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PHOTO COURTESY OF MILANG-ILANG/UPLB

UPLB turns over EL starter kits to DA

To help urban settlers start their own edible gardens at home, the University of Philippines Los Baños (UPLB) led by its chancellor, Dr. Fernando C. Sanchez, Jr., turned over edible landscaping (EL) starter kits to the Department of Agriculture (DA), through Secretary William D. Dar, in Los Baños, Laguna on 18 September 2020.

The EL starter kit includes naturally-grown seeds, “how to plant” brochures, and sample edible

landscape designs fit for urban setting such as pocket garden, balcony garden, community garden, and rooftop/container garden. The starter kit also features two QR codes found at the fan and the brochure. These codes contain scientific papers, feature articles, and the music video on edible landscaping.

“As the country transitions into the ‘new normal,’ it is important that we continue our joint efforts to ensure an adequate supply of affordable and

nutritious food, and improve our food logistics and transportation systems,” Sec. Dar said.

“Edible landscaping will now form part of our household food security arsenal. While making your surroundings beautiful, with proper EL technologies, you are not only promoting aesthetics but also attaining household food security,” he added.

This turnover activity was made possible through the PhP

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BAR convenes its advisory board for R4D



In coordination with the Department of Agriculture, the newly-constituted ABR4D is created for recommending and providing policies to elevate the agriculture and fisheries sector. PHOTO: JALAXAMANA

To continuously elevate the quality of research for development (R4D) toward a more responsive, inclusive, and market-oriented plans and programs to support the Department of Agriculture's (DA) twin objectives "*Masaganang Ani at Mataas na Kita*," DA-Bureau of Agricultural Research (BAR) convened key representatives from the private sector, government offices, and the academe for the 1st Advisory Board for R4D (ABR4D) Meeting on 21 September 2020 at the DA Central Office in Diliman, Quezon City.

Leading the meeting as the board chair was Agriculture Secretary William Dar, together with Assistant Secretary-designate for Policy, Research, and Development Noel Padre who represented the DA

Undersecretary for Policy and Planning Rodolfo Vicerra.

Other attendees included the Chair of the Philippine Chamber of Agriculture and Food Incorporated, who sits as the board vice chair and the head of the following member institutions: Moringaling Philippines Foundation, Inc., Department of Science and Technology-Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development, Department of Environment and Natural Resources-Ecosystems Research and Development Bureau, Coalition for Agriculture Modernization in the Philippines, Inc., Go Negosyo, Philippine Chamber of Commerce and Industry, Association of Colleges of Agriculture in the Philippines, Philippine Commission on Women,

and Fisheries and Aquatic Resource Management Councils.

Among his initial directives to the bureau when he assumed the position as DA secretary in August 2019, Dar highlighted the significant role that the board will play in ensuring a more comprehensive and responsive R4D plans and programs for agriculture and fisheries through the provision of broad stroke policy guidance as well as the review and endorsement of plans, programs, and projects, among others.



"The reason DA wants to have the plans, programs, and projects to be funded by BAR, considering the requirements of the farming and fisheries sector, is for the outputs and outcomes to be translated to agribusiness enterprises. Most of


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

For comments and suggestions, contact us through tel. nos.: (+632) 8461 2900 or (+632) 8461 2800 local nos. 1136, 2128, and 1138 or email us at acd@bar.gov.ph. To subscribe, please send a formal request to our email.



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DA chief leads groundbreaking of 4 agri-fishery R4D facilities in Luzon

Agriculture Secretary William Dar led the groundbreaking ceremonies of four agri-fishery research for development (R4D) facilities in Pampanga, Nueva Ecija, and Ilocos Sur to strengthen and complement the rising innovative researches in the agriculture and fisheries sector.

With funding from the Department of Agriculture (DA)-Bureau of Agricultural Research, the groundbreaking ceremonies for Multipurpose R&D Center at DA-Central Luzon Integrated Agricultural Research Center (CLIARC); Precision and Digital Agriculture Center (PreDIC) at Central Luzon State University; Agriculture Innovation Center for Agriculture, Fisheries, and Livestock; and Tissue Culture Laboratory at Ilocos Sur Polytechnic State College (ISPSC) were held on 14, 23, and 25 September 2020, respectively.

Secretary Dar underscored the importance of these facilities in creating more livelihood opportunities for farmers, fishers, livestock raisers, food processors, and agripreneurs through the sustained promotion of innovative technologies that increase farm productivity and profitability.

Aimed to increase the production of upland crops in Central Luzon, the CLIARC Multipurpose R&D Center will house laboratories for tissue culture and product development. The center will complement the DA researchers' initiatives in developing protocols for upland crops production through vine cutting technique as production guide for upland farmers as well as producing upland crops seeds, cuttings, and tubers, among others.

The Php 50-million Precision and Digital Agriculture Center will generate Precision/SMART platforms through R4D focusing on integrating remote data acquisition and wireless

and sensor technologies on plant-soil-water-climate relation; managing high value crops; detecting and managing invasive species and natural resources, as well as mapping and forecasting. PreDIC is funded through DA's High Value Crops Development Program through DA-Bureau of Agricultural Research.

To strengthen partnerships in agricultural innovation and support business techno- and agri-preneurship opportunities, the Agriculture Innovation Center for Agriculture, Fisheries, and Livestock is expected to house a product development laboratory, market display hub, and multipurpose hall.

The ISPSC Tissue Culture Laboratory will ensure the continuous production of disease-free plantlets for higher quantity and quality produce for farmers and earn them a higher profit. ### (Clarisse Mae N. Abao and Ma. Eloisa H. Aquino)



"We expect the outputs of these facilities to create more livelihood opportunities for smallholder farmers, fishers, livestock raisers, and food processors through the sustained promotion of innovative technologies, entrepreneurship among the youth, and increased farm productivity," said Agriculture Secretary William Dar during the ISPSC groundbreaking ceremonies on 25 September 2020 in Sta. Maria, Ilocos Sur. PHOTO COURTESY OF DA FB PAGE



Agriculture Secretary William Dar (center), Dr. Edgar Orden (left), CLSU president, and Dr. Fe Porciuncula (right), CLSU vice president for research, extension, and training and Precision and Digital Agriculture Center (PreDIC) project proponent, lead the groundbreaking ceremony of PreDIC on 23 September 2020 at CLSU, Science City of Muñoz, Nueva Ecija. PHOTO COURTESY OF CLSU FB PAGE

Nanotech R&D Center yields nano-e

Story by Clarisse Mae N. Abao | Photos by CLSU



Anti-viral nano-enhanced hand sanitizer



Face masks produced through nanotechnology



Nano-structured ethyl alcohol for d

Various sectors around the world have gradually adjusted to the new normal particularly in seeking innovative ways to ease the provision and access to necessities and services for the people during the pandemic. Coherently, the agriculture and the science and technology sector, through research for development initiatives, continuously devise harmonized efforts to address the surfacing problems to match the demand for basic needs of the Filipinos, despite the challenges posed by the COVID-19.

In response to the increasing demand for disinfectants to comply with the minimum health standards set as precautionary measures against COVID-19, the Central Luzon State University (CLSU)-Nanotechnology R&D Facility, co-supported by the Department of Agriculture-Bureau of Agricultural Research (DA-BAR), has developed a nano-enhanced alcohol and sanitizer as well as face masks with nanofiber filters.

Started as an initiative at the beginning of the community quarantine throughout Luzon in March this year, the project, “CLSU-DOST III Initiative and Collaboration

Response [towards] COVID-19 Mitigation” aims to provide the frontliners with nano-products that will help prevent the coronavirus. The project is implemented through the partnership between CLSU and Department of Science and Technology-Central Luzon.

The components of the nano-structured alcohol include nanoparticles infused with turmeric extract—both of which are used to enhance the 70% alcohol and sanitizer. Aside from its antiviral property, it also has antibacterial and anti-inflammatory properties due to curcumin, a bioactive component of turmeric.

Based on studies, the said alcohol and sanitizer mixture could kill H1N1 influenza, SARS COV1, and MERS COV which are family of SARS COV2, the virus that causes COVID-19. Hence, the usage of the said local alcohol and sanitizer can possibly prevent the spread of the virus, as claimed by the CLSU Nanotechnology Research R&D team.

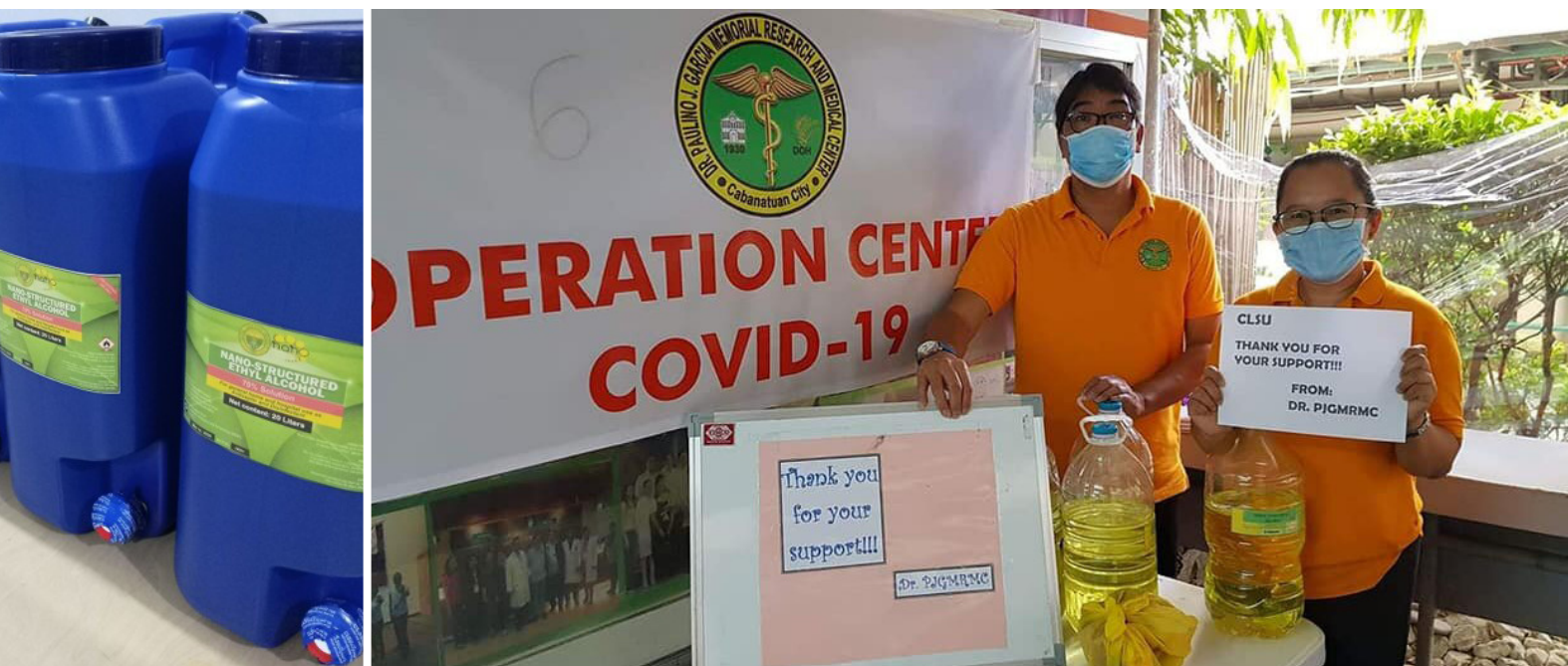
Aside from the nano-enhanced alcohol and sanitizer, the research team also developed washable face masks and nanofiber mask filters made

from polymer nanocomposites with antiviral properties. The said face mask can be reused through normal washing with soap and water, while the nanofiber filters inserted into the washable face mask pockets can be reused up to 10 times by sanitizing the filter material with nano-enhanced 70% alcohol spraying and air drying.

Collaborating in the production of the nano-enhanced alcohol and sanitizer are the CLSU College of Engineering-Affiliated Renewable Energy Center (AREC), and the Mariano Marcos State University (MMSU). The CLSU College of Engineering and the AREC were in charge of obtaining the 70% alcohol from bioethanol referencing from the protocol shared by MMSU in its previous R&D partnership with CLSU.

CLSU received support from various institutions to sustain the volume of production and address the scarcity of materials in creating alcohol and sanitizer. The CLSU Research and Training Center, DA-Philippine Carabao Center-Small Ruminant Center, and the Ramon Magsaysay-Center for Agricultural Resources and Environment Studies

Enhanced products against COVID-19



Distribution to frontliners

Dr. Paulino J. Garcia Memorial Research and Medical Center receives nano-enhanced alcohol and sanitizers

provided molasses and yeast to create almost 300 liters of bioethanol distilled by CLSU College of Engineering-AREC. The team also received 60 liters of bioethanol as donated by Central Azucarera de Tarlac.

To sustain the initiative, the continuing alcohol materials were funded by CLSU Gender and Development and DOST-Philippine Council for Industry, Energy, and Emerging Technology Research and Development (PCIEERD). Furthermore, the DOST-Central Luzon also provided additional funds for the procurement of raw materials needed to support the increasing volume of alcohol and sanitizer to meet the demand of the region.

According to Dr. Juvy Monserate, project proponent and head of the CLSU Nanotechnology R&D Center, the nanostructured alcohol and sanitizer are made from bioethanol making it organic, safe, and cheaper as compared to the other market available alcohol and sanitizers.

“These efforts are service-oriented where it primarily intends to provide the frontliners—doctors, nurses, health workers, police and military personnel, and those providing services in the

grounds with nano-structured alcohol and sanitizer as well as nanofiber filler face mask to serve as a weapon to fight COVID-19,” Dr. Monserate shared.

Per Dr. Monserate, the products are currently undergoing accreditation and will be subjected to third party analysis and confirmation to ensure its viability prior to commercialization to a wider market.

At present, more than 8,000 liters of nano-structured alcohol, around 4,000 face masks, and more than 300 nano-enhanced face masks with nano fiber filters were produced and distributed in the region. Recipients include barangays, rural health units, local government units, state universities and colleges, and hospitals from various cities and provinces in Central Luzon and National Capital Region.

Continuously serving targeted stakeholders in the Central Luzon and aiming to reach more areas nationwide, the nano-enhanced alcohol, sanitizer, and masks were some of the research outputs produced and strengthened by the Nanotechnology R&D Facility established in 2019.

The said facility, which is the first in the country that centralizes on nanotechnology R&D for Agriculture and Fishery initiatives, was funded by DA-BAR under its Research Facilities Development Grant. The operationalization of the facility through the provision of equipment was done through CLSU’s partnership with the Department of Budget and Management–Region III, DOST-PCIEERD, and DOST-Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development.

Harmonizing efforts from various sectoral agencies focusing on agriculture and science and technology, the CLSU Nanotechnology R&D Facility is geared towards applying nanotechnology in agriculture and food, environment, and biomedicine, among others. ###

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BAR convenes...from page 2

the technology must really impact agribusiness-oriented enterprises,” Agriculture Secretary Dar emphasized.

“It is always good to have an advisory board that brings various ideas from the industry, agribusiness, academe, and from the farming/fishing sector because they bring relevant feedback and relevant concerns,” he added.

During the board’s inaugural meeting, DA-BAR provided an overview of its plans, programs, and projects to the board.

Raymond Patrick Cabrera, DA-BAR Program Development Division (PDD) senior agriculturist, presented the best technologies developed, promoted, and commercialized through the support of the bureau. These were selected based on the following criteria: maturity; size of recommendation domain; institutional support and public-private linkages; competitiveness; and market.

The bureau’s Resiliency Response R4D framework and program components and the FY 2021 Agency Plan and Budget Proposal were then discussed by Joell Lales, DA-BAR chief agriculturist and PDD head.

Some of the agreements made include DA-BAR to: 1) facilitate an impact assessment study on the best technologies it has funded; 2) conduct a technology/business investment forum; and 3) prepare the technology catalogs for the commodity industries highlighting the top agri-processing technologies with cost and return analysis, urban agriculture technologies, and precision and digital agriculture technologies.

DA-BAR Director Nicomedes Eleazar serves as the ABR4D secretariat chair. The next board meeting will take place on the 2nd week of December 2020. ### **(Jireh Alodia R. Laxamana and Chantale T. Francisco)**

BAR, NFRDI conduct 4-day webinar on village-level *tilapia* production

The Department of Agriculture-National Fisheries Research and Development Institute (DA-NFRDI) held a four-day webinar-training on village-level production of *tilapia* on 4 and 8-10 September 2020 via video conferencing.

The virtual training was part of the project “Adoption of Modified Intensive Fry Production and Nursery Rearing of *Oreochromis niloticus* for Village Level Production in Northern Luzon.”

Funded by DA-Bureau of Agricultural Research (BAR), it is only one of the 11 projects supported through the refocused program of BAR dubbed as Resiliency Response Research for Development (3R) program, under the Fisheries Production Support sub-group.

The series of trainings conducted aimed to increase the knowledge of participants from Regions 1, 2, 3, and CAR. Participants were selected fisher-cooperators under the implementation of the said project.

“This kind of initiative to advance village-level fisheries in Northern Luzon is a good initiative to provide learning avenue for knowledge-sharing and exchange despite current limitations on conducting on-site trainings because of the pandemic,” BAR Assistant Director and Institutional Development Division Head Digna L. Sandoval said in her opening message on behalf of Director Dr. Nicomedes P. Eleazar.

Dr. Maria Theresa M. Mutia, project leader and NFRDI-Freshwater Fisheries Research and Development Center chief, formally commenced the training by giving an overview. “This web-based training activity aims to create awareness on the project’s goals and objectives,

expected outputs, plans, and the duties and responsibilities of collaborators. This initiative is very timely and relevant, and will really address the needs of our fishers to produce more *tilapia* and earn more.”

Topics covered during the virtual training were delivered by partner-experts from DA-Bureau of Fisheries and Aquatic Resources-National Freshwater Fisheries Technology Center (BFAR-NFFTC).

Jesusa Q. Undan, aquaculturist I, introduced the basic biology of *tilapia*; Milagros M. Apaga, aquaculturist II, discussed broodstock management of *tilapia*; Julie Ann R. Mateo, aquaculturist I, covered the topic modified intensive *tilapia* hatchery; and Evelyn H. Zafra, senior aquaculturist, delivered a lecture on fry rearing of *tilapia* to advanced fingerling stage.

Meanwhile, Ma. Jodecel C. Danting, BFAR-NFFTC chief, detailed plans about the project’s implementation. “*Sana po ito ang maging magandang simula upang magkatulungan tayong lahat lalo upang maitaas ang produksyon ng tilapia lalo sa Region 3 na itinuturing na tilapia capital ng Philippines,*” she highlighted.

Other key officials that graced the conduct of the four-day activity were Joell H. Lales, DA-BAR Program Development Division head and 3R program lead; Salvacion M. Ritual, DA-BAR Program Monitoring and Development Division head and 3R Fisheries Production Support sub-group lead; Dr. Lilian C. Garcia, DA-NFRDI acting executive director; Dr. Milagros Morales, DA-BFAR Cagayan Valley regional director; and Dr. Wilfredo M. Cruz, DA-BFAR Central Luzon regional director. ### **(Jhon Marvin R. Surio)**

DA-Western Visayas' *batuan* project among the 2020 CSC regional winners



PHOTOS COURTESY OF RRECOTER/DA-WESTERN VISAYAS

Among the awardees of the 2020 Search for Outstanding Government Workers, Science Research Specialists Nora Garpa (left) and Elizabeth Amit (right) receive their team's certificate of recognition during the CSC Regional Office Western Visayas Pasidungog 2020.

As one of the regional winners of the 2020 Search for Outstanding Government Workers under the Honor Awards Program of the Civil Service Commission (CSC), the project "Production and Technology Promotion of *Batuan* in Region 6" received its certificate of recognition on 24 September 2020 at the Iloilo Esplanade in Mandurriao, Iloilo City during the Pasidungog 2020.

Funded by the Department of Agriculture-Bureau of Agricultural Research (DA-BAR) through its National Technology Commercialization Program, the project focused on the product development of *batuan* into powder, jam, jelly, and puree, among others. Paving the way to an emerging enterprise, project activities also prioritized ensuring that produced technologies will reach its intended community or partner-beneficiaries for a technology-based industry.

Along with various promotion activities, various processing trainings

were provided to technology adopters. Aside from its usual purpose as souring agent to various local dishes, project researchers from the DA-Western Visayas continue to explore and introduce more potential uses of the *batuan* fruit, such as making value-added products such as *batuan* tart and *piaya*.

With the theme "Philippine Civil Service@120: Public Sector in the Age of Digital Transformation," the CSC Awarding Ceremony recognized outstanding performances and accomplishments of servant heroes, or fellow government officials and employees, in the Western Visayas region in celebration of the 120th Philippine Civil Service Anniversary.

"Every year and during our anniversary, we recognize outstanding government employees in our Honor Awards Program, the highest award in public service, which include: the Lingkod ng Bayan, the Dangal ng Bayan, and Pag-asa ng Bayan," said CSC Western Visayas region Director

Nelson Sarmiento during his opening remarks.

The abovementioned DA-BAR-funded project falls under the CSC Pag-asa Award group category that is granted to individuals whose efforts and initiatives directly made an impact on more than one department of the government.

Receiving the certificate of recognition for the *Batuan* project from DA-Western Visayas, on behalf of their team, were Science Research Specialists Elizabeth Amit and Nora Garpa. They were later joined by DA-Western Visayas Regional Executive Director Remelyn Recoter.

The Pasidungog 2020 was concluded in appreciation of every honoree, nominator, agency heads, and partner agencies, among others, for their gifts of service and presence. It was hoped for that everyone will continue to keep the fire burning for the love of public service. ### (Jireh Alodia R. Laxamana)

BAR holds training on internal auditing



The Department of Agriculture-Bureau of Agricultural Research (DA-BAR) conducted a two-day Training on Effective Internal QMS Auditing on 1-2 September 2020 via video conferencing.

The training was held in preparation for the renewal of the bureau's ISO 9001:2015 certification scheduled towards the end of the year.

Participants of the training included assigned internal auditors from the different divisions of the bureau.

Facilitated by Synergized Macro Solutions, Inc. (SMS), the bureau's consultant, the two-day training aimed to update the knowledge and capacitate the bureau's internal auditors to better equip them with the

necessary skills as required by ISO standards.

Susan Soliven, SMS president and lead consultant, served as the training's primary facilitator. Five modules were covered which include basics of internal audit; creating effective audit checklists; documenting audit findings; analysis, reporting, and verification of audit results; and competence and attributes of auditors.

Earlier this year, Agriculture Secretary William Dar instructed DA and all its attached agencies and staff bureaus to be certified by ISO.

ISO standards are sought to ensure the quality of products delivered and services rendered by an agency or company to their respective clients. ### (Jhon Marvin R. Surio)

UPLB turns over...from page 1
8-million project titled, "Edible Landscaping: *Magtanim ng Gulay para sa Isang Masagana, Malusog, at Makulay na Buhay,*" funded by the DA-Bureau of Agricultural Research under its Resiliency Response Research for Development program for the New Normal.

Under the said project, demo gardens will be set up at the central offices of DA, DA-BAR, and DA-Agricultural Training Institute to further promote EL in urban communities. The demo gardens will serve as a model for urban gardening technologies. More starter kits will also be distributed to different local government units and regional field offices of DA.

"We have been advocating this innovative technology for so many years already," said UPLB Chancellor Sanchez, project leader.

UPLB, through its EL team, and DA-BAR have been working together to promote edible landscaping since 2009. Through this partnership, UPLB EL team has developed edible landscaping kits and presentation materials for adults and kids. They established numerous techno demo gardens and forged linkages with various institutions across the country. As of August 2020, more than 7,000 individuals across the country were trained on edible landscaping.

"It took a pandemic to shed a brighter light on this mature technology. Let us capitalize on this challenge as we turn it into an opportunity to further promote edible landscaping," Secretary Dar called for action.

Edible landscaping combines various principles of landscape design with the existing technologies for small-scale crop production and maximizes the use of all available resources. Vegetables, fruits, medicinal plants, and herbs are planted instead of ornamentals. ### (UPLB press release/Rena S. Hermoso)

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