



# BARChronicle

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## Agri chief leads inauguration of GOURmix processing facility



Agriculture Secretary William Dar (3<sup>rd</sup> from right) and Providers Multi-Purpose Cooperative Chairman Marilee Dee Belagan (3<sup>rd</sup> from left) lead the ribbon cutting ceremony. Joining them are (L-R) Department of Agriculture (DA) Assistant Secretary Noel Reyes; DA-Cagayan Valley Regional Technical Director Rose Mary Aquino; Isabela Vice Governor Faustino Dy, III; Isabela Governor Rodolfo Albano; and DA-Cagayan Valley Regional Executive Director Narciso Edillo. PHOTO COURTESY OF DA-CVRC

Agriculture Secretary William Dar led the inauguration of the GOURmix processing facility operated by the Providers Multi-Purpose Cooperative (PMPC) on 3 December 2020 at Brgy. Magsaysay, Naguilian, Isabela.

Joining Secretary Dar were DA-Cagayan Valley Regional Executive Director Narciso Edillo, and PMPC Chairperson Maria Dee Belagan.

In his message, Secretary Dar praised the initiative of Department of Agriculture (DA)-Cagayan Valley  
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# ICT tools on water, weed management for rice improved

The latest hardware version and verification of the AutoMon<sup>PH</sup> system and the improved WebApp, were presented during the Water Efficient and Risk Mitigation Technologies for Enhancing Rice Production in Irrigated and Rainfed Environments (WaterRice) project year-end review and planning meeting for Irrigated Environment on 3 December 2020 via Zoom.

The WaterRice project by DA-Philippine Rice Research Institute (PhilRice), International Rice Research Institute, and DA aimed to increase rice production through the development and adoption of crop management technologies and decision tools in both irrigated and rainfed environments.

One of the project's major technologies is the AutoMon<sup>PH</sup>, which is an Internet of Things (IoT)-based decision support tool for sustainable water management. Through this technology, farmers, associations, and irrigation system managers were able to receive water level information and irrigation schedules through a text message. To cater the country's different irrigation systems, field- and landscape-scale hardware designs of AutoMon<sup>PH</sup> were developed for advisory systems.

On the other hand, an updated version of the WebApp now includes graphical view, data analytics, system diagnostic information, and user privilege management for stakeholders. This will allow better storage and display of information



that are relevant to the users. With their stakeholder-friendly interface, these ICT tools on water and weed management could help ease decision making among farmers.

It was emphasized during the meeting that mechanization plays a bigger role in ensuring food supply in the country especially with food security being affected by the current pandemic.

This led to the conduct of demonstrations on mechanization technologies like laser-guided land levelling in Ambatali, Ramon, Isabela, where farmers who attended volunteered their field for laser levelling. The laser-guided land levelling technology is said to have the capacity to conserve water resources and improve nutrient-use efficiency.

Meanwhile, 23 weedy rice samples were collected from the farmers' fields and grown in DA-PhilRice greenhouse during the dry season for morphological characterization. Weedy rice is considered as a close relative of rice and is observed as an emerging problem in the rainfed lowlands. Farmers and extension workers would benefit from the said experiment and gain knowledge of the different weedy rice types infesting their rice fields.


To ensure the sustainability and scaling directions of the WaterRice program, DA-PhilRice is set to develop in 2021 a web application and design for the Irrigation Advisory Service that will allow storage and display of information. Fine-tuning

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**BAR CHRONICLE** highlights the bureau's activities as the country's national coordinating agency for agriculture and fisheries R4D, and provides updates on NaRDSAF-member institutions.

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# 1<sup>st</sup> online in-house training on edible landscaping held

The first-ever online in-house training on edible landscaping spearheaded by the University of the Philippines Los Baños-Edible Landscaping (EL) team was held on 9-10 December 2020 via Zoom.

Despite being limited to only 100 slots, 513 individuals enlisted within 24 hours after the start of the registration. Garden owners were prioritized as they are encouraged to convert their garden into an edible landscape after the training.

Participants were composed of entrepreneurs, enthusiasts, national and local government employees, and students from state universities and colleges.

The five-hour training focused on the fundamentals and processes of edible landscaping technology.

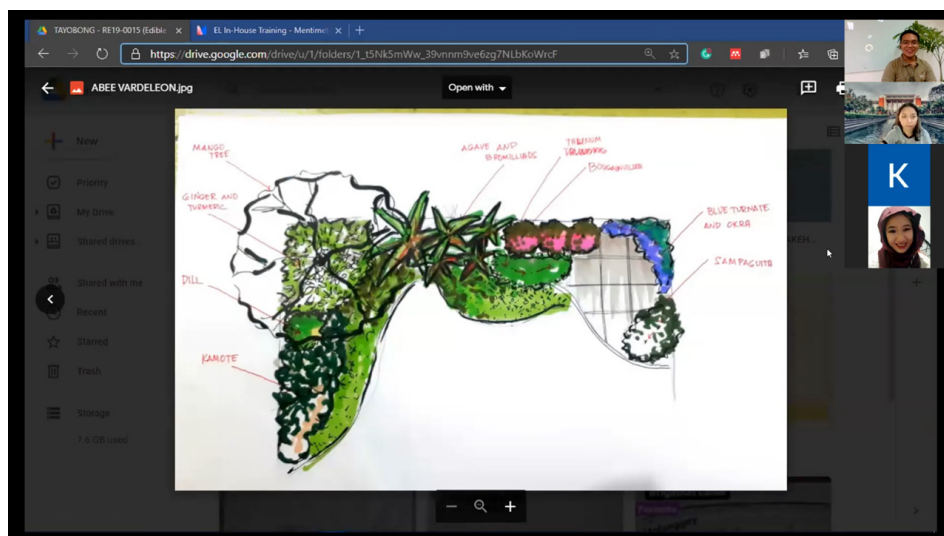
“We hope that after this training, we will have partners in advocating and advancing food self-sufficiency through the help of edible landscaping technology,” said Dr. Fernando Sanchez, Jr., project leader, in his opening message.

Maria Charito Balladares, co-project leader, discussed the history of edible landscaping, its goals and components as well as its distinction from conventional landscaping and backyard gardening.

Dr. Sanchez, Jr. explained the edible landscaping triangle which has three components: design, implementation, and maintenance. He also expounded on the design phase along with the elements and principles of design, landscaping process, and edible landscape ideas and practices.

Bryan Apacionado, project staff, capped the first-day of the training with the landscaping process and edible landscaping ideas and processes.

On the second day, Ryan Rodrigo Tayobong, project staff, discussed the implementation and maintenance phase.



Presentations of edible landscape garden designs made by the participants

Participants then presented their edible landscape garden designs which were evaluated by the EL team.

Facebook groups were used as a platform for knowledge sharing after the training. It will also serve as a means to monitor the progress of the participants.

The EL team received outstanding ratings during the post-training evaluation.

“Activities were interesting and well-thought; the platform was maximized for the benefit of the learners. Uniformity of presentations helped me process information

better,” shared participant Chiara Karenina Manuel.

Prior to the implementation of health protocols that restricted movement and mass gathering, the EL team annually conducts this in-house training for eight to 16 hours.

The two-day training is one of the components of the project, “Edible Landscaping Technology Promotion and Information Dissemination Campaign,” funded by the DA-Bureau of Agricultural Research.

Another in-house training is scheduled on 27-28 January 2021. ### (Rena S. Hermoso)

# Breaking myths: Cassava is not a

Cassava (*Manihot esculenta* Crantz), popularly known as *kamoteng kahoy*, is often branded as “poor man’s crop” along with sweet potato, taro, and yam.

What once was an undervalued crop, cassava now stands as one of the staple food sources of carbohydrates in the country aside from rice and corn.

Protocols for site-specific nutrient management (SSNM) for cassava production paved the way for opportunities to maximize the crop’s potentials in the country.

In 2016, a nationwide SSNM trials were undertaken to further verify the said technology. It aims to address low yield and income among cassava farmers.

The Institute of Plant Breeding of the University of the Philippines Los Baños led and consolidated the findings across all the regions of the country.

## Nationwide SSNM trials

Through the trials conducted, the efficiency of SSNM-based fertilizer recommendations was evaluated to address issues about the large yield gap between farmers’ yields and potential yields of different cassava varieties used in different cassava-growing areas.

It was found out that cassava responded to the use of fertilizer despite medium to high soil fertility.

However, cassava cultivation can deplete soil nutrients so non-usage of fertilizer will result to low yield. SSNM can compensate to such depletion by suggesting a set of management principles well-fitted to the growing environment.

In average, the amount of fertilizer needed to produce a ton of cassava dry root yield per hectare was 17 kilograms of N, 4.5 kilograms of P, and 27 kilograms of K.

Across all on-farm trials conducted, SSNM was found to

be the most effective and efficient. However, it was not significantly different to the full NPK approach.

Forty-eight sites reported significant yield results during the second cropping season: 19 in Luzon, 14 in Visayas, and 15 in Mindanao.

Among the utilized varieties, Rayong 72 gave the highest yield for SSNM, reaching as much as 53.94 tons per hectare compared to Lakan 1, Lakan 2, and Golden Yellow varieties.

Rayong varieties have high yield potential as a feed type variety; hence, the highest fresh root yield.

Based on the data obtained through the nationwide trials, SSNM proved to be an efficient way to close the yield gap in the cassava production in the country. It can even help to close the yield gap mean of 10.53 tons per hectare.

Aside from variety used, site characteristics have negative effects to cassava yield response to fertilizer management.



# poor man's crop

Text by Jhon Marvin R. Surio | Photo courtesy of UPLB

Optimization of SSNM can be made by adjusting the fertilizer recommendation based on the following factors: variety used, soil fertility, management practices (crop residue management, crop rotation, and organic nutrient inputs), climate, water availability, fertilizer source, and price.

## Significant results of trials

Across all regions, fresh root yields for food type varieties ranged from 15.69 to 91.18 tons per hectare using SSNM protocols.

Zamboanga Peninsula region has the highest yield with an average yield of 91.8 tons per hectare. Varieties used in the region were Golden Yellow and Lakan 2 which are both food type varieties.

High yields were result of expansion of areas. Newly cultivated sites has high indigenous soil nutrients to support cassava production.

Meanwhile, fresh root yields for feed type varieties produced 10.49 to 76.35 tons per hectare. Region 12 had the highest yield among all the regions with a yield of 76.35 tons per hectare using the Rayong 72 variety.

It was observed that regions in Mindanao have relatively higher yields in both food and feed type varieties compared to regions in Luzon and Visayas.

Generally, growing areas in Mindanao have fertile soils and experience evenly distributed rainfall very fitting for cassava cultivation.

For the comparison across varieties and locations, SSNM had the highest average yield among all treatments with 38.77 tons per hectare.

## Optimizing data for recommendations

Data obtained from literatures together with the results of the nationwide trials were utilized

in developing the beta version of the Nutrient Expert for Cassava, a decision-support tool for generating SSNM-based fertilizer recommendations. At present, the validation trials being conducted is paving the way of a mature/ refined Nutrient Expert for Cassava Philippines.

Once released, the software is hoped to give cassava farmers a fertilizer recommendation that can increase their yield and profit by suggesting a meaningful yield goal and providing a fertilizer management strategy. ###

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# SEARCA opens possible ties with DA-BAR on innovEIGHTS program

The Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) and the Department of Agriculture-Bureau of Agricultural Research (DA-BAR) had a discussion meeting on 3 December 2020 via video conference to further forge the working relationship and linkage between agencies.

Dr. Vivencio R. Mamaril, DA-BAR director, and Dr. Glenn B. Gregorio, SEARCA director, led the meeting which coursed through SEARCA's new program called "innovEIGHTs" that focuses on digital agriculture and modern thinking.

InnovEIGHTs or the Emerging Innovations for Growth Program

was established to "develop pioneering innovation and technology incubation programs, platforms, policies, protocols, and partnerships."

As one of the ways to reach Agriculture 4.0, an approach that includes smart and precision agriculture, this initiative also wanted to engage the youth to modernize agriculture.

Per SEARCA, through their existing partnership and collaboration with the bureau, DA-BAR can be a catalyst in forwarding the vision and goals of this program.

The program wanted to usher farmers and fishers in transitioning from the old ways of farming

towards an agribusiness mindset. This, therefore, embraces the challenge of mobilizing the whole farming community to make the connection between farmers and market seamless.

Moreover, it was highlighted that this program is crucial in the digitalization of agriculture especially in these trying times wherein almost all activities are now conducted online.

With this in mind, SEARCA tapped DA-BAR because of their common goal and passion on strengthening and empowering farming families and communities. ### (Chantale T. Francisco)



Dr. Vivencio Mamaril (inset), DA-BAR director, providing his insights on the bureau's potential involvement on SEARCA's innovEIGHTS program. Joining the bureau director are DA-BAR key officials. PHOTO: CFRANCISCO

# UPLB sends bee team for courtesy visit; reports accomplishments, plans



UPLB Bee Program pays a courtesy visit to Dr Vivencio Mamaril (center), DA-Bureau of Agricultural Research director.

Dr. Cleofas Cervancia, bee scientist, and Jose Rene Micor of the University of the Philippines Los Baños (UPLB) visited Dr. Vivencio Mamaril, DA-Bureau of Agricultural Research director, for a courtesy visit on 10 December 2020 in Diliman, Quezon City.

Dr. Cervancia and Micor represented UPLB's Bee Program to present their accomplishments and plans. The courtesy visit comes in a very opportune time as Dr. Mamaril starts his term as the bureau's new director.

Some of the salient accomplishments discussed during the meeting were efforts in introducing beekeeping technologies using stingless bees in Mindanao.

The initiative was comprised by capacity-building activities on the management of native bees; identification of bee plants;

inventory of pollinator species; and development of communication materials for further promotion of the industry.

Trainings conducted include handling and propagation of colonies, identification of pests, hive management, and bee product processing.

As a result, the team was able to increase the number of colonies in Lanao del Norte by 50 percent. Consequently, the team is eyeing to create a niche in commercial markets in the area as part of plans for commercialization of technologies.

Moreover, Dr. Cervancia boasted the participation of UPLB's Bee Program in the International Meliponine Conference and Symposium on Pollinator Conservation in February 2020.

The team organized and participated in the said event wherein

technologies developed through funding support from the bureau was showcased.

Bee researchers, policy makers, farmers, students, and beekeepers from around the world participated in the event. A total of 1,267 participants attended, 215 of which joined the scientific sessions and 1,052 the exhibits and grand honey festival.

Beekeeping is an emerging industry in the country linked to boosting farm productivity and profitability. As such, plans on the development of the stingless bee enterprise in Lanao del Norte and establishment of a bee science facility in UPLB were also discussed.

Also prioritized were plans for commercialization of beekeeping technologies, particularly to scale out bee products to both beekeepers and potential investors. ### (Jhon Marvin R. Surio)

**Agri chief leads...from page 1**



The Providers Multi-Purpose Cooperative (PMPC) with Agriculture Secretary William Dar (standing, 6<sup>th</sup> from right) pose in front of the GOURmix processing facility. PMPC produces GOURmix enhanced with mushroom powder and crispy mushroom in the said building, hence The Mushroom Story. PHOTO COURTESY OF DA-CVRC

to transfer the enhanced Pinoy GOURmix technology to PMPC and underscored the need to duplicate this kind of interventions to ensure that technologies are transferred to the private sector or cooperatives for commercialization of products.

DA-Cagayan Valley Research Center (CVRC) and PMPC signed a Memorandum of Agreement which gave the latter the license to be the manufacturer, mass producer, and distributor of Pinoy GOURmix, Mangi MAXI, and all other products developed by Cagayan Valley Regional Research Development

Extension Network members.

The Department of Social Welfare and Development-Cagayan Valley recently ordered PhP 1.5-million worth of Pinoy GOURmix for their feeding program activities.

In November 2020, PMPC produced 500 packs of Pinoy GOURmix as part of DA-CVRC's relief operations dubbed as Bangon Magsasaka Operation Tulong after the provinces of Cagayan and Isabela were hit by Typhoon Ulysses affecting the agriculture sector.

The DA-Bureau of Agricultural Research (BAR), under its Resiliency

Response Research for Development program provided PhP 500,000-worth of processing equipment grant which includes corn milling machine, flour milling machine, vacuum sealer machine, and food mixer.

DA-BAR, through the National Technology Commercialization Program (NTCP), previously supported completed projects on product commercialization including packaging, labelling, and shelf life improvement of Pinoy GOURmix. ### (Ma. Eloisa H. Aquino)

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### ICT tools on...from page 2

of the AutoMon<sup>PH</sup> system to improve its data accuracy and stability will continue in 2021 as well.

The WaterRice project was funded under the National Rice Program of the Department of Agriculture (DA), through the DA-Bureau of Agricultural Research. ### (Jireh Alodia R. Laxamana)