2022

ANNUAL REPORT

Raising the BAR of Excellence:
Bringing Adaptive Reforms

About the Cover

The cover is designed in the shape of a triangle to showcase stability and support. With the theme, “Bringing Adaptive Reforms," the key people consisting of farmers and researchers are formed in a triangle to exhibit their capability of adapting in the face of change in the agriculture and fisheries sector–to which changes are brought by improvements and reforms in R4D programs, strategies, and technologies crafted by the bureau’s management and partner-institutions.

Content

Acronyms and abbreviations used

A/F	Agriculture and fisheries
ABARE	Association of Bureau of Agricultural Research Employees
AFACI	Asian Food and Agriculture Cooperation Initiative
AMPED	Agribiosystems Machinery and Power Engineering Division
ASEAN-CGIAR	Association of Southeast Asian Nations-The Consortium of International Agricultural Research Centers
ATWGARD	ASEAN Technical Working Group on Agricultural Research and Development
BAR	Bureau of Agricultural Research
BIOMECH	Biosystems Mechanization
BIOTECH	National Institute of Molecular Biology and Biotechnology
BPI-BNCRDPSC	Bureau of Plant Industry-Baguio National Crop Research, Development and Production Support Center
BSU	Benguet State University
CABI	Centre for Agriculture and Biosciences International
CEAT	College of Engineering and Agroindustrial Technology
CLSU	Central Luzon State University
CSC	Civil Service Commission
CVRC	Cagayan Valley Research Center
DA	Department of Agriculture
DAFI	Days after flower induction
DBMS	Database Management System
DepEd	Department of Education
DFA	Department of Foreign Affairs
DICT	Department of Information and Communications Technology
DMMSU	Don Mariano Marcos State University
DTI	Department of Trade and Industry
FAW	Fall armyworm
FAO	Food and Agriculture Organization
FFRDC	Freshwater Fisheries Research and Development Center
FPAC	FLOW of Pariir Agriculture Cooperative
HRMU	Human Resource Management Unit
HVCD	High Value Crops Development
IABE	Institute of Agricultural and Biosystems Engineering and Center for Agri-Fisheries
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICTS	Information and Communications Technology Service

Acronyms and abbreviations used

IfSU	Ifugao State University
IMS	Information Management Section
IPB-GTRRO	Institute of Plant Breeding-Germplasm and Technology Registration and Release Office
IPOPHL	Intellectual Property Office of the Philippines
iREB	Intensified Research-Based Enterprise Buildup
IRRI	International Rice Research Institute
KEMPC	Kibungan Employees Multipurpose Cooperative
KMISD	Knowledge Management and Information Systems Division
KNU	Kyungpook National University
LGUs	Local Government Units
MAMI	Modified Agricultural Mechanization Index
MITH	Modified intensive tilapia hatchery
MP Seeder	Multi-purpose Seeder
NAFRDEAP	National Agriculture and Fisheries Research for Development and Extension Agenda and Programs
NFRDI	National Fisheries Research and Development Institute
NPV	Nucleopolyhedrovirus
OAW	Onion armyworm
oISSP	Online Information Systems Strategic Plan
PCC	Philippine Carabao Center
PhilRice	Philippine Rice Research Institute
PhilRootcrops	Philippine Root Crops Research and Training Center
POT	Package of technology
R4D	Research for Development
R4DE	Research for Development and Extension
RCD	Research Coordination Division
RPDD	Research Program Development Division
RR4DEN	Regional Research for Development and Extension Network
RRDEN	Regional Research and Development and Extension Network
SCALE-UP	Sustainable Community-based Action R4DE for Livelihood Enhancement, Upliftment, and Prosperity
SCS	Scientific Career System
SEAFDEC	Southeast Asian Fisheries and Development Center
SUCs	State universities and colleges
UPLB	University of the Philippines Los Baños
VSU	Visayas State University
YLP	Yamang Lupa Program

Message from the Director

OIC Joell H. Lales

Mandated to coordinate all agricultural research for its maximum utility to agriculture, the DA-BAR shifted its focus from supporting traditional research to scaling up of ready and mature technologies to help farmers and fishers increase their volume of production and improve the quality of their harvest.

Major key challenges such as pandemic recovery, economic crisis, food and nutrition insecurity, and climate change, among other things made 2022 a hard year for the sector. But the DA continues to find ways to cushion their impact by exploring all strategies in ensuring food security and affordability for the nation's more than 115 million population.

After winning the elections in May, elected President of the Republic Ferdinand "Bongbong" R. Marcos Jr. took the helm of the Agriculture Department. The president giving top priority to agriculture, raised the budget by 40% in 2022 with the aim to transform agriculture as one of the main drivers for growth and employment through the support and cooperation of all the department's bureaus, attached agencies, and corporations highlighting the significance of research for R4D and innovations to reinforce the agricultural supply and value chain.

Mandated to coordinate all agricultural research for its maximum utility to agriculture, the DA-BAR shifted its focus from supporting traditional research to scaling up of ready and mature technologies to help farmers and fishers increase their volume of production and improve the quality of their harvest. Technologies that address pests and diseases on major crops, proper storage, and increasing shelf-life of harvests were funded, tested, and disseminated to farmers through the help of other stakeholders to lessen farming losses. Production and value-adding technologies for livestock, poultry, and fisheries were also supported to empower farmers to become agri-entrepreneurs through technology adoption and commercialization.

Using the strategy of soil health assessment, science-based innovations, cutting edge technologies, and partnership approach in increasing farm productivity, the bureau launched its SCALE UP in 2022 as the new DA-BAR flagship R4DE program.

The bureau also shifted its focus on programs with greater involvement of farmers- and fisher-partners as essential collaborators. Further is

the linkaging with various stakeholders with resources which when combined with us would benefit more farmers and fisherfolk in the process.

Two exemplary administrators also manned the bureau in 2022 before I took the reins later last year. Dr. Junel B. Soriano and Dr. Sailila E. Abdula both contributed a lot to the accomplishments of the bureau in 2022 which are all featured in this Annual Report.

I am honored to present this report as proof that despite the challenges of the year that passed, the bureau remained committed to its mandate of ensuring that all agricultural research is coordinated and undertaken for maximum utility to agriculture.

To accomplish our goals to be of better service to our farmers and fishers, we also have to elevate the quality of our service. So, before the year 2022 ended, the bureau commissioned a team of experts to conduct a rapid assessment of our programs and management that will provide a comprehensive and objective review of what we do and recommend what areas need improvements.

We bring in experts and experienced leaders from both public and private sectors under a more inclusive and participatory mode of planning and consultations who can offer varied perspectives and inputs to the bureau's R4D strategies and programs to effectively and responsibly address the challenges and issues faced by the sector.

With these activities and more, we aim to pursue a higher level of excellence in the services we offer to our ultimate beneficiaries — the farmers and fisherfolk. This we can only achieve by working together with the bureau's best asset — our people.

Raising the BAR of Excellence is not an easy task, but together we can build the agenda of BAR and raise our service to a higher level.

The bureau also shifted its focus on programs with greater involvement of farmers-and fisher-partners as essential collaborators. Further is the linkaging with various stakeholders with resources which when combined with us would benefit more farmers and fisherfolk in the process.

Program highlights under three leaderships

The bureau's R4D thrust and focus underwent several changes as a result of the transition in its top management. For 2022, DA-BAR had three directors and each introduced a pool of fresh ideas for the bureau, supported by their respective guiding principles and frameworks. With this is the challenge to proactively adapt and tailor-fit responsive programs and pathways pursued under each leadership to the mandate of the bureau, ensuring that the quality of service being delivered to its stakeholders is consistent, and continuously developing and progressing.

JUNEL B. SORIANO, PhD

Scaling R4DE initiatives and expanding A/F network

Recognizing the need to strengthen the research and extension linkage, the bureau under the leadership of Dr. Junel B. Soriano, has collaborated with the DA-Agricultural Training Institute in developing and institutionalizing an R4DE continuum. The continuum highlights the process of technology development up to the adoption of target beneficiaries.

Highlighted in this scaling initiative is the revival of the department's YLP in the form of the SCALE-UP program. The SCALE-UP program was developed in the hopes of providing innovative and sustainable agriculture through the application of an enhanced YLP mechanism.

Similarly, with scaling R4DE to bridge technologies to its targeted beneficiaries, director Soriano also pursued forging partnerships with several public and private institutions in order to expand the bureau's network and linkages. With this diverse network of institutions, windows of opportunities were opened for the bureau in terms of technology commercialization, food mobilization, and human resources capacity development, among other things.

Capacitating A/F Human Resources through Institutional Development

Taking off from the bigger system, the agenda shifted to give focus on empowering the bureau's human resources—the very foundation that enables DA-BAR to fulfill its core function. With the leadership of Dr. Sailila E. Abdula, the professional development of human resources was put first in line. Several capacity building opportunities were opened for all personnel, focusing not only on their technical skills but also touching on their personal and professional development.

Director Abdula also pushed for the conduct of a rapid assessment of the bureau's management and programs alike. This rapid assessment was done with the intent to provide a comprehensive and objective review of the bureau and how it delivers its mandate for maximum utilization of the agriculture and fisheries sector.

SAILILA E. ABDULA, PhD

JOELL H. LALES

Encouraging Inclusive and Participatory A/F R4DE

After touching on the agriculture and fisheries R4DE system as well as the human resources as drivers of development, the current management delves deep to pursue an approach that will involve stakeholders, most importantly farmers and fisherfolk, in the R4DE process. Gradually transitioning with a new agenda, director Joell H. Lales encourages a grassroot-level mechanism, catering to areas that are identified as having high poverty incidence, characterized as well with low agricultural productivity. This approach is envisioned to operationalize through an equitable, inclusive, and participatory R4DE program management.

Even with the constant changes in management and modifications in the bureau's R4D priorities, the bureau stood firm in its commitment to provide responsive R4D support and interventions to its partners and stakeholders. This web of ideas, strategies, and approaches all contribute to the constant improvement of the bureau's mandate and services.

2022 Financial Overview

PhP 814,722,272.44
total amount received from 2022 **General Appropriation Act** in support to the bureau's operations and programs, activities, and projects.

Program Fund
Distribution (in PhP millions)

alloted obligated disbursed

NATIONAL RICE PROGRAM
includes basic and applied researches, related IEC materials and activities

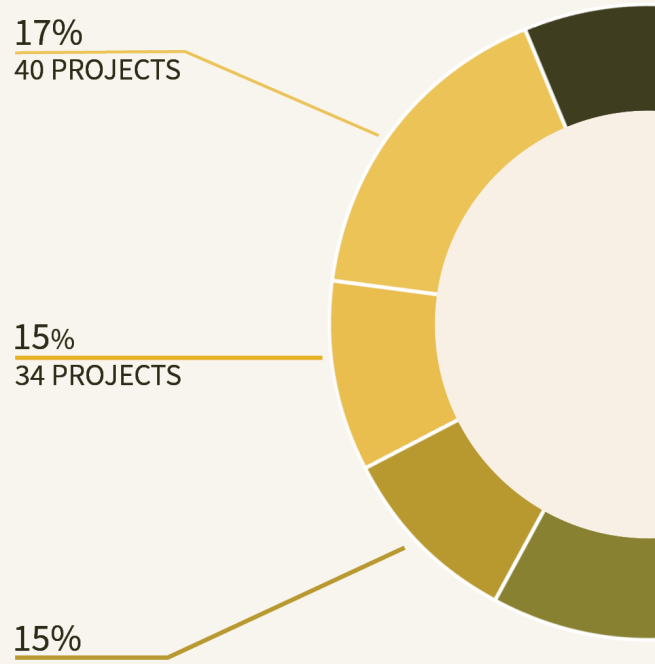
197.06M
197.06M
192.73M

NATIONAL CORN PROGRAM
includes corn, cassava, and sorghum basic and applied researches

60.00M
60.00M
59.50M

BIOTECHNOLOGY PROGRAM
includes allocated funds under DA-BAR's AFMA funds for basic researches on biotechnology

118.00M
122.00M
101.61M



99%

OBLIGATIONS

PhP 807,526,875.73

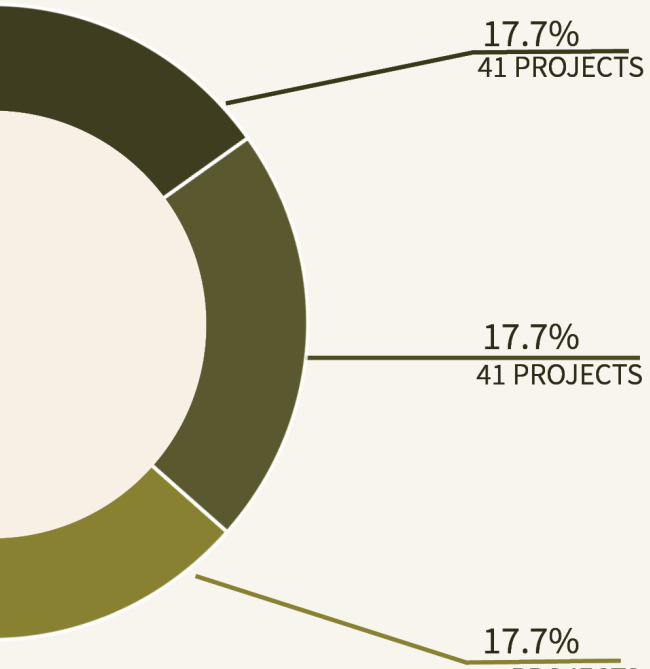
incurred and committed to be paid by the bureau from the total fund allotment

95%

DISBURSED

PhP 766,900,599.27

released by the bureau as payment for obligated fund allotment



17.7%
41 PROJECTS

HIGH VALUE CROPS DEVELOPMENT PROGRAM

includes basic and applied researches and high value crops-based researches

17.7%
41 PROJECTS

NATIONAL ORGANIC AGICULTURE PROGRAM

includes basic and applied researches, organic agriculture-based researches, research facilities and equipment, and related IEC materials

17.7%
41 PROJECTS

VARIOUS RESEARCH AND DEVELOPMENT

includes allocated funds under DA-BAR's AFMA fund for RFDG livestock and poultry, fisheries and aquaculture, climate change R4D, policy researches, and scholarship grant

Featured technologies

Rice

Increasing productivity and income with MP seeder

In order to reduce the production cost of dry-seeded rice by 20-30% on crop establishment, DA-PhilRice, UPLB, and IRRI developed a mechanized dry direct seeding technology suitable for rainfed lowland areas in several provinces. The MP Seeder is an attachment to a two-wheel hand tractor that enables simultaneous seeding and fertilizer application for corn, which can also be applicable to rice and mungbean.

The machine consists of the following components namely, a) seed-metering devices that control the dropping of seeds from the hoppers; b) a power-transmission system that generates power from its wheels to rotate the metering device; c) a furrow opener and closer that creates small canals where seeds are deposited and cover with soil afterward; d) seed hoppers that temporarily store the seeds during seeding operation; and e) the delivery tubes that convey the metered seeds to the soil.

It has a one-meter swath covering four rows when seeding rice and two rows when seeding corn or mungbean in a single passing. It can finish one hectare in 3 hours of operation or approximately 2.5 ha per day for each crop.

Through the MP Seeder, there is a higher net income of PhP 12,000 and PhP 17,700 per hectare, respectively. This goes the same with hybrid corn (PhP 16,500), white corn (PhP 16,800), and hybrid sweet corn (PhP 47,000).

Various FCAs such as Bagnos Multi-Purpose Cooperative, Luga Farmer's Association, Sulbec-Dayag Farmers Association, and Bacabac Farmer's Producers Cooperative adapted the MP Seeder as part of their farm machineries.

Featured technologies

Rice

Identifying mechanization gaps in rice and corn production

To provide an efficient decision tool in policymaking and development planning for the agricultural mechanization sector based on identified gaps, AMPED, IABE, BIOMECH, and CEAT-UPLB developed an assessment procedure to determine the level of mechanization in CALABARZON.

MAMI evaluates the utilization of agricultural mechanization technologies using various power sources and integration of a target level of mechanization of a given area for a given period. MAMI served as a basis during the assessment and addressed the need to standardize the protocol for data interpretation. Parameters considered in the computation of MAMI include soil type, crop variety, windows of operation, crop yield, and cultural practices.

Mechanization can expand production leading to the improvement of farm operations in terms of timeliness and cost-effectiveness. Moreover, it can also reduce postharvest losses, compensate labor shortages, reduce drudgery, and widen application of the different power sources for crop processing, irrigation, and infrastructure improvement.

Using the baseline data, the project was able to establish the respondents' socio-demographic profiles, farm production performance, agricultural practices, marketing system, and challenges on the present agricultural system. In CALABARZON, it was found that the man-machine system was utilized in rice production, while MIMAROPA focused on high producing areas where large machineries are available. This goes the same in corn production system.

The assessment also showed that rice and corn farmers are in need of support to address major problems such as climate-resilient practices and technologies, strategies to address low selling of produce, and provision of appropriate drying facilities.

Featured technologies

Corn and Cassava

Molding biocontrol agent against armyworms

Metarhizium rileyi was isolated and characterized from infected OAW larvae, and it was discovered to be pathogenic to this pest. Other beneficial organisms such as *Braconidae*, earwigs, and NPV have the potential to manage this pest in the field.

Infective propagules of this friendly mold infect armyworms by attaching to the insect cuticle. It infects the armyworm indefinitely, preventing growth and development and eventually killing the pest. Infected worms harden and mycelia, a white mold, covers the insect's body. The mold sporulates within 24 hours, producing light olive green spores. The dead armyworm has now been either mycosed or mummified.

The effectiveness of *M. rileyi* against various stages of FAW, OAW, and true armyworm was determined by UPLB-NCPC through a series of laboratory experiments. Initial experimental field trials in *M. rileyi* sweet corn resulted in reduced FAW infestation and damage when applied weekly for 5 consecutive weeks beginning 10 to 12 days after sowing.

As not yet commercially available in the country, researches on how to further improve the initial product are still being conducted, hence, to pursue product registration and seek partners to market it once there is a formulated product in powder or liquid form.

Currently, the team provides webinars and extension services across the country. Field trials are also planned for the year 2023, possibly alongside other biocontrol agents such as NPV and friendly nematodes.

Featured technologies

Corn and Cassava

Resisting CPD through sustainable and eco-friendly solutions

Once Phytoplasma infects a cassava plant, most often, it will exhibit symptoms like yellowing of leaves and having purplish coloration, shortened internodes and a bunchy top look, and several slender stems giving it the appearance of a witches' broom. Significantly, the infection affects growth and development, decreases yield, and lowers the starch and dry matter content of the tuberous roots. It also elevates the hydrogen cyanide content of cassava.

That is why researchers from PhilRootcrops at the VSU aimed to address the invasive and emerging pests and diseases in cassava plants by assessing and determining Phytoplasma-resistant or tolerant cassava varieties which can offer sustainable and eco-friendly pest control solutions to combat cassava phytoplasma disease.

To assess the cassava varieties, 10 moderately resistant and resistant NSIC-registered cassava varieties and two susceptible ones were subjected to phytoplasma infection adaptability trials in 5 regions, namely the Cagayan Valley, Central Luzon, Central Visayas, Eastern Visayas, and Northern Mindanao.

Based on the significant findings, Northern Mindanao produced the highest yield amongst the four regions, followed by Central Visayas, Eastern Visayas, and Cagayan Valley.

Based on NSIC-registered cassava's tolerance to the effect of streptomycin in terms of germination and mortality of stakes after pre-planting treatment, all varieties, except for UPLCv 3, PSBCv 12, NSIC Cv 25, and NSIC Cv 33, were tolerant to preplanting treatment for two trials.

Despite several setbacks during the experiment, the team delivered remarkable findings and engaged end-users in the adaptability trial in one of the biggest cassava production areas in Lanao del Sur for starch processing. Two varieties, NSIC-Cv 12 and NSIC Cv-33, are selected based on yield and starch content and planted in 1 and 5 hectares nurseries, respectively, for planting materials after three years from the start of the adaptability trial.

Featured technologies

Corn and Cassava

The nixtamalized corn and its benefits
In 2019, UPLB focused on maximizing the nutritive values of nixtamalized Philippine corn such as proximate content, mineral content, and mineral availability.

This is to improve the nutritional quality of two locally available corn, namely IPB Var 6 and Lagkitan, through the process of cooking and steeping in an alkaline solution known as nixtamalization.

The nixtamalized Philippine Corn or “PhiNixC” were used in the form of kernels, grits, and flour. PhiNixC products were standardized and are now ready for commercialization. Some of the PhiNixC products developed were pancake/muffin mix, loaf bread, *pandesal*, *puto*, fermented corn beverage, *espasol*, *palitaw*, *buchi*, and rice-corn blend.

Developing high-value nixtamalized corn products that are nutritionally rich and have health-promoting potentials through innovative ways that can be made even at the household level will promote the consumption of corn as an alternative or complementary food that will help improve the nutrition and health status of Filipino communities.

Featured technologies

High Value Crops

Managing mango cecid fly in Ilocos region
Contrary to previous studies, the incidence of damage caused by cecid fly at 32 DAFI was not observed across project locations in Malasiqui, Pangasinan; San Fernando City, La Union; Sta. Cruz, Ilocos Sur; and Pinili, Ilocos Norte. Instead, the DA-Ilocos region reported that attacks occurred at 42 DAFI and fruit drops reached 25% on average. Infestation was noted at 44 to 60 DAFI when temperature dropped up to 19 degrees Celsius and consecutive rains occurred.

DA-Ilocos region proposed a management strategy on cecid fly using organic-based pesticide and adhering to basic integrated pest management principles. Through FFS, they trained 78 mango growers on integrated pest management for mango production.

In Pangasinan and Ilocos Norte, the efficiency of spraying distillery slops with *Metarhizium anisopliae*, *Beauveria basiana* and cultured yeasts, as well as the microbial control agent *Bacillus amyloliquefaciens* at a rate of 6L per 200L water is comparable with the results of using chemical sprays. Hence, experts from the DA-Ilocos region recommend these treatments, along with the recommended cultural management practices, in producing safe and quality Carabao mangoes.

Featured technologies

High Value Crops

Developing waterlogging tolerant tomato populations

Promising tomato accessions were selected from the screening of 113 tomato genotypes for waterlogging tolerance under greenhouse conditions. The series of screening conducted showed that the tomatoes evaluated had 0 to 58% survival after 1 week of flooding. The commercial varieties performed poorly with 0 to 37.5% survival. The field evaluation in Pangasinan showed that germplasm Acc.830 selected from greenhouse screening performed better than the widely cultivated commercial variety, Diamante max in terms of survival and yield. Tomato variety, Nagcarlan had the highest survival rate among released varieties under greenhouse conditions and outyielded the check commercial varieties under field conditions. This variety, however, was found to be susceptible to bacterial wilt.

Both field and greenhouse evaluations showed the high correlation of percent survival with adventitious roots formation. The identified tolerant accessions were used in the development of waterlogging tolerant populations while the best-performing varieties were recommended as stop-gap varieties for off-season production in flood-prone areas.

Featured technologies

High Value Crops

Developing okra varieties for local, export markets
The local market prefers the smooth type okra, while the export market prefers the 5-angled one. Breeding these two will produce varieties that could increase the production of okra.

UPLB conducted observational trials, hybridization, generation advancement, and yield trials. Nutritional quality evaluation revealed that most of the proteins, fat, flavonoids, and total phenols came from seeds and not much on the flesh. Some lines have higher phytochemical profile and antioxidant activity over the other accessions. Promising genetic stocks from several batches of generation advance were subjected to a series of yield trials. For the 5-angled okra, six lines outperformed the check variety in terms of yield. While two smooth type lines had higher yield than check.

Six lines from the 5-angled okra and two lines from smooth type have higher yield than the check variety. One of the smooth type okra (OkC 18-06-0-0-0, with proposed variety name Dilag) was recommended to IPB-GTRRO. Other lines will undergo further trials for possible variety registration.

Featured technologies

High Value Crops

Turning wastes into value-added products
Earlier studies showed that almost all nutrient contents of dragon fruit are found on its peels. With this premise, CLSU studied the peels of H*ylocereus undatus* and *Hylocereus polyrhizus* (white and red flesh) and found that the former has higher phytochemical properties and antioxidant activity.

As a good source of antioxidants and other bioactive agents, the dragon fruit peels were used to develop various value-added products such as granola bar, grenadine syrup, crackers, vitamin gummy, beauty products, and specialty paper. These products are a good source of additional revenue to dragon fruit farmers in the Philippines, in addition to reducing agricultural waste.

To augment the income of mango growers, BIOTECH-UPLB developed a phenolic powder made from the mango leaves, flowers, branches, barks, damaged fruits, and early fruit drops. Phenolics are compounds known for its antioxidant bioactivities and other health-promoting bioactivities.

The phenolic powder made from mango branch and bark was processed to make Diaferin, a natural effective health supplement for diabetics. While the phenolics-rich extracts from the early fruit drops were processed into a ready-to-drink juice, Diamangga. It has high natural phenolic antioxidants, low sugar content, and strong alpha-glucosidase inhibitory activity making it a healthy juice drink suitable for diabetics.

Featured technologies

High Value Crops

Innovative food products from various legumes
To introduce a healthier meat alternative, provide an additional income to KEMPC, and increase the utilization of soybeans, BSU developed full-fatted soybean-based food products (ie. burger patty, sweet longganisa, and nuggets). These products were determined to have considerable amounts of protein, sodium, potassium, and calcium.

Consumer behavior analysis revealed that the said products have the potential to be viable in Baguio City and Benguet. While the cost analysis showed that the estimated selling price is competitive as it is lower compared to its competitors, especially the nuggets.

The results on the stability and shelf life show minimal aerobic count, which means that the said products are safe for human consumption.

Ten members of the KEMPC underwent training on its production with the intention of mass producing it in the future.

In 2018, DA-CVRC developed various mungbean-based food products as a value-adding intervention in support to the mungbean farmers in the region. Under the Mang Bean brand, these products include instant ginisang munggo, instant mungbean noodles and vacuum-fried sprouts. Nutritional analysis showed that these products are high in protein and fiber and are at par with the existing commercial products.

The payback period for the different established enterprises are as follows: 1) 1.87 years for Ginisang Munggo + Mang Bean Noodles and Vacuum Fried Sprouts; 2) 2.05 years for Ginisang Munggo + Mungbean Noodles; and 3) 2.97 years for Vacuum Fried Sprouts and Fresh Mungbean Sprouts.

FPAC is the technology taker and recipient of a PhP 2.5M mungbean sprouting and processing facility funded by the DA-Cagayan Valley High Value Program. They are in-charge of the mass production and commercialization of the Mang Bean products. Through the project, the cooperative was able to produce 68,593 pieces of Mang Bean products which gave them a gross income of PhP 1,412,496. Their clients are the Provincial Welfare and Social Development Office of Isabela, DepEd-Cagayan Valley, DTI-Cagayan, and DA-Cagayan Valley HVCD Unit.

Featured technologies

Livestock

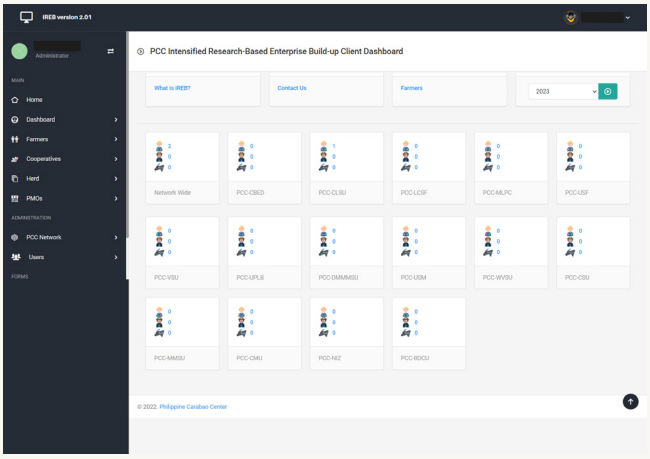
Enhanced database management system for carapreneurs

A record-keeping tool iREB DBMS was introduced to carabao raisers nationwide. This database system helps farmers keep track of the overall productivity and profitability of their family carabao production business. The iREB DBMS is DA-PCC's analogy of the changing business mindset of its customer - the Carabao supply chain industry players. It is anchored on the renewed habit of recording amongst Carabao farm owners by way of establishing their confidence on the 'debt-credit' and ROI aspects of their dairy enterprise. On reel time, each iREB DBMS Carapreneur gets real account of his/her business performance and indices to guide their decisions in terms of investment on technology adoption, access to information and interface with their cooperative, industry players, government agencies, among others.

Specifically, the iREB DBMS created by the DA-PCC intends to co-create the business attitude of its clients and convey the viability of Carabao-based enterprises and its empowering capacity to change the lives amongst rural farming communities. Through rigorous, creativity and consistency in business training and technology-based extension service delivery, these iREB dashboard users comprised the pool of *'negosyante sa pangangalabaw'* that vouched for evidence-based 'Masaganang Ani at Mataas na Kita' with production and profit indices relative with the industry standards.

Web-based version

Through a dashboard online portal, production and financial reports are made available as reference for operation related decisions at the client level, as well as serve as research input relevant for economic policy development, at the agency level. DA-BAR provided the needed and relevant support to improve the data gathering, analysis and upgrade the web-based and app-based versions of the system. And, flex the new features and introduce the same as monitoring systems for stakeholders of the carabao industry.



This version collects data and processes them into the dashboard's end output. This dashboard contains production and business performance parameters that can determine the business unit's strengths and weaknesses and be the basis for decision-making. Different users were created based on the limitation of data presentation.

App-based version

The app version is used for client profiling and data collection. Creating an account to input the necessary data can be done offline and then stored on the mobile device. After connecting to the internet, the data will be carried to the system's database and processed into dashboards. The full function can be accessed through the web-based version.

Capacity building trainings on using the enhanced iREB DBMS Dashboard Online Portal were conducted in 2022 for DA-PCC staff and its value chain clientele: 1 for Visayas and Mindanao Clusters and 1 in Luzon Cluster. Eighty farmers and trainers were trained on the updated iREB DBMS Dashboard Online Portal. At least 50% of the farmers enrolled have updated their profile and/or business performance with a total of 2,500 (86%) enterprises out of 2,898 being enrolled in the iREB Dashboard.

Featured technologies

Capture Fisheries and Aquaculture

Ensuring a sustainable quality of seed stock through improved milkfish POTs
Aimed at addressing the problem of inefficient and low production of milkfish fingerlings, DA-NFRDI capacitated and engaged village-level hatcheries and nurseries fisherfolk-partners toward the adoption of the improved POTs developed by SEAFDEC.

The POTs, with focus on efficient feeding and water management, involves the provision of appropriate density of natural live food for the fry; and maintenance of optimum water quality through proper water management using filtered and/or treated water, for faster growth and higher survival rate.

Fisherfolk-partners acquired improved practices in rearing milkfish seed stock, such as proper pond preparation for increased production of fingerlings; proper feeding management in larval rearing to achieve high survival of fry; and record-keeping of production, expenses, and income.

The adoption of the POTs resulted in an increase in the productivity and income of fisherfolk-partners. With the adoption of an established protocol on milkfish seed production, the supply of good quality fry and fingerlings had increased to support the local milkfish industry and boost the income of three hatchery and seven nursery operators.

The hatchery cooperators produced a total of 11M fry in ten larval rearing cycles. Meanwhile, nursery cooperators produced a total of 3.6M fingerlings in seven nursery rearing cycles. Survival rate increased to 25-46% in the hatchery upon adoption of POT, from the previous survival rate of 20-40% prior to adoption of POT. Similarly for the nursery, survival rate increased to 47-55% upon adoption of POT, from the previous survival rate of 40-50%.

The fry and fingerlings were sold by the cooperators mainly to Quezon province with an annual net income of PhP 526,789 to PhP 1.9M in the hatchery and PhP 170,476-PhP 229,061 in the nursery, which has increased by 19-55%and 16-26%, respectively.

Featured technologies

Capture Fisheries and Aquaculture

Enhancing seed production of tilapia through refinement of hatchery and nursery protocols

To ensure the availability of quality tilapia fingerlings for stocking to grow-out farms in the local communities of Batangas and Laguna, DA-NFRDI, through its FFRDC, pushed for the adoption of POTs on hatchery and nursery production.

The POTs on hatchery and nursery culture of tilapia provided techniques on how to improve their harvest such as the basic protocol on pond preparation, broodstock management, pest management, harvest, marketing, and record keeping. Further, the refined hatchery and nursery protocols introduced by SEAFDEC focused on efficient breeding methods; proper fry and nursery rearing; pond and water management to increase fish production, growth, and survival rate.

Five hatchery operators and five nursery operators were provided with training and technical assistance to increase their production and income. Through the adoption of the POTs on enhanced fry and fingerling production of tilapia, a remarkable 12% increase in production and 22% increase in profit were attained. Hatchery operators reported 20,613,400 fry production amounting to a profit of PhP 584,279 in six hatchery production cycles. Meanwhile, nursery operators reported a total of 6,031,728 fingerling production with profit of PhP 308,322 in four nursery production cycles.

Several cooperators were also able to gradually expand their hatchery and nursery farms, renovate houses, and acquire additional livelihood such as poultry and livestock due to the increase in their productivity and income.

Moreover, hatchery and nursery cooperators signified strengthened food supply chain through establishment of linkage among themselves to ensure continuous supply of fingerlings for tilapia growers in Taal Lake.

Featured technologies

Capture Fisheries and Aquaculture

Ensuring a sustainable supply of common carp
Production of common carp is increased by improving protocols in the grow-out culture in ponds and cages, strengthening the capacities of communities, and providing additional livelihood to fisherfolk to ensure sustainable food supply for the community and in the local market in the CALABARZON region where common carp is widely accepted as food fish.

DA-NFRDI-FFRDC, in collaboration with DA-BFAR-CALABARZON, and the LGUs in Laguna and Rizal, identified 22 cooperators from four municipalities in Laguna and two municipalities in Rizal. The sites were chosen based on a set of criteria and where BFAR-CALABARZON has collaborative fish production program in the said municipalities.

The POT on the grow-out culture of carp include the source of fingerlings, stocking density, feeding, pond and water management, and fish health management.

The POT for grow-out culture of carps in ponds and in net cages were adopted by the cooperators. Assistance provided were the conduct of online training through a series of lectures; technical assistance; and provision of agricultural inputs such as fingerlings, materials and construction of cages, feeds, pesticides, lime, and fertilizers, for one cycle operation.

Common carp fingerlings totaling 62,360 were dispersed and stocked to the 22 cooperators for both pond and cage culture. And after 8-10 months rearing period, 3.5 metric tons of common carp were harvested from the 22 cooperators, with survival rate ranging from 37.5-84%. The return on investment ranged from 11.7-157.3% and payback period of 0.6 to 8.8 years, respectively.

The volume of production and the profit gained has positive impact to the livelihood of the partner-cooperators and increased supply of common carp in the region.

Featured technologies

Capture Fisheries and Aquaculture

Automating MITH technology
The technology on automation system for intensive tilapia fry production is designed to maintain the optimum range of water quality parameters necessary for the reproduction of tilapia. The system uses sensors to detect the state of water parameters under control and provide signals or inputs to control the display devices called Arduino board. This board will read the inputs and turn it into output, for example, activating a water pump motor.

In optimizing fry production, several factors that should be considered are the broodstock condition, efficiency of the egg/fry collection coupled with efficient incubation system, and good water quality, which should be within the desirable range for reproduction and at an optimum temperature range of 28°C-32°C. On the other hand, low oxygen levels in the water, has negative effect on courtship and in the capacity of the female to incubate eggs and yolk sac fry. Also, it limits active feeding and affects the ability of the fish to prepare for the next breeding cycle.

Upgrading of tilapia hatchery facility into automated and eco-friendly facility using the MITH technology, coupled with recirculating aquaculture system for a more effective and efficient maintenance of the water parameters particularly the temperature and dissolved oxygen that are necessary for the reproduction of tilapia, while the system is also powered by solar energy for continuous operation to ensure complete functionality and efficiency.

The technology increased the hatchery production of quality tilapia fry by 30-40%. In the data gathered, an 81.6% increase in the estimated number of eggs and fry collected during the first cycle and 68.51% in the second cycle, with 80.72% survival rate in the automated MITH compared to the original MITH, was achieved.

With this automation system, enhanced supply of quality seed stock of tilapia, year-round availability of fry and fingerlings, shorter grow-out culture period, and improved yield of tilapia, were achieved and ensured an increase in the income of small hold or village level fish farmers.

Featured technologies

Biotechnology

Introducing 3-in-1 golden rice lines to improve nutritive value and disease resistance
DA-PhilRice introduced the 3-in-1 golden rice (GR) technology to improve the nutritional value and field performance of different Philippine elite rice varieties by incorporating genes for beta-carotene biosynthesis in the grains and bacterial leaf blight and tungro resistance.

As a result of the project, the hybridization of each of the four GR varieties followed by marker-assisted backcrossing resulted in the production of advanced lines that are capable of preserving the yield, grain quality characteristics, and beta-carotene levels of the GR varieties, and at the same time, making these varieties resistant to tungro and bacterial leaf blight. The introduction of these GR varieties will assist farmers in enhancing yields while also potentially improving vitamin A nutrition.

Providing a substantial amount of beta-carotene against Vitamin A deficiency, the said technology is intended for rice and rice by-product consumers. This is important, particularly to those who have limited ability or access to diverse food, including women and children.

Along with this, commercial farmers and seed centers will also benefit from the sale of rice and rice seeds, respectively. For rice farmers, the added agronomic traits such as disease resistance to bacterial leaf blight and tungro diseases will help them reduce production costs and increase harvest and income. Breeders will also benefit by using the lines as donors of GR trait.

This newly developed 3-in-1 (tungro and BLB-resistant beta-carotene-rich) Golden Rice technology, that has been developed by the PhilRice is a breakthrough for both Philippine agriculture, environment, and health. Additional steps are being taken now at PhilRice to have it ready for varietal registration soon.

NSIC Rc 160
GR2E BC4F3

NSIC Rc 216
GR2E BC4F4

NSIC Rc 238
GR2E BC4F5

NSIC Rc 238

NSIC Rc 300

PSB Rc 82

PSB Rc 82
G2RE 38-4-27

Institutional Development

Human Resource Development

Human resources is vital in every organization. Thus, the bureau, through its human resource development program, contributes to boosting and strengthening the capacities of R4D personnel through provision of scholarship grants to NaRDSAF members who want to pursue higher studies.

Degree Scholarship
Eight DA personnel join the pool of DA-BAR scholars pursuing higher studies in different agriculture and fisheries-related fields. Six of which are taking master of sciences in aquaculture, entomology, soil science, and veterinary studies while two PhD students take up development studies and animal science.

During the 50th University of the Philippines Los Baños Commencement Exercises, 15 DA-BAR undergraduate scholars graduated with Latin honors. Ten of the graduates earned Magna Cum Laude while five were Cum Laude. They took up Bachelor of Science in Agriculture major in Horticulture, Agriculture major in Animal Science, Agricultural Biotechnology, Agribusiness Management and Entrepreneurship, Agricultural and Applied Economics, and Development Communication.

Scientific Career System
The SCS is a system of recruitment, career progression, recognition and reward of scientists in the public service administered by the Civil Service Commission and the Department of Science and Technology. Since 1990, DA-BAR has been tasked to serve as secretariat to the DA-Scientific Career Evaluation Committee.

In 2022, the bureau facilitated the evaluation and endorsement of nine applicants to the SCS. These include admissions as scientists or upgrading to higher rank.

Magna Carta for DA S&T Workers
Non-DOST personnel involved in scientific and technological activities may avail the benefits under RA 8439 or Magna Carta for Scientists, Engineers, Researchers, and other Science and Technology Personnel in the Government upon certification of the Head of the Agency as stipulated in RA 11312.

In 2022, DA issued Special Order 1084 designating DA-BAR director as chairperson of the Screening Committee and the bureau as secretariat.

As secretariat, the bureau facilitated the evaluation and endorsement of 1,809 applicants for eligibility. From the total applicants, 517 are new applications while 1,292 are for renewal.

Institutional Development

Research Facilities Development

Enhancing the capacities of R4D partner institutions, DA-BAR's R4D Facilities Development Program provides support in the establishment of upgraded and modernized facilities and equipment. Providing better services is tantamount to improving the quality of research outputs.

Inaugurated R4D Facilities
Aimed to provide immediate response and intervention, DA-Western Visayas established four R4D facilities. The plant tissue culture laboratory, farmers' exhibit and training facility, multipurpose research and development facility, and an organic agriculture center — provide avenues to improve production capacity and product development, hence, enhance technology transfer towards recovery for those whose livelihoods were greatly affected by the pandemic.

Developing and promoting precision technology-based farming, CLSU established the Precision and Digital Agriculture Center to provide a more efficient, productive, sustainable, profitable, and globally competitive agriculture. With several smart farming technologies, it showcases demo farms, greenhouse, and machine sheds to improve and increase the productivity of agricultural activities.

DA-Cagayan Valley established the Mega Greenhouse Nursery to provide a venue in producing quality planting materials through mass propagation technique; breeding area; vegetable seedling production; screening for drought; waterlogging; and area for propagation of identified commodities. To provide a renewable energy source and reduce cost on electric consumption, a solar-powered set up was also installed for seed cold storage buildings. Further, the set-up shall ensure quality seed germination of stored seeds, hence, increase seed production.

Meanwhile, DA-CARAGA established the One-Stop Shop for Knowledge and Product Display/Farmers Information Technology Services Center and Processing Area to showcase technologies and more processed products relevant to crop and livestock production developed by the station.

BSU, on the other hand, built the Agri-Processing Center to house R&D activities for fresh farm produce traded at the Benguet Agri Pinoy Trading Center. These include refinement and training on vegetable processing and value-adding technologies toward providing farmers and consumers income and health benefits.

Precision & Digital Agriculture Center


Mega Greenhouse Nursery

One-Stop Shop


Agri-Processing Center

Institutional Development

ACEF-supported R4D facilities

DMMSU upgraded its Animal Health Laboratory providing various services from diagnostics to conduct of researches on surveillance and plant product development, following strict biosecurity measures. Further, the updated and additional equipment contributed to instruction, research, and extension activities of the university.

In support to the revitalization of the banana industry in the province, IfSU upgraded its Banana Tissue Culture Laboratory aimed at producing disease-free and quality banana planting materials of Saba (Cardaba), Lakatan, Latundan and Cavendish. These planting materials target to assist small scale banana farmers in the different municipalities in Ifugao.

Meanwhile, in terms of processing and enhancing entrepreneurial knowledge and skills, IfSU upgraded the Food Processing Laboratory catering also to women and youth. Services include training on processing of citron lemon, tomato, smoked fish, and other fruits, vegetables, and agricultural products.

Animal Health Laboratory

Banana Tissue Culture Laboratory

Food Processing Laboratory

Other programs and support services

Intellectual Property Rights

DA-BAR continues to strengthen its intellectual property policy in line with its goal to ensure maximum utilization of technologies generated and developed through supported R4D projects.

Assisting scientists and researchers, CLSU successfully received its certificate of registration in 2022 for Nutri Orayz from IPOPHL. DA-BAR filed the trademark in 2021 to cover the developed products like instant rice porridge, rice cookies, and rice milk-based ice cream substitutes.

The bureau also assisted in two utility model applications of CLSU in 2022. These are for the processes in making tilapia ice cream sans rival and another one for Saccharine dragon fruit peel to produce life bar and dragondine syrup. The latter was personally applied by CLSU to IPOPHL with the bureau providing technical assistance.

Process of Making Tilapia Ice Cream Sans Rival
Process of making novelty ice cream via the incorporation of cooked tilapia flakes as means of addition to the dessert's nutritive content, particularly protein and carbohydrates. The process enhanced the flavor of the dessert by combining the rest of the ingredients with a caramel syrup to recreate the popular sans rival

Process of making Saccharine dragon Fruit peel to produce Life Bar and Dragondine syrup
Process of making saccharine peel from dragon fruit peel through a series of steps of boiling and drying. These saccharine peels can produce Life bar, a type of granola bar and Dragondine syrup, a good substitute for Grenadine syrup that is rich in antioxidant and anti-inflammatory properties.

Regional Research for Development and Extension Network

The RRDEN was created as a mechanism for a network of agencies to effectively manage and implement their regional R4DE agenda and programs.

In 2022, DA-BAR and DA-ATI initiated to unify the DA-BAR's RRDEN and DA-ATI's Regional Agriculture and Fisheries Extension Network into the RR4DEN aimed to ensure the effective generation, dissemination, and scaling of AF technologies and address the needs of farmers and fisherfolk in the country. Also, this targets for the R4DE system to have a bigger impact and contribution to the modernization and industrialization of the Philippine A/F sector. The drafted Memorandum Circular for the RR4DEN Guidelines was subjected for a series of review and consultations, and is targeted to be officially signed in early 2023.

Knowledge Management and Information Systems

Through various media forms and platforms, DA-BAR further its commitment and efforts to strengthen the knowledge and information dissemination on the recent R4D-generated technologies, crafted programs and strategies, and related activities supported by the bureau.

PUBLICATIONS

185
articles published

9
infographics shared

27
publications packaged

2,810
publications mailed

technologies disseminated

99

SOCIAL MEDIA

97
photo releases published

829
photos uploaded

40
collateral materials packaged

43
videos uploaded

59
announcements posted

208
posts shared

page insights

Website

Page Views	127,000
New Visitors	41,000

Facebook

New Likes/Followers	8,447
Followers	84,438
Engagements	1,127,758

Youtube

Subscribers	51,002
Total Views	556,043

Instagram

Followers	1,134

ONLINE SEMINAR SERIES

most viewed

16,000 views

1. What's New on Native Chicken Production

14,000 views

2. Straw Mushroom Cultivation in Containers

12,800 views

3. Hybrid Corn Production using Double Row Planting Technology

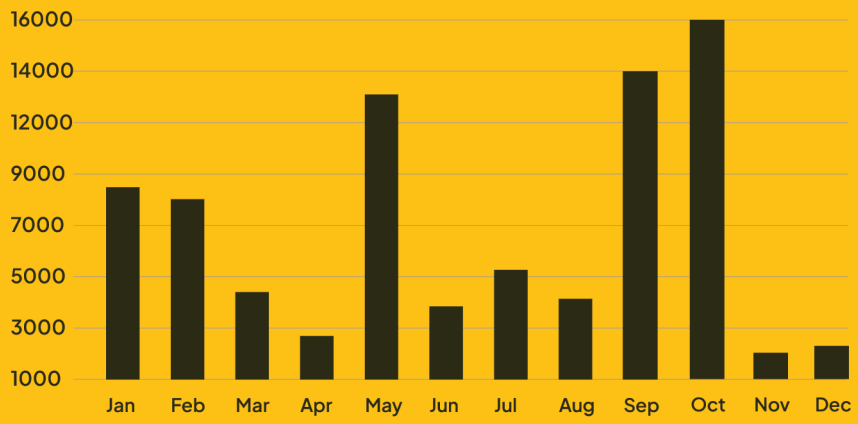
8,600 views

4. DA-ACPC Credit Programs

7, 900 views

5. How to Grow Shiitake on Woods

number of people reached



15 event invites

7 FAQs

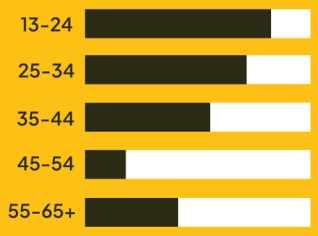
8 infographics

13 feedback forms

attendance sex and age

45.3%

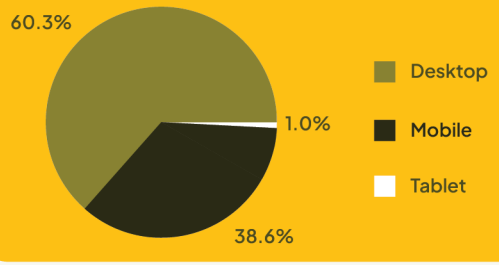
54.7%



INFORMATION SYSTEMS

- 5 DEVELOPED
- 1 IN PROGRESS
- 4 DOCUMENTATIONS
- 4 USER MANUALS PACKAGED
- 3 TRAININGS FACILITATED

users platform device



SCIENTIFIC LITERATURE SYSTEM

672 *Digitized Knowledge Products*

220
Libreng Libro sa BAR
Reservation and pickup

International Partnerships

The DA-BAR, through the coordination of its International R4D Relations Unit, participated in several international activities in 2022.The unit has assisted and endorsed the attendance of official delegations in international meetings and conferences. Some of the notable events conducted in 2022 in which the DA-BAR served as country representative include the 16th ATWGARD Meeting, ASEAN-CGIAR Planning Workshop, 6th AFACI General Assembly, and CABI's 21st Review Conference.

With its effort to strengthen international partnership and linkages, the bureau took part in initiating agriculture and fisheries technical cooperation with international institutions and organizations such as FAO, ICRISAT, KNU, and Foreign Embassies. In addition, the bureau maintained its membership in different International Organizations through facilitation of the country's annual contributions. Listed in these international organizations are IRRI, CGIAR, and CABI.

The country, through the DA-BAR, will be hosting the 17th ATWGARD meeting in April 2023 via video conference. On the other hand, as the host country and co-chairperson of the International Rice Congress in 2023, the Philippine government has allotted PhP 15M from the DFA-International Commitment Fund.

With the existing engagements and future collaborations with international partners, the bureau hopes to further uplift the lives of our farmers and fisherfolk, as well as bring safe and nutritious food on our tables.

Institutional Updates

Awards and Recognition

CSC recognizes bureau's efforts
CSC awards DA-BAR a certificate of appreciation, acknowledging the bureau's commendable public service performance in the course of the COVID-19 pandemic. The award serves as a testament to the unparalleled efforts and unwavering commitment of the bureau to continuously deliver its services and needed interventions to the agriculture and fisheries sector despite the conditions brought about by the pandemic.

DA-BAR honors tenured bureau employees
During the bureau's 35th founding anniversary, the bureau recognized the valuable commitment and dedication of its employees over the past years. The awarded employees were Ronnie V. Rosales, Christopher F. Lazaro, and OIC-assistant director Dr. Anthony B. Obligado who served the bureau in the past 35, 25, and 10 years, respectively.

DA-BAR, through its HRMU or in partnership with R4D collaborating agencies, spearheaded technical and non-technical training activities in 2022, which were participated in by the bureau officials and staff.

CSC
CIVIL SERVICE COMMISSION
Republic of the Philippines

CERTIFICATE OF APPRECIATION

is hereby presented to the

BUREAU OF AGRICULTURAL RESEARCH
NCR

for its delivery of exemplary public service, through the tireless commitment, resiliency and priceless contributions of its government frontliners and workers, amidst the COVID-19 pandemic.

Given this 28th day of September 2022
at the CSC Central Office, Constitution Hills, Diliman, Quezon City

Sgd
ATTY. KARLO A. B. NOGRALES
Chairperson

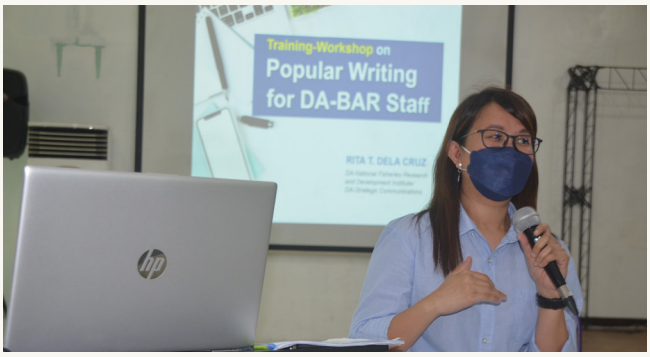
Sgd
ATTY. AILEEN LOURDES A. LIZADA
Commissioner

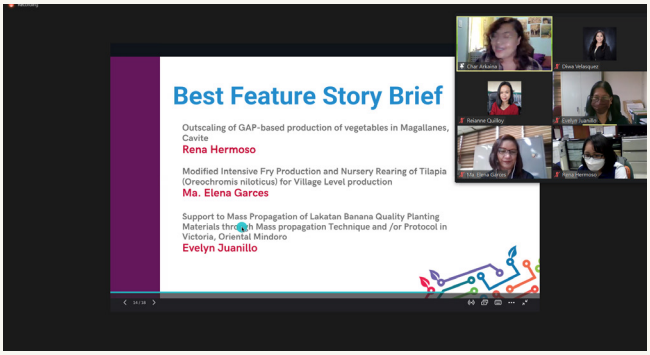
Sgd
ATTY. RYAN ALVIN R. ACOSTA
Commissioner

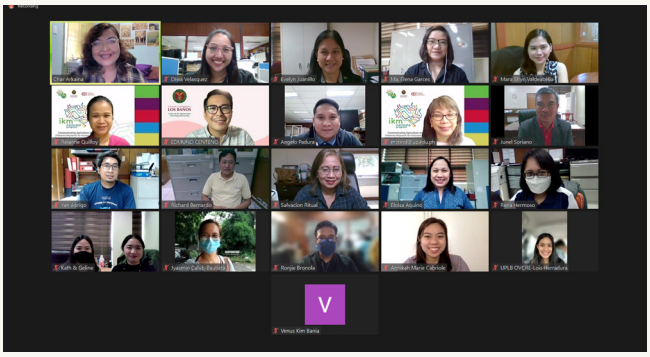
2022PCSA_NCR_C388

Institutional Updates

Engagements of officials, staff to trainings







Technical Trainings

Revitalizing the Technical Capabilities of the Department of Agriculture in Support Transformative Programs and Policies for the Agriculture and Fisheries Sector

DA-BAR in partnership with UPLB conducted a series of online seminars. These include: a) Assessment of Project/Program and Evaluation for Program Implementors attended by the RPDD and RCD staff and program focals; b) Computer Programming and Web Development attended by KMISD staff; c) Community Preparedness and Resilience to the Challenges of Climate Change attended by RPDD and RCD staff and program focals; and lastly, d) Research Methodologies in Postharvest Horticulture attended by RPDD and RCD staff and program focals.

Training-Workshop on News, Feature, and Social Media Content

In line with DA-BAR's goal to further promote and disseminate recent agriculture and fisheries R4D-generated technologies and related activities, technical staff and program focals of the bureau participated in the Training Workshop on News, Feature, and Social Media Content Writing. The training aimed to capacitate its technical staff and program focals who will serve as contributors to the bureau's regular publications—complementing the bureau's pool of writers.

IKM Mentorship Program for DA-BAR staff

To improve the knowledge-sharing and dissemination of agriculture and fisheries research and technologies to intended stakeholders, the DA-BAR and the UPLB-Office of the Vice Chancellor for Research and Extension and College of Development Communication conducted a training course on Communicating Agriculture and Fisheries for Inclusive and Sustainable Development Program via Zoom.

As part of the Information and Knowledge Management Mentorship Program, professors from the UPLB CDC, serving as mentors, provided discussions on the following topics: science communication in the context of inclusive

Institutional Updates

Engagements of officials, staff to trainings

growth and sustainable development in fisheries and agriculture research, writing techniques for dissemination of fisheries and agriculture technology and research results, and dissemination of fisheries and agriculture technology and research results using social media and online platforms.

Fourteen learner participants from the DA-BAR KMISD were expected to prepare and submit feature articles, photo stories, and infographics. The capacity-building activity provided a learning opportunity for the professional development of the bureau staff-enhancing their skills and knowledge of science communication.

C# Web Design and Application Programming Interface (API) Training
The DA Information and Communications Technology Service led the training titled "C# Web Design and Application Programming Interface Training." Participated by five staff from the DA-BAR-KMISD-IMS. The bureau participated in this training aimed to enhance the skills and technical capabilities of programmers in C# Web Design and Application Programming Interface. As part of the instructions by the DA ICTS, the applications to be installed prior to the training include: a) Visual Studio 2022 (Community 2022); b) SQL Server 2019 Express (Installation Type: BASIC); c) SQL Server Management Studio; and d) Latest version of .NET 6.0 SDK.

Use of the oISSP System for the Submission of 2024-2026 ISSP and Endorsement of oISSP Encoders, Reviewers, and Approving Officers
To facilitate faster consolidation, submission, and revision of the Agency's Information Systems Strategic Plan, the DA-ICTS spearheaded and facilitated the training on the use of oISSP. The oISSP has become the official mode of submission for the 2024-2026 ISSP. In this light, two staff from the bureau's KMISD-IMS attended the oISSP training on 17 June 2022.

Webinar on Intro to ISSP
Two KMISD-IMS staff participated in a webinar conducted by DICT. The activity aimed to provide participants with an ample level of awareness and understanding of the concepts necessary to formulate an Information Systems Plan that will provide a 3- to 5-year IT framework by which IT will be used in the performance of the agency's strategic and critical functions.

AppSheet Technical Training (Webinar)
Consistent with its drive to upgrade further the technical capabilities of its staff, the bureau participated in the webinar training on AppSheet Technical Training organized by the Maroon studios. Five staff from the KMISD-IMS participated in the webinar intended for software engineers or IT-inclined professionals looking for an easier way to deliver apps at a fraction of the time and cost.

UGALI: Farmers' Attitudes and Competencies Behind Rice Technology Adoption and Business Webinar
Through a special order, the bureau enjoined 40 of its officials and staff to participate in the webinar titled UGALI: Farmers' Attitudes and Competencies Behind Rice Technology Adoption and Business. The seminar aimed to cultivate a work environment that creates and provides learning opportunities and to understand farmers' behavior towards the adoption of technologies.

Data Privacy Awareness and Compliance Workshop
The bureau's department heads and officers attended a workshop on Data Privacy Awareness and Compliance facilitated by the Yisrael Solutions and Training Center, Inc. The workshop aimed to inform the government agency or private organization of the new guidelines, memorandum/ circulars issued by the National Privacy Commission with regard to compliance with RA 10173 as well as the Implementing Rules and Regulations and its corresponding fines, or penalties. Further discussed was the Breach Management or NPC Circular 16-03. In this topic, the participants learned the concept of security incident personal data breach and how to start preparing for when it happens.

Institutional Updates

Engagements of officials, staff to trainings

Non-Technical Trainings
Aside from technical training spearheaded by DA-BAR, in collaboration with other agencies, the bureau also introduces non-technical trainings aimed to improve the skills as well as workplace behavior of all employees.

Office Etiquette
Geared towards improving the office culture, the bureau conducted training about Office Etiquette. The training was done to ensure that the employees observe appropriate workplace behavior and rules on the privacy of employees. It also aimed to inculcate commitment and develop well-mannered and socially moral personnel. The training activity included exercises that focused on the principle of proper etiquette, appropriate workplace behavior, and diplomacy and demeanor.

Stress Management in the Workplace
As part of its 35th anniversary, the bureau conducted a Stress-Management Seminar in the Workplace. The seminar was conducted by the bureau to help the employees manage workplace stress and to know the right coping strategies and basic skills that would make them thrive under pressure.

Ethics and Proper Decorum for Drivers
The last training conducted by the bureau was on Ethics and Proper Decorum for Drivers. Drivers play important roles in the whole operation of the bureau. It is important for them to understand the proper ethics and decorum as public servants and to guarantee the safety of all passengers within and outside the bureau–learning the proper values and acceptable behavior toward their passengers, road safety, and appropriate attire required for those rendering chauffeur services, among other things.

Institutional Updates

Major events

35 years in service to AF R4D sector

With the theme, Pagpapalakas ng pananaliksik sa agrikultura at pangisdaan: Tugon sa hamon ng krisis sa ekonomiya at pandemya, the week-long celebration of the bureau's 35th founding anniversary on 1-5 August 2022 was packed with activities that were both client- and staff-oriented.

Aside from the annual Director's Report, the refurbished edible landscape demonstration garden at the bureau's grounds and corporate audiovisual presentation were launched.

For client-oriented activities, the bureau conducted a seminar series on digital agriculture, as well as a photo and video contest highlighting the importance of a strengthened R4D response to the challenges faced by the agriculture and fisheries sector.

Seminar topics included: 1) Rice Seed Information System; 2) Spatial Tracking, Damage and Yield Assessment, and Mapping of Armyworm Infestation

Institutional Updates

Major events

and Diseases of Onion Using Remote Sensing Technology; 3) Automation System for Intensive Fry Production of Tilapia *(Oreochromic niloticus)*; and 4) Site Specific Nutrient Management for Maize Nutrient Expert.

The photo entry, Eyes on Rice Machines by Jaime Miguel III of DA-PhilRice, and the video entry, Organic Farming for Sustainable Agriculture by Jay Torrentia of the Municipal Agricultural Office of Sagbayan, Bohol won first place in their respective categories.

The bureau also organized a two-day Kadiwa ni Ani at Kita store in partnership with DA-Agribusiness and Marketing Assistance Services and the one-day blood donation drive led by ABARE and in partnership with the Philippine Blood Bank.

For the staff-oriented activities, a seminar on stress management in the workplace with mental health expert Riyan A. Portuquez, and the DA-BAR Awards Night were held.

Institutional Updates

Major events

Research Management Meeting Institutionalized

In 2014, the Regional Management meeting also allows research managers to learn from the experiences of the other regions in project implementation and research management.

In July 2022, the bureau gathered 95 research managers from DA and BFAR regional offices, DA staff bureaus and attached agencies. Key presenters, representing each region, highlighted their respective major accomplishments on policy reforms and technologies ready for upscaling, action plans guided by strengthening and sustaining RR4DEN, regional programs, activities, and projects, implementation strategies and institutional development needs, and knowledge management updates. These served as the output of the two-day workshop on R4DE-related proposed PAPs for 2024.

Institutional Updates

Major events

Updating of NAFRDEAP 2023-2028

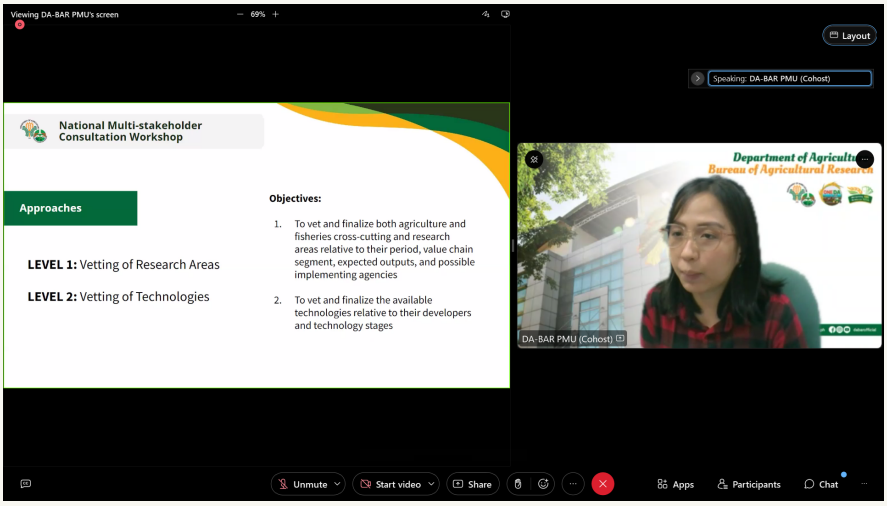
DA-BAR, in collaboration with UPLB, facilitated the updating of the NAFRDEAP 2023-2028 to realign and re-prioritize commodity and cross-cutting R4D areas in view of the current DA strategies and agendas.

After a series of data collection, multi-level analyses sessions, and integration workshop, the five-day multi-stakeholder consultation workshop was held on 3-7 October 2022. Participating in the said activity were representatives from DA, SUCs, government institutions, farmer and fisherfolk cooperatives and associations, non-governmental organizations, and the private sector.

Research areas and technologies were reviewed for the commodities and cross-cutting groups. Continuous vetting of technologies developed and internal refinement of the researchable areas is being done. The NAFRDEAP 2023-2028 will be disseminated to R4D partners by the first quarter of 2023.

Participants per breakout session

Cross Cutting	273
Fruits	48
Root Crops	30
Vegetables and Legumes	63
Rice, Adlay, and other cereal crops	46
Corn	33
Plantation and Biofuel Crops	69
Aquaculture and Capture Fisheries	71
Livestock, Poultry, and Apiculture	46



Directory of Officials

(per DA-BAR Special Order no. 214, Series of 2022)

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Junel B. Soriano, PhD
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Through DA Special Order No. 360, series of 2022, assistant director Joell H. Lales and Research Coordination Division head Anthony B. Obligado, PhD were designated as assistant director for Programs and assistant director-designate for Research Support Services, respectively.

This was effective 2 May until 24 October 2022 when it was superseded by DA Special Order No. 871, series of 2022, designating Lales as the OIC-director, and DA Special Order No. 869, series of 2022, designating Dr. Obligado as OIC-assistant director.

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