DEPARTMENT OF AGRICULTURE
1898
BUREAU OF AGRICULTURAL RESEARCH

2021
ANNUAL REPORT

agriculture and fisheries research for development
rises in support to food security

About the Cover

The 2021 DA-BAR Annual Report highlights the bureau's significant accomplishments in collaboration with partners and stakeholders rising above challenges in the new normal through different research for development (R4D) projects, activities, and programs geared toward achieving food security.

Anchored to the OneDA Reform Agenda, the select key officials and staff represented by the green arrow at the bottom left remains on the ground in serving its stakeholders in the agriculture and fisheries sector through various R4D under consolidation, modernization, industrialization, and professionalization pillars.

2021 Annual Report

Agriculture and fisheries research for development rises in support to food security

About the bureau

The Bureau of Agricultural Research is a staff bureau of the Department of Agriculture (DA) tasked to coordinate agriculture and fisheries research for development and ensure the application of its full potential to improving the sector.

It was created in 1987 through Executive Order 116 to ensure that agricultural research is coordinated and undertaken for maximum utility to agriculture.

The bureau is mandated to tap farmers, farmers' organizations, and research institutions, including state universities and colleges in the conduct of research for the use of the DA particularly, the farmers and fishers.

Vision

The Department of Agriculture-Bureau of Agricultural Research is the lead research for development coordinating agency towards a technology-empowered agriculture and fisheries sector contributory to inclusive growth.

Mission

We coordinate, integrate, and manage the research for development system to ensure its optimum utility for the agriculture and fisheries sector.

Values

Integrity, Accountability, Commitment, Pofessionalism, and Innovation

Content

Message from the Director

Dr. Junel B. Soriano

2021 was the year we tested the waters. As we gradually transition to what we refer to as the better normal, we continuously seek and challenge the unknown. Various researches have been conducted, products and technologies have been innovated, medicines were produced and distributed, and individuals have adapted new systems— all in the hopes of mitigating the spread of and completely eradicating the COVID-19 virus. While the threat of the developing virus and evolving strains continue to linger, we dauntlessly endured the path towards recovery, despite the uncertainties we were faced with.

The impacts of the pandemic weighed heavier on the negative aspect than it did on the positive. Agriculture, in particular, is among the primary sectors that was heavily hit, resulting in a significant decline of the industry. This, on top of equally destructive natural calamities that devastated several provinces in the country, called for our proactive response that will improve the livelihood and further build the resilience of our farmers and fisherfolk. Hence, we refocused and redirected our efforts in crafting solutions, through research for development initiatives, focusing on a technology-empowered sector, that will ensure food security and economic recovery.

The 2021 Annual Report of the Department of Agriculture-Bureau of Agricultural Research encapsulates the bureau's accomplishments, contributed by the endeavors of our researchers, partner institutions, and stakeholders. It is with great pride that we present our report–a testament of our commitment in ensuring a food-secure and resilient Philippines, even in the face of unprecedented events.

Taking off from a commodity industry-based R4D in 2020, we harnessed technology-based R4D programs for 2021–with the goal of upholding a technology-empowered agri-fisheries sector at the center. Emphasizing the significance of adapting to an advancing society, we supported R4D programs, activities, and projects (PAPs) that yielded positive and lasting impact to the sector. The technologies generated and enhanced under these programs have engaged and enhanced the skills and capacities of farmers and fisherfolk–opening opportunities for them to improve their productivity.

Consequently, a large portion of the bureau's PAPs are attributed to the modernization pillar of the OneDA reform agenda. This was followed by PAPs tagged under industrialization, consolidation, and professionalization, respectively.

As the bureau transitioned to a new leadership, we conducted a series of consultations and dialogues among the officials and staff of the bureau, to deeply understand its operations. Carrying in a pool of ideas, we studied existing systems and reviewed various policies toward crafting strategies that will build on what has been started and foster the bureau's future direction.

Taking off from the bureau's overarching R4D framework, clustered programs, new approaches, and strategies, in the form of the Research to Policy for Development (R2P4DE) approach and the "8-Point R4DE Reforms Agenda," were introduced which expanded and strengthened the framework into an Inclusive and Transformative R4DE Framework. These strategies will serve as our foundation in the years to come to ensure that we are headed towards our common goal: to provide R4DE outputs and outcomes that will be of maximum benefit to our farmers and fisherfolk.

Anchored on the OneDA Pillars and Key Strategies, our Inclusive and Transformative R4DE Framework highlights the R2P4DE approach. This aims to translate all outputs and outcomes of our agri-fisheries R4DE initiatives into policies that will guide future R4D endeavors of the sector. Further, it underlines the significance of these policies in upscaling and outscaling our agri-fisheries technologies.

Alongside the OneDA Pillars and Key Strategies, we present our R4DE strategies and programs with refocused thrusts and priorities. This comprises four key strategies that focus on technology and innovations development programs, scaling of farming system technologies, commercialization of agriculture and fisheries technologies, and support and investments of the bureau that promotes capacity enhancement and stronger linkages between its stakeholders.

Aligned with this, we have established the 8-point reforms agenda on agri-fisheries R4DE. This includes our vision for the Agri-Fisheries sector for 2050; an intensified one R4DE system and agenda; R4D strategic plan for 2022 to 2027; inclusive and transformative research to policy for development and extension; new R4DE programs; research investment mapping and valuation of developed R4D technologies in the sector; inclusive R4DE planning, monitoring and evaluation; and the One DA Technology Bulletin that is composed of the bureau's publications, BAR Chronicle and BAR R4D Digest.

Anchored on the OneDA Pillars and Key Strategies, our Inclusive and Transformative R4DE Framework highlights the Research to Policy for Development (R2P4DE) approach. This aims to translate all outputs and outcomes of our agri-fishery R4DE initiatives into policies that will guide future R4D endeavors of the sector. Further, it underlines the significance of these policies in upscaling and outscalling our agri-fishery technologies.

Message from the Director

Emphasizing our objective of attaining a technology-empowered agriculture and fisheries sector, we maximized our R4DE outputs and outcomes to allow a more effective and efficient delivery of products and services.

With this, we also intend to strengthen our R4DE efforts by ensuring that it does not end merely with outputs and outcomes. With the application of the abovementioned strategies, we aim to translate these into policies that will increase its impact and enhance its value in the sector.

Emphasizing the department's topmost priority of ensuring the availability, accessibility, and affordability of safe and nutritious food, the bureau stays committed to exhausting all means to provide R4DE efforts that will enable a food-secure Philippines in the midst of a global pandemic. Emphasizing our objective of attaining a technology-empowered agriculture and fisheries sector, we maximized our R4DE outputs and outcomes to allow a more effective and efficient delivery of products and services. These come in the form of developed technologies that significantly improved productivity and increased production.

We applaud and extend our utmost gratitude to our partners, for tirelessly seeking research endeavors for the betterment of the sector. Your efforts and innovative ways have greatly contributed to the department's agenda, despite the challenges brought by the pandemic.

We also acknowledge the hardworking staff of the DA-BAR. Your passion is what drives the bureau to its success. Allow me to commend all of you for upholding the bureau's core values, manifesting integrity, accountability, professionalism, and innovation in your work ethics. Your commitment to the bureau is rippling through the lives of our farmers and fisherfolk. I look forward to seeing more of the impact that your work will have.

Lastly, our heartfelt appreciation to our farmers and fisherfolk for your unparalleled dedication and immeasurable contribution to the industry. We vow to continuously seek proactive responses and sustainable solutions you will benefit greatly from.

Thank you and *Mabuhay!*

Message from the Assistant Director

Joell H. Lales

Welcome to the DA-BAR Annual Report for 2021! We are more than pleased to present and share to our clients and stakeholders the significant highlights of the bureau's programs vis-à-vis supported technologies in 2021—the year in which people around the world continuously felt the devastating effects of the COVID-19 pandemic.

Yet, 2021 was also a year of great transformation for the bureau particularly as we took important steps toward our transition to OneDA R4DE initiatives.

As we have witnessed how COVID-19 exposed the fragility of the global food supply, this led the Department of Agriculture, hence, the bureau into great introspection—to generate technologies that can innovate the production, value-adding, marketing, and consumption of food.

If there can be a positive take on these difficult times, it is witnessing the strength, determination, and dedication of DA-BAR leadership and staff as they propel R4D to greater heights. Guided by our strategic priorities, this Annual Report highlights the programs and initiatives that showcase the areas in which we made significant progress during the time of pandemic and economic crisis.

As we continue to navigate through these complex times, it is important for us to strengthen our commitment to continuously lead the agriculture and fisheries R4D.

And with the new R4D initiatives and guidance of our director, Dr. Junel B. Soriano, we will continue to evolve, enhance, and innovate our services to make technologies relevant to farmers, fishers, and other stakeholders. At the heart of what we do is our mantra, "Elevate R4D." Thus, it challenges us to deliver the best services to our clients and set the standard for quality outputs.

On this note, I express my deepest gratitude to the staff, dedicated partners, and stakeholders of DA-BAR who overcame unprecedented challenges over the year. Thank you to the officials and staff who went beyond and above their usual activities and work schedules to keep the bureau's core mandate going.

More power and God bless!

2021 FINANCIAL OVERVIEW

PhP 1,070,372,000

total funds received out of the **2021 GENERAL APPROPRIATIONS ACT** and **BAYANIHAN II** in support to the bureau's operations and R4D programs, activities, and projects

- **19%** NATIONAL RICE PROGRAM
  61 PROJECTS
- **12%** NATIONAL CORN PROGRAM
  38 PROJECTS
- **19%** HIGH VALUE CROPS DEVELOPMENT PROGRAM
  61 PROJECTS
- **5%** NATIONAL ORGANIC AGRICULTURE PROGRAM
  17 PROJECTS
- **3%** TECHNOLOGY-BASED INCUBATION PROGRAM
  8 PROJECTS
- **20%** VARIOUS RESEARCH AND DEVELOPMENT PROGRAM
  62 PROJECTS
- **10%** BIOTECHNOLOGY PROGRAM
  31 PROJECTS
- **11%** INCLUSIVE AGRI-BUSINESS PROGRAM
  33 PROJECTS
- **1%** DIGITAL AGRICULTURE
  3 PROJECTS

90%

2021 GAA DISBURSEMENTS

PhP 820,866,250
released by the bureau as payment for the obligated fund allotment

98%

BAYANIHAN II DISBURSEMENTS

PhP 135,492,321
released by the bureau as payment for the obligated fund allotment

DISBURSEMENTS DISTRIBUTION (IN PhP MILLIONS)

rice basic and applied researches, CPAR rice-based researches, and rice-related IEC materials and activities	242.61
corn, cassava, and sorghum basic and applied researches as well as NTCP and CPAR corn, cassava, and sorghum-based researches	60.00
high value crops basic and applied researches and NTCP high value crops-based researches	107.89
organic agriculture basic and applied researches, NTCP organic-agriculture based researches, organic agriculture research facilities and equipment, and organic agriculture-related IEC materials and activities	41.62
setting-up or upgrading of the business incubator facilities, training, mentorship, and handholding (incubators and incubatees) and Agribusiness Support Services of the Incubators	96.05
allocated under DA-BAR's AFMA funds and includes projects under NTCP, CPAR, Research Facilities Development Grant, livestock and poultry, aquaculture and fisheries, climate change, policy researches, and scholarship grants	195.93
allocated under DA-BAR's AFMA funds and includes basic researches on biotechnology	76.76
Rapid Assessment of Selected ABC Sites for Agri-Public Private Partnerships, Mentoring and Attracting Youth in Agriculture Mentorship program	109.66
ICT needs assessment, R4D system development, and ICT capacity development	25.83

Modernization

Developing ICM to attain better yields in saline-prone areas

TThe packaging of an Integrated Cropping Management (ICM) for rice in saline-prone areas is a technology developed by DA-PhilRice to aid farmers in managing their affected fields to attain better yield levels. The ICM packages for saline environment were developed in Camarines Sur, Ilocos Sur, and Cagayan Valley. As support, a baseline characterization, profiling, and coping mechanisms of the farmers and their fields in saline-prone areas was conducted nationwide.

Flushing before planting to remove the salts was the most common ex-ante coping mechanism of farmers. The most common fertilizer combinations applied were 46-0-0, 21-0-0, and 14-14-14 in saline areas. Farmers in saline-affected fields irrigate up to 5 times. Yield penalty in growing rice in saline areas was 2 tha-1 compared with non-saline areas in rainfed and irrigated ecosystems.

With the goal to achieve a 20% increase in yield, the ICM packaging concentrated on the combination of adaptive varieties, crop establishment, fertilizer management, and pest management through field experiments for at least two dry and wet season setups. It was concluded that monitoring of the hydrology and salinity dynamics of the areas is an important consideration in developing the ICM packages.

Based on the GGE biplot analysis across the three experimental sites and across seasons, Salinas 25 was the most stable variety and one of the five top yielding varieties under different salinity levels. Pest problems under saline environments were less than in non-saline environments.

In the Camarines Sur set-up, 115-10-15 kgha-1 of NPK fertilizer rate was recommended and 80 kgha-1 was validated as the optimum seeding rate for direct-seeding crop establishment method. In the Ilocos Sur setup, transplanting 25-35 DAS and 80-30-60 kgha-1 application of NPK fertilizers was recommended. In the Cagayan Valley setup, application of 80-30-30 kgha-1 of NPK fertilizers was recommended.

In areas where rice was planted only in wet season, crops planted during the rest of the year that have some levels of tolerance to salinity are corn, tomato, watermelon, and vegetables.

Putting added value to rice straw

Rice straw is perceived to have low value in the Philippines, and the poor quality of current technologies for rice straw processing for commercialization made the price extremely low that led to exploitation of the market, value chains, and partnerships between farmers and other stakeholders.

In response to these, DA-PhilRice, DA-PCC, and IRRI developed sustainable technologies, management practices, and value chain upgrading for rice straw management in the Philippines to add value to rice straw for farmer adoption, also to reduce the environmental footprint of rice production.

Through the RiceStrawPH project, a logistics model application which combined station-structure, scheduling, and transportation models was developed to target optimizing factors such as capacity and cost supplemented by training on the operation of rice straw balers. Study showed that logistics model is the most effective tool for mechanized rice straw collection in the Philippines. In addition, rice straw technologies such as rice straw furnace, and batch-biogas digester can provide alternative drying technology for paddy and optimized the use of carabao manure and rice straw mixture that can generate energy for home cooking, and lighting.

With the rice straw being used as substrate for mushroom growing, the *Volvariela volvacea* or button mushroom can be an option for mushroom growers resulting to potential added income to farmers. Moreover, rice straw-based fodder production suggested opportunities for using rice straw as an alternative feed source. Rice straw can be further processed to increase palatability and nutritional content as feed for ruminants, hence it can be a good feed supplement that is locally available and will benefit ruminant raisers throughout the year.

Exploring native corn germplasm for disease-resistant variety development

Native corn germplasm collection was tapped to identify corn with relative resistance to corn diseases such as downy mildew, bacterial stalk rot (BSR), and Fusarium ear rot (FER). Using corn with resistance to various diseases is considered the most sustainable, economic, and environmentally safe disease control approach.

Based on the conducted screenings of UPLB from the available corn germplasm of NPGRL and CGUARD, DMR composites and 12 more accessions were identified to have relatively high resistance to downy mildew.

Further, in combination with seed treatment, these accessions can significantly reduce downy mildew incidence.

For BSR, 38 lines were identified with relative resistance, nine of which are outstanding lines. Low to no infection of BSR in the field in these accessions was recorded.

Further, six moderately resistant lines were identified in APN accessions. At the same time, APN 45 populations also showed resistance to FER. Moderate to high resistance to FER under field conditions was noted.

Using these corn germplasm with relative resistance to diseases could mitigate the impact of destructive diseases in the field. As such, yield losses could be avoided and may reduce the cost of production by reducing pesticide use. In addition, the germplasm could also be used for further line improvement for other commercial traits.

Detected in Isabela and IPB, Maize stripe virus (MStV) was associated with a corn viral disease with *Peregrinus maidis* as the suspected vector and *Rottboellia cochinchinensis* as the identified alternative host.

IPB Var 6 was susceptible to MStV, and Hybrid 20B80 was resistant to MStV under experimental conditions.

Molecular disease detection methods have also been optimized. Screening protocols are in place for future disease resistance selection and breeding for disease resistance. Further, training workshops and scientific conferences have intensified knowledge dissemination.

Increasing safe and quality high value crops supply

Capitalizing on the competitive edge of Good Agricultural Practices (GAP)-certified farms, DA-CALABARZON intensified its efforts toward increasing the number of local farms adhering to GAP principles. They trained 720 farmers and local government officers on its implementation and educated them on its importance to the environment and their health. A total of 43 farms covering 64,000 square meters of chili and other high value crops were certified. These commodities were given priority due to the preferences of the institutional buyers.

Results showed that the microbial, pesticide residue, and coliform count of produce from GAP-certified farms fall within the prescribed limit. Rate of return to capital was 114.33 %, that is 7.89% higher than non-certified farms.

Three policies were also recommended to ease the financial burden of farmers who would like to undergo the process of GAP certification.

Commercializing affordable banana technology

To provide smallhold banana growers with an affordable alternative sources of quality planting materials, NVSU partnered with Balangon Integrated Growers Association of Sawmill in a technology transfer scheme for whole corm macro-propagation of *lakatan* and *bungulan*. They were trained on macro-propagation and nursery management and provided with sustained technical assistance including disease indexing for quality control.

The association produced 7,473 macro-propagated plantlets with over 50% of the quantity sold to the Office of the Provincial Agriculturist, Nueva Vizcaya for distribution to farmer-beneficiaries. Based on the profitability analysis of the project, a macro-propagated plantlet costs PhP 10.28 and sold at PhP 25, giving an income of PhP 14.72. Total production cost for a batch of 2,000 macro-propagated plantlets was PhP 20,556.66 with gross income of PhP 50,000 and net income of PhP 29,443.34.

A source of good quality planting materials remains a challenge for the banana industry. While mass production of banana planting materials through tissue culture is an efficient technique that provides disease-free seedlings, there were only few tissue culture facilities established in the county. Production was also constrained by high capital for infrastructure investment and technical requirements. Hence, the advantage of the whole corm macro-propagation technology which can be adopted by farmers at the nursery level using locally available materials.

Showcasing production and processing technologies for native pig

An established and maintained native pig farm in Camarines Norte serves as a model farm for natural farming and source of piglets and forage materials such as trichantera, *malunggay*, sweet potato, upland *kangkong*, *gabi*, and others. The Moraleda Farm, which is approximately three kilometers from the DA outreach station, served as a model farm and operated as processor-cooperator.

The BT Black, a breed of native pig developed by DA-BAI-NSPRDC, is commonly used as breeder animal in Southern Luzon. Used as a breeder stock and known for being prolific, it can produce five to eight piglets per parity. The demo-farm held 25 sows and 5 boars for the production of native pigs and also as source of processed native pork products. The farm produced 1,216 offspring with 224 heads.

The processor-cooperator adopted the processing technology in producing various native pig meat products. The best sellers were *tapa*, tocino, and lechon. Other processed products produced were native pork *longganisa*, ham, sausage, and *siomai*. To compete with the commercially available pork products, they developed an appealing label and durable packaging in marketing their products.

Native pork products revealed to be financially viable. Profitability analysis recorded a net present value greater than zero (NPV > 0) and benefit-cost ratio greater than one, and has an ROI of 156.93% with a payback period of five months and six days.

One hundred and twelve farmer beneficiaries underwent trainings on native pig production and management particularly on housing facility, nutrition, feeding and health management, care and maintenance, and other relevant concerns of growers. A roll-over scheme was implemented to ensure sustainability of the project through the Municipal Agriculturist Office.

Industrialization

Developing cassava sourdough-based products through fermentation

Utilizing cassava, UPLB developed various products like breads through sourdough fermentation.

Cassava flour with considerable levels of cyanide were produced to test the ability of lactic acid bacteria and yeasts to produce linamarase and degrade cyanogenic glucosides through sourdough fermentation.

Studies showed that no molds and coliforms were present. The longer the fermentation time, the higher the activity of microorganisms acting upon the toxic compounds present in the cassava sourdough.

The developed sourdough products (eg. bread loaf, baguette, and pizza) resulted to longer shelf-life compared to the non-fermented products.

Compared to wheat flour sourdough, cassava sourdough did not differ significantly, hence received good acceptability in terms of color, texture, odor, firmness, crispiness and taste, flavor, and aroma.

The hydrocyanic acid in the cassava sourdough was very minimal and therefore safe to be consumed based on the standards of FAO/WHO.

Trainings and workshops were conducted to local cassava baked products manufacturers to further encourage production of these high value sourdough baked products and helped our cassava farmers. Various IEC materials have also been developed for cassava flour processing and product process as well as sourdough starter manufacture.

Commercializing puffed and chippy cassava products through portable extruders

Aimed at commercializing extruded cassava products and developing root crop extrusion-based enterprises, VSU-PhilRootcrops developed two portable extruders for Yuca puffs and Cacharon or chippy products from cassava.

Built with a 3.73-kW motor, stainless steel materials, and automatic temperature control, the portable extruder can produce 800 grams of Yuca Puffs per kilogram of dried cassava grates. The other portable extruder can produce ready-to-fry Cacharon from extruded fresh or dried cassava grates. The Yuca puffs can be sold in various flavors like caramel and cinnamon while the Cacharon has plain and chili variants.

Using the portable extruders, a business plan for producing the puffed and chippy products was prepared. The market study and consumer testing of the project elicited high consumer acceptability with 93.4% of the respondents showed willingness to buy the Yuca puffs and Cacharon.

With a total investment of PhP 1M including building cost, the adopters of the processing technology can enjoy an internal rate of return of 76% for Yuca puffs products and 72% for “Cacharon” recovered in 1.2 and 1.3 years, respectively.

Three cooperators fabricated the portable extrusion system. One of the three cooperators started on commercializing the extruded products.

PHOTO: DLTAN/VSU-PHILROOTCROPS

Professionalization

Enhancing human resource capacities

Recognizing the significant role of human resources in mobilizing the agriculture and fisheries R4D sector, the bureau continually provides assistance to NaRDSAF members pursuing higher education. In 2021, four scholars finished from their graduate studies.

NAME	AGENCY	DEGREE
Avante, Elijah M.	DA-Bureau of Animal Industry	MS Genetics
Espiritu, Gian Carlo R.	DA-Bureau of Agricultural Research	MS Agronomy
Masnar, Adley L.	Mindanao State University, Marawi Campus	PhD Crop Production Management
Palilio, Charlie T.	DA-Bureau of Agriculture and Fisheries Standards	MS Soil Science

Establishing R4D facilities

Modern R4D facilities with the latest equipment are crucial in delivering relevant information and technologies. Thus, the bureau continually supports the establishment or upgrading of agriculture and fisheries infrastructures, as well as the acquisition of equipment. In 2021, two centers at BPSU and two establishments at ISPSC were inaugurated.

To boost the research, extension, and training activities at BPSU, the Organic Agriculture Research and Development Innovation Center and Center for Research on Aquaculture and Aquatic Resources in Brackish Waters Systems were established. Both facilities were aimed to generate relevant research-based strategies and technologies on organic farming, aquaculture, and aqua resource management in the locality.

At ISPSC, a tissue culture laboratory was constructed to produce at least 10,000 quality planting materials for banana growers. While the Innovation Center was established to serve as a one-stop hub for agriculture, fisheries, and livestock products. It features a development laboratory, marketing display hub, restaurant, multipurpose and conference halls.

BPSU - Organic Agriculture Research and Development Innovation Center


BPSU - Center for Research on Aquaculture and Aquatic Resources in Brackish Waters Systems

Protecting IP rights

DA-BAR continually assists partner researchers and scientists in protecting their intellectual property rights generated through agriculture and fisheries R4D projects. In 2021, the trademark of DA-Northern Mindanao was registered at IPOPHL. Umis, which means “delicious” in Bukidnon, will be used for the products developed by agricultural researchers, food technologists, farmers, and product processors.

The bureau also facilitated two trademark applications of CLSU. These trademarks were developed through research projects conducted on rice. This consist of the following products: instant rice porridge, rice cookies, and rice ice cream.

ISPSC - Innovation Center


ISPSC - Tissue Culture Laboratory

Trademark of DA-Northen Mindanao

Trademark application of CLSU

Trademark application of CLSU

KNOWLEDGE MANAGEMENT

Publications and IEC materials on supported researches and projects in the agriculture and fisheries sector were packaged by DA-BAR to ensure technology and information dissemination.

PUBLICATIONS

85 technologies disseminated

146 articles published

9 infographics shared

19 publications packaged

11,521 publications mailed

123,477 publications e-mailed

SOCIAL MEDIA

40 photo releases published

647 photos uploaded

33 videos uploaded

151 posts shared

14 announcements posted

PAGE INSIGHTS

Facebook	
Likes	73,555
Followers	16,357
Engagements	1,668,994
Instagram	
Followers	1,120
YouTube	
Subscribers	44,353
Total Views	962,950
Website	
Page Views	39,929
New Visitors	12,514

WEBINARS

MOST VIEWED TOPICS

1. Edible Landscaping *tungo sa Isang Masagana, Malusog, at Makulay na Buhay*
2. Growing Dragon Fruits and Avoiding Plant Diseases
3. Management of Mango Cecid Fly
4. Management of Onion Armyworm
5. Rice-cum-Duck Farming Model for Rice-based Community

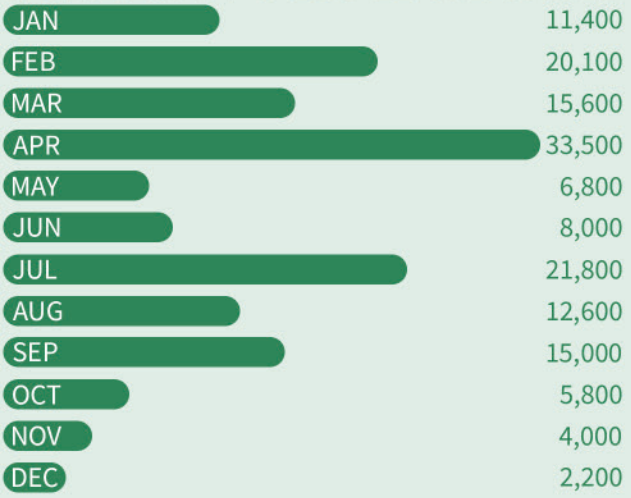
13 event invites

12 FAQs

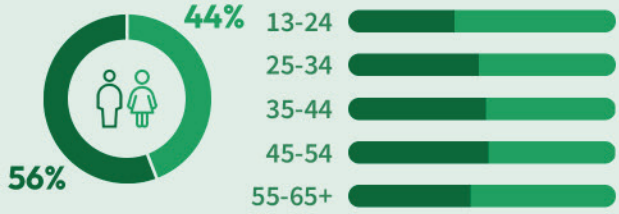
10 infographics

14 feedback forms

NUMBER OF PEOPLE REACHED



ATTENDANCE AGE AND SEX



INFORMATION SYSTEMS

7 systems developed

12 systems in progress

8 systems documentations

8 user manuals

3 trainings conducted

USERS PLATFORM DEVICE

Desktop	62.4%
Mobile	36.8%
Tablet	0.08%

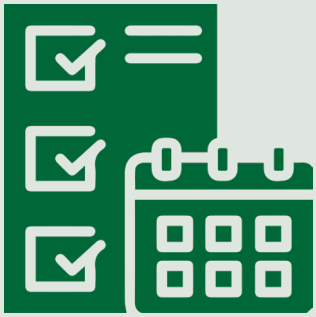
LIBRARY

00* digitized knowledge products

11,605
Libreng Libro sa BAR
reservation and pick-up scheduling of free books from BAR and other partners

Institutional Update

Upholding quality management system



DA-BAR, as certified by TÜV Rheinland, continuously adheres to the ISO 9001:2015 Quality Management System; which means the bureau continuously provides excellent services for the agriculture and fisheries sector.

To ensure that the bureau can maintain its adherence to ISO 9001:2015 Quality Management System, three training sessions were conducted and attended by 27 ISO TWG members. One appreciation course was also held for 20 staff members.

Improving human resource capacities

Recognizing the importance of continuous learning and development for its human resources, the bureau encourages professional development through higher studies and training.

In 2021, BAR-Research Coordination Division head Anthony B. Obligado earned a Doctor of Philosophy by Research in Environmental Science from the University of the Philippines Los Baños.

Ten learning and development training sessions were facilitated by the Human Resource Management Unit. Two officials underwent a seminar workshop on coaching and mentoring for leaders, while 16 staff members were capacitated on human resource management.

Forty-five staff members were trained on the Government Procurement Act, its revised implementing rules and regulations, and updates. Three administrative officers also underwent records management training.

What's next for DA-BAR in 2022?

Rising up to further improve the reach of R4D to various stakeholders, DA-BAR jumpstarted the following initiatives in 2021 which will be implemented in 2022.

Sowing the seeds of harmonization of R4DE

Technologies unutilized are technologies wasted. Hence, to strengthen the bridge between R4D and extension (R4DE), the DA Special Order no. 244, series of 2021 creating the agriculture and fisheries R4DE Technical Working Group (TWG) was institutionalized on 22 March 2021. This TWG comprises the principals and staff from DA-BAR and DA-ATI to ensure the harmonization and complementation of the R4DE programs, activities, and projects.

Gearing up for the One R4DE System

Leveling up in harmonizing the R4DE strategies, the DA created the One R4DE System to accelerate the modernization and industrialization of the Philippine agriculture and fisheries sector. At this time, the DA-BAR's and DA-ATI's strategies, not just the programs, activities, and projects, will be converged and complemented.

Through the DA Special Order no. 32 and 111, series of 2022, the Task Force One R4DEAP constituted by DA-BAR and DA-ATI, with the technical assistance of the University of the Philippines Los Baños, was officially tasked to craft a unified R4DE Agenda and Program (R4DEAP). In view of this, the following are the activities which DA-BAR has tapped the UPLB for technical assistance through a project engagement:

1. **R4DE Rapid Assessment** - a document which contains the analysis of public investments in R4DE and the R4DE outputs' coherence with the One DA Reform Agenda

2. **One R4DEAP** - an agenda report and document containing the harmonized and convergent areas of R4DE between DA-BAR and DA-ATI

3. **One R4DE System** - a policy document which will institutionalize the One R4DEAP, set the organizational and institutional structure for R4DE stakeholders, and lay down the harmonized thematic areas for R4DE.

Specific activities related to this engagement are expected to proceed until the first semester of 2022.

Directory of Officials

OFFICE OF THE DIRECTOR

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Acronyms Used

APN	Accessions of the Philippines Number
BPSU	Bataan Peninsula State University
CGUARD	Corn Germplasm Utilization through Advance Research and Development
CLSU	Central Luzon State University
DA	Department of Agriculture
DA-BAI-NSPRDC	Department of Agriculture-Bureau of Animal Industry- National Swine and Poultry Research and Development Center
DA-BAR	Department of Agriculture-Bureau of Agricultural Research
DA-PCC	Department of Agriculture-Philippine Carabao Center
DA-PhilRice	Department of Agriculture-Philippine Rice Research Institute
DAS	Days after seeding
DMR	Downy mildew resistant
FAO	Food and Agriculture Organization
GAP	Good Agricultural Practices
GGE	Genotype by Genotype x Environment
IPOPHL	Intellectual Property Office of the Philippines
IRRI	International Rice Research Institute
ISPSC	Ilocos Sur Polytechnic State College
kgha-1	Kilogram per hectare
NaRDSAF	National Research and Development System for Agriculture and Fisheries
NPGRL	National Plant Genetic Resources Laboratory
NPK	Nitrogen, phosphorus and potassium
NPV	Net present value
NVSU	Nueva Vizcaya State University
R4D	Research for Development
R2P4DE	Research to Policy for Development
ROI	Return on inverstment
tha-1	Tons per hectare
TWG	Technical Working Group
UPLB	University of the Philippines Los Baños

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