



AGGIE BULLETIN

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Xavier University
ATENEODECAGAYAN



Over the last 25 years, the College of Agriculture has been involved in research and extension projects that helped improve the lives of the marginalized people in Mindanao specifically the farming communities. The college saw the need to consolidate all its efforts in order to strengthen its impact on the community it engages.

Thus, College of Agriculture re-organized its college-based Research and Social Outreach (RSO) and renamed it Ateneo Agro Ecological Forum (AAEF). On April 10, 2014, the University President, Fr. Robert C. Yap, S.J., formally recognized the forum.

The AAEF brings together all the established centers of the college under one coordinative forum. These are the Food Technology Center (FTC), Center for Agriculture and Biosystems Engineering (CABE), Center for Agri-Ecological Research and Services (CAERS) and two support centers – the Center of Communication for Development (CCD) and the GIS and Precision Agriculture Center (GPAC).

AAEF envisions to be a leader in the development of sustainable agriculture in the Philippines and Southeast Asia through agro-ecosystems approach. The Forum will

be a venue for dynamic resource generation and promotion of sustainable agriculture through partnerships of multi-stakeholders and small agricultural producers.

The Forum will become a setting for debate and discussion of ideas contributory to achieving sustainable agriculture through agro-ecology. It is a discipline that provides a deeper understanding and principles on how to design, manage and study agro-ecosystems that are culturally sensitive, economically and socially viable as well as nature resource conserving and productive.

AAEF will be one with university as it embarks to becoming a leading ASEAN university forming men and women of character in 2033. It will also represent the bigger Ateneo family in the Philippines and ASEAN community as the Xavier University is the only Ateneo school in the country offering Agriculture.

ROEL R. RAVANERA
Dean of the College of Agriculture

Dr. Ma. Theresa M. Rivera, appointed as director will head the forum. The other center heads are: Ms. Sylvia T. Aguhob for FTC, Engr. Alexis G. Maristaza for CABES, Mr. Floro V. Dalapag for CAERS, Ms. Shiella C. Balbutin for CCD. The GPAC is recently coordinated by Dr. Edgar Allan C. Po.

We invite practitioners, development partners and industry leaders to join us in this Forum as we pursue a globally competitive and peaceful Mindanao.



The recent winners of NOMCARRD 25th Regional Symposium on Research and Development Highlights last October 10-11, 2013 at Mindanao University of Science and Technology namely (from left to right) Dr. Greg M. Cubio, Dr. Edgar Allan C. Po and Engr. Roland J. Macana together with Archbishop Antonio J. Ledesma.

AE develops a multi-functional pelletizing machine

A multi-functional pelletizing machine suitable for village-level use was designed, fabricated and evaluated by Dr. Greg Cubio, Ms. Laizah Lou Galanida and John Keiffer Ting of the Agricultural Engineering Department and Mr. Victoriano Tagupa, former director of the Sustainable Agriculture Center.

The study won first place for Best Paper in the Development category during the NOMCARRD 25th Regional Symposium on Research and Development Highlights which was held last October 10-11, 2013 at the Mindanao University of Science and Technology.

The materials used to fabricate the machine are locally available, including a welding machine and basic engineering shop tools. Because of its simple design, one person is enough to fabricate and operate it. No special skill is needed and requires two persons only to operate it while performing two or more tasks simultaneously.

True to the term 'multi-functional', the machine serves 5 purposes, even able to do multiple tasks simultaneously. Its five purposes are as follows: pelletizer, mixer, vermicast and aggregates separator, extruder and thresher prime mover.

Performing two or more tasks simultaneously is recommended to maximize the capacity of the machine and energy consumption.

However, even if it's only performing one task, like pelletizing alone, it still is more economical compared to that of the commercial pelletizing machine in terms of production cost since it only costs about Php 60,000.00 to fabricate the multi-functional pelletizing machine while it costs more than Php 100,000.00 to make a commercial pelletizing machine. With its low production cost and many functions, an increase in the farmer's profit is highly probable.

Other advantages of pelletizing include the uniformity of the composition of each pellet and its long shelf life. Each pellet contains the amino acids, lysine, minerals and vitamins that every animal needs. In addition, a change in temperature does not affect the appearance, taste and structure of a pellet.

The pelletizing machine is proven to be very effective. The pelletizing efficiency of the machine ranges from 90-100% for each pellet which is comparable to commercial pelletizing machines. But before it becomes ready for commercial use, thorough evaluation and modification is still necessary.



KSSR Awardee Explores New Fish Drying Technology

The biomass-fueled flatbed dryer is more efficient for fish drying as compared to conventional sun drying as it provides short drying time, less microbial count and good quality of dried fish.

This is the result of the study conducted by Engr. Roland J. Macana together with his adviser Engr. Alexis G. Maristaza, entitled "Comparative Assessment of the Quality and Cost of Fish Drying using Conventional Sun Dryer and Biomass-fueled Flatbed Dryer" which won Best Poster in the Technical Poster category during the NOMCAARRD 25th Regional Symposium on Research and Development Highlights held last October 2013 at the Mindanao University of Science and Technology.

The study aimed to find an alternative drying technology than the popular conventional sun drying method used. This practice is considered unhygienic because it exposes the fish to dust, rain, rats, insects and other unsafe elements.

Although biomass-fueled flatbed dryer more commonly used for rice and corn harvests, the dryer was utilized and assessed for producing a high-quality, affordable dried fish that is safer for consumers to consume.

The products of both drying methods were compared in terms of quality, microbial count and production cost. First, the quality of the fish was determined based on appearance, color, hardness, smell and overall acceptability. Second, the number of yeasts and molds were counted to determine the level of microbial contamination. Lastly, production cost was determined by calculating labor and energy costs incurred to carry out each method.

The biomass-fueled flatbed dryer yielded better results in the quality and microbial count. In terms of cost, sun dried fish has a higher labor cost but saves a lot in terms of energy consumption because solar energy is basically free. However, the dried fish from the biomass-fueled flatbed dryer scored better when its price was quoted by the wholesalers.

GPAC Creates Soil Erosion Model

Soil erosion is a big problem especially for agricultural lands that are located on sloping areas. The problem prompted the Cagayan de Oro River Basin Management Council (CDORBMC) to call for a meeting to discuss the best management practices on sloping land utilization. However, it is difficult to develop such management practices without quantifying soil loss estimates and appropriate methodologies to measure soil erosion over time.

Dr. Edgar Allan C. Po and Engr. Mark Alexis G. Sabines from Xavier University College of Agriculture GIS and Precision Agriculture Center (XUCA GPAC) and Engr. Jan Taat from Xavier University College of Engineering (XUCE) initiated a research study to find effective ways to achieve a sustainable agriculture (SA) through the mitigation of soil loss.

Modern technologies such as Google Earth (GE) v7.1, a Global Positioning System (GPS) receiver, and advanced softwares were utilized to come up with a Digital Elevation Model (DEM) – a digital map showing the level of soil erosion from various places at the research area - using the Revised Universal Soil Loss Equation (RUSLE). RUSLE is a computer program that is widely used to quantify soil erosion.

The study won first place for Best Paper in the Research category during the NOMCAARRD 25th Regional Symposium on Research and Development Highlights which was held last Oct. 10-11, 2013 at the Mindanao University of Science and Technology.

The study was conducted in Barangay Gumaod, Claveria, Misamis Oriental, Philippines—an area typical of a sloping farmland that grows corn.

Only a small amount of soil is lost from a land each year but it accumulates over time and eventually worsens. If no intervention is done, a once productive farmland will be in danger of becoming unproductive.

The study aims to quantify the level of soil erosion at the farm level to provide farmers with specific and relevant data in their pursuance of a sustainable agriculture. However, quantifying soil erosion is not easy. Fortunately, the methodologies used in the study are flexible enough to be implemented at the level of a farmer's field. The study suggests that when presented with the right information on the extent of soil erosion, a farmer will eventually adopt and find ways to protect his soil to ensure sustainability and resiliency.

Identifying of specific erosion management and control measures that a farmer can adopt are not included in the study. Admittedly, there is still a lot of room for improvement and a more in-depth study of this topic is recommended when the appropriate funding is available. With that said, it is important to note that the values reported in the study should be taken with caution.



FTC collaborates with DOST-FNRI for BIGMO

Two years ago, when the city was hit by typhoon Sendong many families were physically and economically displaced and now relocated in the different areas in the city. Children were not spared of the effects left by the typhoon. Sickness hit and malnutrition rose to 50% in the affected cities.

The Food Technology Center (FTC) of the Xavier University College of Agriculture, having a long record of extension programs in partnership with various government and non-government organizations was one of the selected agencies for the production of BIGMO and implementation of the feeding program. The project was conducted together with the 2nd congressional district of Cagayan de Oro.

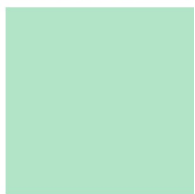
To help address the problem of malnutrition in the relocation sites, the Department of Science and Technology-Food and Nutrition Institute (DOST-FNRI) conducted feeding programs to children aged 2 years and below. They collaborated with various agencies in the production of baby food called BIGMO and the implementation of the feeding program.

BIGMO is a ready-to-cook baby food from rice (Bigas), mungbean (Monggo) added with sesame seeds which is an ideal complementary food for infants and preschoolers. It contains 140 kilocalories energy and 4 grams protein in each 30g pack, enough to meet the recommended energy and protein requirement for 6 to 12 months old infants daily.

The feeding program is divided into three stages, pre-feeding, post feeding and assessment. In the pre-feeding stage, FTC identifies target areas and children beneficiaries, who are weighed and assessed according to nutritional standards. Beneficiaries received 2 pieces of 30g BIGMO pack for 120 days and monitored weekly in the feeding stage. Post feeding activities includes the final weighing and height taking of the children beneficiaries. All BIGMO data were submitted to the barangay health workers (BNS/HW) for further assessment.

Mothers of malnourished children are also required to attend the feeding program. They will be taught about the essence of breastfeeding for infants as well as healthy and low cost meal preparation. This will ensure continuity of good health for the children after the program.

Among the areas served by FTC are the Calaanan and Xavier Ecoville relocation sites, Macabalan, Consolacion and Tablon with a total of 384 beneficiaries since April 17 to September 20, 2013. The total cost of the project is Php 206,080.



XU-AREC receives Php1.4 million for SPV Lighting Project

The Xavier University – Affiliated Renewable Energy Center (XU-AREC) received 1.4 million pesos for the installation of additional 40 Solar Photovoltaic Streetlights in Sendong Resettlement Areas in Xavier EcoVille in Barangay Lumbia and CDO Relocation Site in Sitio Calaanan of Barangay Canitoan.

XU-AREC, through the funding of the Department of Energy, offers an alternative technology that caters the need for road safety and security benefits of the aforementioned communities. This project is geared towards providing a reliable and cost-effective street lighting for resettlement areas and serving as actual working models for environmental awareness and energy conservation.

XU-AREC also partners with the Local Government Units of Lumbia and Canitoan in order to establish a well-coordinated relationship among beneficiaries.

Since 1988, XU-AREC has 25 years of extension services in the crusade of providing sustainable and environment-friendly solutions through renewable energy technologies.

In the year 2000 to 2007, XU-AREC implemented the Department of Energy's Barangay Electrification Program (BEP) in 30 remote and far-flung barangays from the 14 municipalities in the provinces of Misamis Oriental, Agusan del Sur and Dinagat Islands. Under this program alone, AREC has installed a total of 105 solar battery charging stations, 72 solar home systems, 28 solar streetlights and 1,245 house wiring connections for household beneficiaries.

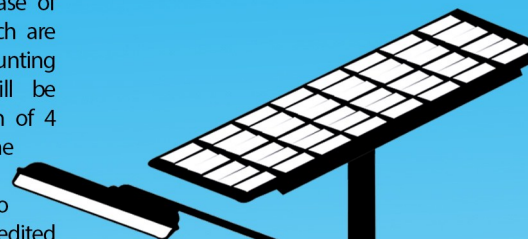
It also organized and established 30 Barangay Power Associations (BAPAs), trained more or less 180 BAPA officers, approximately 60 local technicians and exactly 1,245 end-users.

XU-AREC leads the actual implementation of the project and is responsible for the purchase of necessary equipment and materials which are done through the usual government accounting and auditing process. The project will be implemented within the target duration of 4 months. The open bid, the official start of the project was conducted last March 10, 2014 at Lighthouse, Gaisano Mall, Cagayan de Oro City. The event was attended by two accredited and regular bidders of the Department of Energy, the Physics Research of Cebu City and Gendiesel Philippines of Cagayan de Oro City.

XU-AREC will present, discuss and deliberate its outlined activities and project strategies to the beneficiaries through the Partnership Management Committee/Local Inter-Agency Committee during a community assembly.

To make the project more sustainable, XU-AREC will conduct hands-on training to identified local technicians and general briefing and overview of the operation and maintenance to the community. The training will include general knowledge on photovoltaic technology, its parts/functions and system operations/maintenance just to name a few. These trained local technicians will be in-charge of the maintenance, troubleshooting and repair.

XU-AREC is a program under the Center for Agriculture and Biosystems Engineering (CABES). It serves as the College of Agriculture and Department of Energy's link to grassroots and its extension arm in the promotion and commercialization of technically and economically feasible Renewable Energy Systems in the rural areas of Northern Mindanao and Caraga.



XUCA partners with SISAT for a supervised field experience

Geared towards helping small agricultural schools in Mindanao, Xavier University College of Agriculture (XUCA) partnered with St. Isidore School on Agricultural Technology (SISAT), a Jesuit-run and agri-vocational school, to provide the latter's students with a supervised field experience.

Over 70 students with 6 batches taking up animal husbandry and one batch taking up horticulture finished the supervised field experience at the College's Manresa Farm. The partnership began in September 2012 during the signing of the Memorandum of Agreement between Fr. Roberto C. Yap, XU University President, and Fr. Richard Ella, SISAT School Director.

The program aimed to produce knowledgeable and well-trained students in the field of agriculture particularly in raising animals and different crops as source of food. It also aimed to improve their technical skills in preparation for employment and to improve farming practices in their own community.

The program opens several opportunities for both XU and SISAT. This could be a venue for faculty members of the College of Agriculture to spend time on during the rigid transition period of K-12. It is a chance for the college to familiarize the process of NCII certification and for them to become certifiers of selected agricultural programs offered by TESDA for faculty development.

This initiative of the College of Agriculture contributes to the national government's goal of presenting options to marginalized communities through the popularization of alternative vocational education.

The 64-hectare experimental farm of the College of Agriculture, Manresa Farm, serves as the training venue of the SISAT students. They were made to experience the management practices employed in Manresa farms such as in animal husbandry in areas of Sustainable Agro-Food System (SAFS), Layer House, Dairy/Beef Cattle Shed, Goat/Sheep Project and Swine Project. They also experienced activities related to horticulture with a focus on crop production. These activities were land preparation and care for commodities, proper application of pesticides and fertilizers, asexual and sexual crop production practices and post-harvest operation from harvesting, storage and marketing.

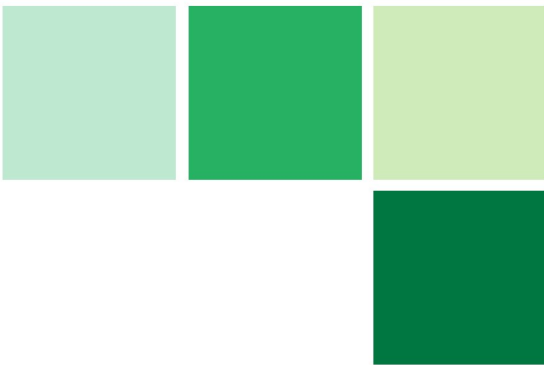
Each OJT batches runs for 17 days (13 weekdays and 4 weekends). The training focuses on TESDA training standards which are based on basic, common and core competencies. The student trainees were divided into groups and each group reported to the assigned projects/areas. They spent several working days (Monday-Sunday) at each project/area from 6:00 am to 5:00 pm depending on the area requirements.

Each program concludes with a Focus Group Discussion that aims to know the existing practices of SISAT from the student-trainee's point of view. This will be helpful in the planning, improvement and integration into the SISAT system.



The 6th batch of SISAT OJT together with College of Agriculture Dean, Mr. Roel R. Ravanera (standing second from the right), the AAEF Director, Dr. Ma. Theresa M. Rivera, and Animal Science Unit Head and Program Coordinator, Mr. Karl Wyne R. Abregana (sitting at the rightmost).

AgSci organizes Impact Assessment Training Workshop



Uppermost photo: The participants doing group work.
 Rightmost photo: Two of the participants at the registration table.
 Center photo: Dr. Adel Laureto, one of the speakers.
 Leftmost photo: One of the participants as he actively listened to the discussion.

Aiming to deepen the knowledge of the faculty and staff on Impact Assessment and its relevance to the projects implemented, the College of Agriculture Agricultural Science Department conducted the Impact Assessment Training Workshop. The event was conducted last January 10, 20 and 21, 2014 at the Agriculture building of Xavier University.

Impact assessment is a tool for strategic decision making of project and programs. It ensures that projects, programs and policies are economically viable, socially equitable and environmentally sustainable.

The activity oriented the participants with Impact Assessment Tool as one of the possible instruments to be used in quantifying a project's outcome and impact. It provided an "after the event" perspective of the comprehensive monitoring and evaluation process of programs and projects.

Experts on the impact assessment tools from the Central Mindanao University served as resource speakers. Mr. Oliver Michael Narreto, Dr. Adel Laureto, Ms. Thea Archie Rivera and Ms. Hazel Soliven discussed the framework, dimensions and different tools needed in impact assessment. Benefit-cost approach to impact assessment, productivity and technical efficiency analysis, results mapping, data collection methods and the resource and development project monitoring and evaluation tools are the major topics of the training.

A workshop was conducted on the 3rd day. The participants were asked to select among the long term projects of the different centers of the college and design an impact assessment plan.

More than 30 participants, all faculty and staff of the college actively participated in the event. It was funded by the National Agriculture and Fisheries Education System (NAFES). XUCA is considered one of the Provincial Institutes of Agriculture and Fisheries (PIAFs) by the Center for Higher Education Department (CHED) and Department of Agriculture (DA).

AgEcon wins 1st place in 13th Young Economists' Convention



From left to right: Ms. Charisse Vitor, Mr. Franz Darwin Gallofin and Ms. Jerelyn Medalla

The College of Agriculture Agricultural Economics Department bagged the top prize in the 13th Young Economists' Convention-Outstanding Paper Competition on March 7-8 at De La Salle University, Taft Avenue, Manila.

The winning research is entitled "Analysis of Brewer Spent Grain from Asia Brewery to its Utilization for Cattle Feed by Backyard Farmers." Ms. Charisse Vitor, former Kinaadman Student Support for Research awardee of SY 2012-2013 and current faculty member of the Agricultural Economics Unit authored the said research. It was presented by Mr. Franz Darwin Gallofin, a 4th year Agricultural Economics student. Ms. Jerelyn Medalla, their research adviser, was also present in the event. This was the first time that the Agricultural Economics Unit represented the University in the competition.

The University of the Philippines finished second place, University of Baguio in third place, and De La Salle University in fourth place.

College of Agriculture showcases Agri-technologies in Demo Days 2014



The Agricultural Engineering Department presented the Solar Photovoltaic System.



Students from Agribusiness demonstrate the production and marketing processes of 3 different products.



Newscasting for Development was the focal topic of the Development Communication Department.



The Food Technology Department discussed about the BIGMO (Bigas at Monggo) as a good source of nutrients for babies at a very affordable budget.



One of the participants from Kiabao, Baungon, Bukidnon looked at the technology of the Crop Science Unit called the Aquaponics.



The Agricultural Economics Unit presented the dynamics of supply and demand.



The Animal Science Unit showcased Indigenous Microorganisms (IMO) as organic feeds for swine.