of the Philippines, upon recommendation of the DA, for a term of three years.

One of the specific functions of the PRRI, among others, is to initiate research and development projects on rubber in order to address technology and policy gaps in promoting a robust rubber industry, ensuring standard in production and meeting demands for quality rubber in both domestic and international trade.

BAR's rubber R&D initiatives

In support to the national priorities, BAR is implementing several R & D projects in partnership with regional research centers and universities. The projects consist of performance trials of recommended rubber clones and demonstration of seedlings nursery and budwood gardens in non-traditional rubber areas in Luzon and Visayas --- wherein there are large areas of idle land and denuded hillylands.

Basic research projects are being conducted in cooperation with the University of Southern Mindanao. Farming systems research projects are being conducted in prominent rubber-growing areas in Mindanao.

The project activities and accomplishments of BAR have put up the groundwork towards the attainment of the national objective to expand rubber plantations in the country. The knowledge and experience gained by the implementers through hands-on experience and formal trainings and workshops have set the stage for the continuous support to rubber research and development. To date, there are on-going 19 BAR rubber-related funded projects nationwide.

The prospects for growing natural rubber are increasing. The innovations made through R & D and other technological interventions are seemingly attracting more local investments towards the attainment of globally competitive rubber industry. The country's landscape therefore has the potential and is suitable for rubber production.

Indeed, rubber has a future. ### *(Patrick Raymund A Lesaca)*

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Phl hosts...from page 1

rubberwood has now developed into one of the most successful export timbers in Southeast Asia.

Agriculture Secretary Proceso J. Alcala, in his keynote address, said that there is indeed a possibility for Philippines to become one of the major players in rubber production because "we have large potential areas for cultivation, we have adequate technical knowledge, and rubber planters have access to information on proper cultivation." He added that current interventions being employed by the government to support the industry include: expansion of planting area, increasing yields, and boosting the production of quality planting materials, as well as giving support to local rubber producers.

Dr. Abdul Aziz S.A. Kadir, secretary general of IRRDB, Dr. James Jacob, director of India's Rubber Research Institute, and Mr. Rodolfo L. Galang, national coordinator for rubber R&D of BAR, presented keynote papers in a plenary. Their discussion focused on the recent scenario and prospects of the rubber industry in member countries of the IRRDB, smallholder rubber-based agroforestry research and development, and policy and institutional support programs for the development of rubber-based enterprises, respectively. Meanwhile, rubber experts concurrently presented papers which centered on promoting, adopting, enterprising, and scaling up sustainable rubber-based agroforestry systems. ### *(Anne Camille B. Brion)*

activities along the supply chain for rubber, wood craft and cash crop production; 6) evaluate the feasibility of establishing rubber-based agroforestry farming system; 7) identify issues/problems on rubber-based agroforestry farming system in marginal uplands; and 8) come up with policy recommendations on rubber plantation development particularly when interplanted with indigenous forest trees.

The project team has chosen tree species that are fast growing, drought resistant, shade and saline tolerant such as *bani, batino, batikuling* and *malapapaya*. In addition, the team will plant cash crops for intercropping such as *saba*, pineapple and citronella at UP Laguna-Quezon Land Grant, Real, Quezon.

During the International Conference on Smallholder Rubber-Based Agroforesty held on 5-7 December 2012 at Bayleaf Hotel Intramuros Manila, project outputs were presented to the delegates and people in attendance. The event was highlighted by an educational trip to the rubber plantation in Makiling Forest Reserve and Rubber-based Agroforestry Production System at the Learning Laboratory for Agroforestry at UPLB.


PHOTOS: LBARRAL

Itinerary of the trip also included the visits to rubber nurseries and plantations. Dr. Arturo S.A. Castillo, project poponent, and the entire team, served as the tour guide during the field visit.

Intercropping and rubber-based agroforesty has a huge contribution not only to the smallholders but also to the environment. Intercropping helps to increase the income of smallholders/farmers, thus it helps to reduce poverty in local communities. Intercropping with various crops (e.g. pineapple) enhances the growth of rubber significantly. This particular farming system also improves soil nutrient status and microbial population. On the other hand, the significant contributions of agroforestry to the environment are it helps in carbon reduction and it lessens soil erosion. ###

PHOTOS: LBARRAL

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PHOTOS: ACD & PMED

Reducing rice dependency by promoting White Corn

"Our main goal is to at least reduce every region's dependency on rice," said Mr. Milo delos Reyes, head secretariat of the National Corn Program, during the National Review and Finalization of 2013 Corn Research, Development and Extension (RDE) proposals held on 10-13 December 2012 at the Azalea Residences Hotel, Baguio City. He emphasized the need to establish corn as a food staple to help ease the pressure on rice in terms of production and importation.

Meanwhile, Asst. Sec. Edilberto De Luna catered to some of the issues raised by the regions, emphasizing that the Department will be in support to the undertakings of the researchers and implementers, as long as it will benefit our farmers, first and foremost. ASec De Luna also mentioned how DA has been helping the farmers and fishers in some of the regions in Mindanao after it has been hit by the calamity, especially that there have been damages relating to agricultural infrastructures. "*Ang atin pong departamento ay patuloy na nagsusumikap para matugunan ang pangangailangan ng bawat isa sa inyo, lalo na para mapalago pa ang agrikultura ng ating bansa*," he said.

The Department of Agriculture's Assistant Secretary Edilberto De Luna shares the Department's vision on strengthening the agricultural sector of our country.

PHOTO: ACD & PMED

As part of the Bureau of Agricultural Research's (BAR) guidelines and procedures on project monitoring and evaluation (PM&E) system, the national review assessed accomplishments and outputs vis-à-vis project objectives and targets; identified issues and problems for appropriate recommendations and solutions; and identified research outputs for promotion, dissemination, piloting, and possible patent application.

Aside from the evaluation of the OFT results, a workshop among the DA Regional Field Units (RFUs) was conducted to finalize white corn proposals for each region. With the help of the Corn Technical Working Group (TWG), the researchers were able to identify the regional corn R&D proposals for 2013 funding.

Envisioning corn sufficiency through SSNM

Ensuring a steady supply of white corn and creating and expanding its market for high quality produce are the main goals of the SSNM program. Through partnerships with the Bureau of Soils and Water Management (BSWM), University of the Philippines Los Baños (UPLB), the International Plant Nutrition Institute (IPNI), BAR, DA-National Corn Program, and DA-RFUs, a team of researchers conducted R&D for both yellow and white corn, including SSNM, among others.

The establishment of SSNM has been studied to address most of the issues and concerns affecting white corn production. The most pressing concerns include low productivity, high cost of processing due to lack of post harvest facilities, climate change, increasing prices of inputs such as fertilizers and seeds, and the increasing demand of rice in the global arena. The National Corn Program, together with other partner agencies, has been formulating policy

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Ms. Leslie Ollave of CLIARC highlights the sanitary measures in mushroom production and processing.

PHOTO: LPADILLA

or free from illness and disease particularly of a person involved in the preparation and production of food products, while the latter is a process of making things clean in order to produce quality and safe products," Ms. Ollave elucidated.

There are many food hazards that are eliminated through proper hygiene and sanitary measures. There are the 1) biological hazards such as bacteria, yeast, molds, viruses, insects, and parasites, 2) chemical hazards such as pesticides and toxic elements, and 3) physical hazards such as plastic, wood chips, paper, hair and sand.

But among these hazards, microorganisms are considered as the most significant because they are abundant in nature, are not seen by the naked eye, and are either harmful or beneficial for the human health.

A good way to avoid any complications is the utilization and implementation of Good Manufacturing Practices (GMP). "GMP is a set of sanitary guidelines for compliance in the manufacture and distribution of food," said Ms. Ollave.

Ms. Virginia Agcopra (center), BAR's technical adviser, awards to Ms. Leslie Ollave (left) and Ms. Emily Soriano (right) holding their certificates of appreciation.

PHOTO: LPADILLA

GMP covers personnel hygiene, surroundings, sanitary condition of working place, and the layout of working place. These protocols are applied in mushroom production and processing in order to produce healthy and high-quality goods.

Before the seminar ended, Ms. Ollave discussed some of the mushroom product technologies that are developed and can become part of our healthy diet.

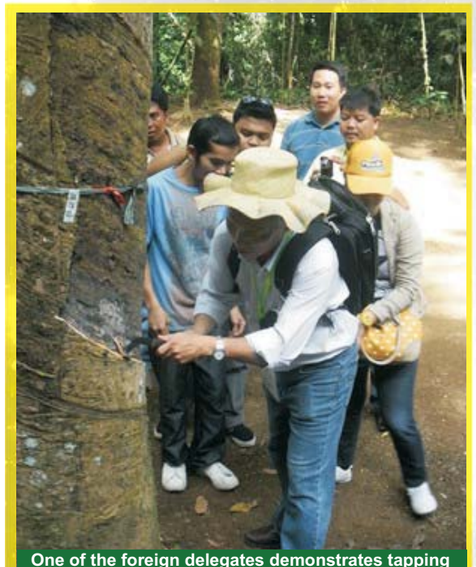
Among the products shown were mushroom fresh noodles, fried noodles, pasta, cookies, crackers, jam, marmalade, pulvoron, barquillos, wine, juice, banana-mushroom muffin, pickled mushroom, and adobo mushroom.

The participants were also given the chance to taste the banana-mushroom muffin and crackers. Afterwards, the participants were requested to evaluate the visual, taste, and texture impact and acceptability of these products in order to implement necessary product improvements.

BAR continues to support all R&D endeavors that involve the development and commercialization of high-potential food crops like mushroom. ### *(Leila Denisse E. Padilla)*

EXPANDING RUBBER PRODUCTIVITY THROUGH INTERCROPPING AND AGROFORESTRY

by Liza Angelica D. Barral



One of the foreign delegates demonstrates tapping during the field visit. PHOTO: LBARRAL

With rubber, being utilized in many industries (automotive, textile, footwear, industrial parts, etc.), there is an increasing demand for rubber in the world market. The Philippines is seen as having a huge potential area in rubber production. As of 2011, reports obtained from the Bureau of Agricultural Statistics (BAS), indicated that the country has an area of only 162,000 hectares planted to rubber, 70 percent of which are located in Zamboanga and Cotabato. In terms of production, the country is producing 106,426 tons of dry rubber with an average yield of 1,382 kilograms per hectare. The Association of Natural Rubber Producing Countries (ANRPC) Report showed that the Philippines has the lowest dry rubber yield (in kilograms) among the five major producing ASEAN countries namely Thailand, Indonesia, Malaysia, Vietnam, and India.

In an effort to expand the rubber industry and gradually increase the country's rubber plantations, the Department of Agriculture (DA) has included the propagation of rubber as a priority through the High Value Crops Development Program (HVCDP).

Opportunities and challenges

Rubber is known to have a long gestation period such that harvesting is done on the sixth year after planting. If farmers are using mono cropping system, they will have no income in the first six years. This particular case is addressed by utilizing a rubber-based farming system or intercropping of indigenous tree species. On the contrary, more than 60 percent are still underdeveloped in the uplands, which may be suitable for rubber plantations specifically in Luzon and Visayas. This new prospect also helps alleviate the environmental threats such as soil erosion, landslides, and air pollution.

In the hope of addressing this, the Bureau of Agricultural Research (BAR) funded a project that aims to promote the planting of rubber intercropped with indigenous timber/tree species and selected agricultural crops in marginal areas considering economic, financial, environmental and social factors. The project titled, "Technology Adoption and Demonstration of Para Rubber (*Hevea brasiliensis*) Intercropped with Indigenous Tree Species and Agricultural Crops" is being implemented by the College of Forestry and Natural Resources of the University of the Philippines (CFNR-UPLB).

Specifically, the project intends to: 1) establish a nursery which produces varieties of high quality rubber and indigenous fast growing tree species; 2) demonstrate the planting of rubber intercropped with indigenous tree species and agricultural crops in marginal areas in the land grants; 3) determine the suitability of rubber in marginal uplands and its compatibility with fast growing timber species and selected agricultural crops; 4) establish a 10-hectare plantation of para rubber intercropped with indigenous fast growing tree species and selected agricultural crops; 5) provide employment through the various

PHOTO: LBARRAL

Forester Nicasio M. Balahadia discusses a brief background on the rubber plantation at Makiling Forest Reserve.

Two books on RUBBER launched

With the growing global demand for natural rubber and rubber products, different project undertakings are being implemented around the world, especially in Asia and the Pacific regions, to maximize the potentials of this promising agro-industrial crop.

The continuous partnership between the Bureau of Agricultural Research (BAR) and the University of Southern Mindanao (USM) led to another fruitful initiative that will substantially help stakeholders in the rubber industry. This involved the launching of two books on rubber during the "International Conference on Smallholder Rubber-based Agroforestry" held on 5 December 2012 at Bayleaf Hotel, Intramuros, Manila. This is part of the efforts of BAR and USM in achieving a vibrant yet sustainable rubber industry in the Philippines.

The first book, "*Hevea*logue: A Catalogue of *Hevea* Germplasm in the Philippines," authored by Dr. Emma K. Sales, Dr. Romulo L. Cena, and Ms. Nilda G. Butardo, is a compilation of useful information regarding 107 rubber clones housed at the USM Agricultural Research Center. Details on the morphological description of each clone such as shape of the leaf storey and stem, as well as color of the latex are found in this book. Moreover, molecular profile of each clone was also included to help rubber stakeholders accurately identify and classify the clones. "Hopefully, the information given in the first edition will be useful to growers, nursery owners, field workers, research and extension agents and managers," said the authors.

From L-R: Ms. Nilda Butardo (USM), Dr. Romulo Cena (USM), Dr. Jesus Antonio Derije (USM), Dr. Abdul Aziz Kadir (IRRDB), Dr. Emma Sales (USM), Sec. Proceso Alcala (DA) and Dr. Nicomedes Eleazar (BAR) PHOTO: ZREYNOSO

On the other hand, the book titled, "Rubber Production and Management in the Philippines," authored by Dr. Naomi Tangonan with inputs from various authors, presents the different research and development initiatives in the country with emphasis on the production and management of rubber.

Dr. Nicomedes P. Eleazar, the bureau's director, stated that "as the Research, Development and Extension component of the National Rubber Development Program of the Department of Agriculture, BAR is committed to produce notable rubber outputs through supporting RDE endeavors nationwide." The program is aimed at making the Philippines become the fourth biggest player in the world natural rubber industry by 2016 with increased rubber plantation and yield per hectare.

The books were handed over to Agriculture Secretary Proceso J. Alcala by the respective authors during the conference. BAR, through its Scientific Publication Grant, provided the funding support for the two publications. ### *(Anne Camille B. Brion)*

MUSHROOM BUSINESS
FEATURED IN BAR SEMINAR SERIES

The Bureau of Agricultural Research (BAR) featured a vitamin-rich and mineral-filled crop that is a sure winner for health and wellness — mushroom. The seminar series on mushroom production and food products was held on 6 December 2012 at the BAR Conference Hall.

Investing in mushroom business is not always expensive. This was elaborated more by Ms. Emily Soriano of the Central Luzon Integrated Agricultural Research Center (CLIARC) during her presentation titled, "Mushroom Tissue Culture Production".

"You can start with five thousand pesos as an initial capital for a village-level mushroom laboratory," Ms. Soriano said as she explained about enterprising in mushroom production.

An edible fungi characterized by its nature to grow and obtain food from decomposing organic matter, mushrooms are highly rich in vitamins and minerals that are beneficial to human health.

The vitamins that mushroom contains are Vitamin D, B1 (Thiamin), B2 (Riboflavin), B3 (Niacin), B5 (Pantothenic Acid), B9 (Folate), and H (Biotin). Meanwhile, minerals such as sodium, potassium, calcium, iron, zinc, magnesium, selenium, and ergothioneine are found present in mushrooms.

According to Ms. Soriano, unlike vegetables and fruits, mushrooms have the ability to keep and concentrate its vitamins and minerals amidst various processing methods. This is the reason why mushrooms have a good market niche in the now health-wise consumer populace.

Ms. Emily Soriano of CLIARC talks about the potentials of mushroom enterprise and the process of mushroom production.
PHOTO: LPADILLA

"Ninety percent of mushrooms consumed in the Philippines are imported. The average volume of imported mushrooms per year is 150 tons," Ms. Soriano discussed.

If local production of mushrooms will be optimized, the need to import mushroom will not be an issue anymore. "Species of imported mushrooms can all be grown in the Philippines. Temperate varieties can be grown in an artificial environment," Ms. Soriano added.

More mushroom producers and processors would mean more income for our farmers and more affordable and sufficient supply for our consumers.

The production materials in mushroom cultivation are mainly agricultural wastes such as rice straw, sugarcane bagasse, tobacco midribs, water lilies, sawdust, corn cobs, corn leaves, grass and other similar materials.

Even though the materials are accessible and inexpensive, issues and concerns regarding production volume, target market, consumer awareness, and product development and processing are still present.

In order to motivate the participants to enter the mushroom business, Ms. Soriano discussed the procedures in mushroom propagation through tissue culture method.

There are four stages in mushroom cultivation. These are 1) pure culture fresh mushroom, 2) rapid multiplication (subcultures), 3) spawn preparation, and 4) planting for fruit production.

Among the very important aspects in mushroom production and processing are sanitation and safety protocols that maintain the freshness and cleanliness of food products. Ms. Leslie Ollave of CLIARC discussed these matters in her presentation titled "Sanitation and Hygiene in the Production of Mushroom Food Products".

"The difference between hygiene and sanitation is that the former is a condition of being healthy

BAR-SUPPORTED PNAD INFO SYSTEM LAUNCHED

Top left: Officiating priest blesses the newly renovated building. Bottom left: CELPA and project staff inside the the PNAD Information System Room. Top right: Ms. Evelyn H. Juanillo, BAR PNAD focal person; Mr. Anthony B. Obligado, BAR-TCD head; Dir. Manuel R. Jarmin, DA-LDC executive director; Ms. Araceli T. Oliva, CELPA president; and Dr. Corazon T. Aragon at the presidential table. Bottom right: Guests during the launch.

In support to the Philippine Native Animal Development Program (PNAD) and in line with the paramount goal of the Bureau of Animal Industry (BAI) towards a sustainable native animals industry in the Philippines, the Center for Environmental Law and Policy Advocacy, Inc. (CELPA) launched the PNAD Information System on 10 December 2012 at the BAI-National Swine Poultry Research and Development Center (NSPRDC) in Brgy. Lagalag, Tiaong, Quezon.

The Bureau of Agricultural Research (BAR) through its National Technology Commercialization Program (NTCP) supported the establishment of the system. The PNAD Information System is envisioned to provide pride, health, and wealth to Filipinos by conserving, producing and marketing the country's native animals under a sustainable environment.

The PNAD website presents to viewers/users information on the characteristics and traits of the different strains of each type of native animal including their geographical location. Likewise, it provides e-trading for business matching opportunities and offers a directory and information on sellers. Based on the information materials provided, sellers are allowed to advertise their native animal products. Buyers, on the other hand, can post their requirements (quantity and quality). The system also makes available to its users various published abstracts of completed researches as well as other downloadable presentations and other pertinent documents on native animals.

Mr. Anthony B. Obligado, head of the Technology Commercialization Division (TCD) of BAR graced the event with BAR PNAD focal person, Ms. Evelyn Juanillo. In the speech of BAR Director Nicomedes P. Eleazar, as read by Mr. Obligado, he commended the efforts of CELPA, BAI, and NSPRDC for their active participation, commitment, and dedication to fulfill the goals of

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BAR beefs up R&D efforts on CLIMATE CHANGE

(L-R) Dr. Justino R. Arboleda, executive officer of Coco Technologies Corp; Dr. Marissa N. Estrella, dean of BUCAF; Dr. Teodoro S. Solsoloy, assistant director of BAR; Pres. Fay Lea Patria M. Lauraya, BU; Hon. Linda P. Gonzales, Ligao City mayor; Dr. Ponciano A. Batugal, president of Farmers Community Development Foundation International, Inc. and Dr. Wilfredo M. Carandang, assistant to the chancellor of UPLB
PHOTO: WVILLORIA

The Bureau of Agricultural Research (BAR), as a collaborator on a number of projects of Bicol University College of Agriculture and Forestry (BUCAF), was invited on BUCAF's centennial celebration hosted an International Conference on Climate – Smart Knowledge Management for the Uplands to strengthen its advocacy to attend to the important issues in restoring and protecting the environment, on 7-9 November 2012. Dr. Teodoro S. Solsoloy, being the Assistant Director of the bureau research, represented BAR on the said event.

The event held at the Leyte Conference Hall of Oriental Hotel in Legazpi City, overlooking the great Mount Mayon, was well attended by various members of Local Government Units (LGU's), Non Government Organizations (NGO's), and the Academe form different parts of the Philippines.

The participants wholeheartedly did partake to the said event that comes as one of the major activities of BUCAF in its centennial anniversary with the theme: "Building in the Past, Creating a Secured Future Now!" in line with the premise that, climate change is an unavoidable phenomenon observed not only by scientists but also felt throughout the world. It has caused a number of casualties which alarms humankind and makes us think of what we can do in minimizing its ill effects to our lives and to our environment.

PHOTO: WILLORIA

BAR Asst. Director Teodoro S. Solsoloy delivering his keynote speech.

The activity opened an opportunity for the exchange of thoughts on the subject matters regarding the prevalent effects of Climate Change to man and other life forms. Moreover, Dr. Faye Lea Patria M. Lauraya, BU President, said in her welcome message "This conference will serve as an avenue for a productive and meaningful convergence where we could share experiences, information and knowledge on climate smart innovations and initiatives for the uplands".

Dr. Lauraya illustrated that the upland population in the country is estimated to be 3.18 million households, mostly the poor and disadvantaged sector (data from www.seanafe.org) and about 24-30 million Filipinos live in the uplands, who depend mostly on subsistence farming for livelihood. "Philippines uplands must be conserved for the survival of the country", she added.

The event also opened the opportunity for the display of the posters showing the different

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Hardwork spells winning tradition

Mr. Ambrosio Raul R. Alfiler was actually applying for Outstanding Agricultural Scientist until the evaluating committee found him to be better fit for the Outstanding Agricultural Researcher as the award is given to Department of Agriculture researchers.

To the uninformed, Mr. Alfiler has been in a winning streak after bagging first prize in the scientific poster contest of the National Research Council of the Philippines in 2009, best paper in a symposium by the Bicol R&D Consortium in 2010, and AFMA best R&D paper gold award during the 23rd National Research Symposium of DA-BAR in 2011.

Mr. Alfiler earned his BS Agriculture major in Entomology degree from the University of the Philippines Los Baños and furthered his academic credentials with an MS Entomology degree major in Insect Pathology at the same university.

He is currently the Division Chief of the Entomology-Epidemiology Division of the Philippine Coconut Authority (PCA) Albay Research Center. Over the past 30 years, he has been into coconut pest management research using several successful biological control measures.

His expertise was put to test when he discovered the use of *Metarhizium* and *Beauveria* to control *Brontispa* as well as the larval-pupal parasitoid *Tetrastichus* against this coconut leaf beetle. With his pioneering research using pheromones, he was able to minimize the spread of rhinoceros and palm weevil which are often regarded as criminals of the coconut farming.

Proving that his researches do not sleep in the shelves, his biocontrol technology was integrated into the National Coconut Pest Management Program and has contributed to more effective management of coconut pests. Just recently, his technology on the microbial control of rhinoceros beetle has found its way overseas as it has been adopted by the University of Guam Extension Service in the Coconut Rhinoceros Beetle Eradication Project for the Island of Guam.

Alongside his work on technology and information generation, he also provides technical assistance to farmers, extension workers, NGOs, academe, and the private sector on how to use these technologies.

With his impressive and noteworthy accomplishments, he really deserved to bag the 2012 Gawad Saka Outstanding Agricultural Researcher. One may wonder what award he is now aiming for in 2013.

Inkling from the winners

A comprehensive search is expected of the organizers of Gawad Saka as they only choose the best of the best. What it takes to prepare the documents, how it is to be evaluated demands physical, mental, and psychological toughness; and how it feels to win the contest is only for the winners to describe.

PHOTO COURTESY OF MSANTOS

PHOTO COURTESY OF AALFILER

"I am happy and proud for winning. This is the government's recognition of a lifetime of achievement and I will continue to conduct my research on biological pest control for the good of the coconut farmers" said Alfiler. "Your target clienteles (farmers, extension workers, and policy makers) should be able to utilize your research output for their benefit so you can claim that the research was worthwhile", he added.

Meanwhile, Dr. Santos felt honored to be given the award and is motivated to do more researches. When asked how it has changed him, he said "I'm still the same Mudjekeewis as my friends know me" but sees that this would help him beef up his credentials given the opportunity for further career achievement."When you do research, look for a topic that has direct impact which could eventually spark a change for the farmers and fisherfolk benefit", shared Dr. Santos. ### *(Jacob Anderson C. Sanchez)*

References:

1. *History of Gawad Saka revised in 2011. Management Information Division - Department of Agriculture*
2. *2012 Gawad Saka OAS and OAR Citations. Management Information Division - Department of Agriculture*

PHOTO COURTESY OF AALFILER

Santos, Alfiler win Gawad Saka recognition

PHOTO COURTESY OF MSANTOS

Top left: Mr. Ambrosio Raul R. Alfiler of PCA

Right (4th): Dr. Mudjekeewis D. Santos of BFAR-NFRDI

Dr. Mudjekeewis D. Santos of the Bureau of Fisheries and Aquatic Resources - National Fisheries Research and Development Institute (BFAR-NFRDI) and Mr. Ambrosio Raul R. Alfiler of the Philippine Coconut Authority (PCA) - Albay Research Center bested a number of other contenders with the two undeterred in capturing the coveted 2012 Gawad Saka Outstanding Agricultural Scientist and Researcher, respectively.

The Bureau of Agricultural Research (BAR), the R&D arm of the Department of Agriculture (DA), spearheaded the search for this year's Gawad Saka Outstanding Agricultural Scientist (OAS) and the Outstanding Agricultural Researcher (OAR), which was revitalized by BAR Director Nicomedes P. Eleazar as a tribute to well-deserving researchers from the department. The winners in the two categories will each receive a P1 million research grant courtesy of BAR.

The awarding of winners was led by Agriculture Secretary Proceso J. Alcala, representing President Benigno Simeon Aquino III, to honor outstanding individuals, groups and organizations who have excelled and made outstanding accomplishments in enhancing the agriculture and fishery sectors. The awarding was held at the Philippine Rice Research Institute (PhilRice), Science City of Muñoz, Nueva Ecija.

Gawad Saka is an annual contest organized by the DA, in partnership with local government units, academe and the private sector, among which are farmers and fisherfolk, to recognize individual and group efforts and contributions to agricultural growth and development.

Same fighting spirit, different results

For Dr. Mudjekeewis D. Santos, all it takes is will power and a steady fishing rod to catch a fish as the aquaculture and fisheries management expert made his attempt for the second time to be named 2012 Gawad Saka Outstanding Agricultural Scientist.

It was in 2011 when he first joined the contest but fell short in taking home the award. But that did not deter him from seeking a place alongside Gawad Saka hall of famers. With much tweaking and a lot of refurbishing, his profile and credentials served as a solid proof that attested to his merit as an agricultural scientist.

A holder of a BS Biology degree in the University of the Philippines Baguio reinforced with MS Aquatic Biosciences and PhD Applied Marine Biosciences in Tokyo University of Marine Science and Technology, Japan, Dr. Santos has poured in all the knowledge he has acquired and contributed to the country's efforts of addressing food security and safety particularly in aquaculture and fisheries management.

To manage the tuna industry's sustainability, he established a DNA sequence and liver morphology as accurate markers for identifying juvenile yellowfin and bigeye tuna which are critical in fisheries management. This was published in the international journal, Plos ONE.

Because of his research on the Eastern Little Tuna (*Euthynnus affinis*) that was shared by the Philippines with other Southeast Asian countries, a joint sustainable management effort paved the way for conserving the small pelagic fish.

To help the country earn its status as one of the major producers of shrimp in the world, Dr. Santos made headway in producing a prototype of a cost-effective early detection kit for white spot syndrome virus (WSSV) which causes serious mortality to cultured shrimp.

Another significant contribution of Dr. Santos is on the traceability and safety of fishery by-products using DNA barcodes. He has uncovered extensive mislabeling of fishery products in the market such as *Sardinella fimbriata* being subsitituted for *Sardinella tawilis* which violates consumer rights and safety.

With his scientific contributions, he has been recognized in various conferences and fora and was conferred the rank of Scientist I by the Department of Science and Technology. He is also one of the country's Outstanding Young Scientists by the Philippine National Academy of Science and Technology.

Research and Development of State Universities and Colleges, LGUs, and NGOs. The posters captured the interest of the participants as they showcase a variety of new information and technologies that address the needs of the clientele focusing on the uplands.

To give a clear view and keep the participants on track of what's happening today, the dignitaries gave their keynote speeches linked on the dealings of the different agencies they are representing in the battle against the adversaries brought about by climate change.

"As climate is a key variable in the equation of ensuring that there will be food served in the table of over 95 million Filipinos, we have to think, plan, strategize, and implement the necessary and appropriate coping mechanism. This is the reason why we in the Bureau of Agricultural Research beefed up our research and development programs and included in our R&D priorities the initiatives that cater on mitigating the ill effects of climate change. One of the accomplishments of the Bureau is the crafted Climate Change Research, Development and Extension Agenda and Program for Agriculture and Fisheries or RDEAP. It is an output from the series of consultations, meetings and workshops with the agriculture and fisheries RDE stakeholders." said Dr. Teodoro S. Solsoloy, BAR Assistant Director, who likewise served as a keynote speaker. *### (Wilson G. Viloria II)*

Top: Asst. Dir. Teodoro S. Solsoloy (center) with Dr. Ponciano A. Batugal (left) and Dr. Wilfredo M. Carandang (right)
Bottom: Asst. Dir. Solsoloy views the exhibit posters.
PHOTOS: WVILLORIA

BAR-supported PNAD...from page 7

Top: Mr. Anthony Obligado, BAR-TCD head, reads the message of BAR Director Nicomedes P. Eleazar during the PNAD Information System inauguration.
Bottom: CELPA staff test the the PNAD Information System.
PHOTOS: CELPA

conserving the rich biodiversity of native animals and for achieveng its vision and mission that are grounded and centered on the progressive state of the national research and development on and the conservation of swine and poultry.

"Over the years, BAR strengthens the livestock industry by supporting R&D projects on native livestock animals. BAR, BAI, and NSPRDC have been undertaking and supporting such initiatives. From way back and looking forward it is assured that this partnership will become stronger with the constant dedication of each agency in pooling expertise and resources to reach the goal of a stable and sustainable Philippine agriculture," said Dir. Eleazar.

Also present during the event were: Teresa Saniano of the Secretary's Technical Advisory Group (STAG); Dr. Araceli T. Oliva, president of CELPA; Dr. Rene C. Santiago, center chief of NSPRDC; Dr. Rubina O. Cresencio, director of BAI; Manuel R. Jarmin, executive director of DA-Livestock Development Council; Dr. Angel Lambio and Dr. Cesar Sevilla of the University of Los Banos (UPLB); Dr. Edwin Villar of the Philippine Council for Agriculture, Aquatic, Forestry and Natural Resources Research and Development (PCAARRD) and Dr. Corazon Aragon of CELPA, also the project team leader. *### (Ma. Eloisa H. Aquino)*

DA-RFU XI turns over 6 CPAR projects to LGU

After two-years of implementation by the Southern Mindanao Integrated Agricultural Research Center (SMIARC) of the Department of Agriculture-Regional Field Unit (DA-RFU) XI, with funding support from the Bureau of Agricultural Research (BAR), six Community-based Participatory Action Research (CPAR) projects have been turned over to the local government unit (LGU) of Region XI. The turnover ceremony was witnessed by key officials from DA and LGU of Region XI in Davao City.

Romulo Palcon, regional technical director for Research and Development, served as the officiating and keynote speaker. He mentioned how CPAR served as an opportunity for technologies to be demonstrated and adopted at the community and farmer's level and how it is aligned with the food security vision and mission of DA. "CPAR makes every possibility in filling up the gap between hunger and food security," he concluded.

Farmer-beneficiaries involved in the project were invited to observe the proceedings and were also given proper citation and acknowledgement since they will be the ones to continue the projects in their own respective areas. Some of the farmers invited also shared their experiences, struggles and triumph over the years. According to them, CPAR has proven its effectiveness in carrying out the goals and objectives of community empowerment, values orientation, technology adaptation, and socio-economic upliftment.

Mr. Orlando Morales, an outstanding livestock awardee, shared how he managed to send his children to school. "*Nursing po ang kinukuhang kurso ng anak ko, at ako po ang nagpapa-aral sa kanya sa pamamagitan ng kinikita ko sa CPAR*," he revealed. Another farmer-partner, Mr. Paulo Candelado, expressed how the program has helped in the financial needs the family. "*Masasabi ko po talagang dahil sa CPAR kung bakit umangat ang pamumuhay namin,*" he recalled. With an expanded farm area, Mr. Candelado has 800 bananas in the farm.

In terms of technology verification, Mr. Vic Losano, one of the project beneficiaries, recounted how the program aided him on various farm practices such as deworming, vaccination, and proper fertilizer application. "*Naging maganda ang paglaki ng kambing ko dahil sa mga natutunan ko sa CPAR,*" he added.

Prior to the formal turnover, said projects were subjected to final evaluation by BAR's pool of experts and recommended further to look into the commercialization aspects of the projects and technologies developed including patent application.

Capability-building trainings and workshops are deemed necessary in the pursuit of empowering the farmers. The bureau continues its assistance to the LGU of Region XI. BAR as an R&D institution will keep on supporting and promoting researches such as this, especially CPAR, being one of its banner programs. The bureau made it clear from the start that even after the implementation and turnover of the projects, the support will always be there. ### *(Daryl Lou A. Battad)*

PHOTOS: DBATTAD

BAR celebrates Christmas 2012

PHOTOS: ACD

A time to relax and enjoy the yuletide season, the Bureau of Agricultural Research (BAR) held its annual and traditional children's and staff Christmas party on 19 and 20 December 2012, respectively.

The traditional morning mass started the two-day festivities. Giving back the blessings received was the essence of the celebration. In his message, BAR Director Nicomedes P. Eleazar was proud for the accomplishments of the bureau in 2012 and hoped for the continuous excellent performance of the office.

Highlight of the children's party was the costume competition and the gift-giving. The rest of the day was filled with entertainment including the face painting, games, magic show, and bubble show.

The second day was consummated for the BAR staff Christmas party.

Twelve divisions/units vied for the lantern decoration, and song and dance competition. These included: Office of the Director (OD), Office of the Assistant Director (OAD), Project Monitoring and Evaluation Division (PMED), Institutional Development Division (IDD), Planning and Projects Development Division (PPDD), Technology Commercialization Division (TCD), Applied Communications Division (ACD), Information Management Unit (IMU), Administration and Supply (ADMIN), Finance, janitorial services, and guards.

Winning the grand prize for the lantern decoration was ACD followed by the ADMIN and PPDD in the second and third place, respectively. For the song and dance competition, the Finance took home the grand prize, followed by IMU and ADMIN as runners-up. ### *(Diana Rose A. de Leon)*