



DEPARTMENT OF AGRICULTURE  
*Cagayan Valley Region*

# ANNUAL REPORT 2021

Intensified agricultural  
development across  
the commodity value  
chain towards

***“Masaganang Ani  
at Mataas na Kita.”***

*A food-secure and resilient Philippines  
with empowered and prosperous farmers and fisherfolk*





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# Mandate

The Department is the government agency responsible for the promotion of agricultural development by providing the policy framework, public investments, and support services needed for domestic and export-oriented business enterprises.

In the fulfillment of this mandate, it shall be the primary concern of the Department to improve farm income and to generate work opportunities for farmers, fishermen, and other rural workers. It shall encourage people's participation in agricultural development through sectoral representation in agricultural policy-making bodies so that the policies, plans, and programs of the Department are formulated and executed to satisfy their needs.

It shall also use a bottom-up self-reliant farm system approach that will emphasize social justice, equity, productivity, and sustainability in the use of agricultural resources.

# Vision

A food-secure and resilient Cagayan Valley with prosperous farmers and fisherfolk.

# Mission

To collectively empower farmers and fisherfolk and the private sector to increase agricultural productivity and profitability, taking into account sustainability and resilience.



## Message

**Y**ear 2021 caused an upheaval to the agriculture sector as it was wrought with various challenges. We were confronted with the Covid-19 global pandemic, disease outbreaks for our crops and livestock, and natural calamities ranging from typhoons and floods. However, neither of these hampered the DA RFO 02 in delivering and expediting our products and services for the general public.

In those trying times, Cagayan Valley Region had proven its resiliency, particularly our farmers, fisherfolk, and stakeholders, especially the committed and hardworking men and women of the DA RFO 02, who worked and strived together for a common cause: food security and resiliency. This was more exemplified as **DA RFO 02** was adjudged as the **Top Performing Region in the Philippines**.

Cagayan Valley Region managed to sustain high sufficiency levels on major staples and other commodities. We remained to be a dependable source of major commodities

by other regions with our locally exported rice, palay, yellow corn, white corn and high value crops to Central Luzon, National Capital Region, Ilocos Region, CALABARZON, Cordillera Administrative Region, Bicol Region and MIMAROPA since the start of the COVID-19 pandemic in 2020.

In pursuit of our twin-goal, “Masaganang Ani at Mataas na Kita”, we remained committed towards the transformation of the agriculture sector through the OneDA Reform Agenda Programs and Projects.

Much can be attributed to the intensified implementation of the Plant, Plant, Plant Program to increase productivity and income of farmers, mitigate losses and adapt to the “New Normal”, operationalization of the KADIWA ni Ani at Kita Market Outlets and enhanced strategy through the provision of Financial Grant Assistance, implementation of programs and projects in compliance with Bayanihan to Heal as One Act accelerating recovery and bolstering the resilience of farmers and other households from the adverse socio-economic impact of Covid-19 pandemic and African Swine Fever (ASF) as well, and conduct of R4D researches addressing agricultural productivity, profitability, and food safety.

We may be uncertain of when will this pandemic end, however, we can be sure of one thing; we, the DA RFO 02, will continue to work as **ONE**, in coordination with our partners and other industry value chain players, to help ensure a food-secure and resilient Philippines with empowered farmers and fishers.

Masaganang buhay sa lahat!

**NARCISO A. EDILLO, M.A.Ed.**  
Regional Executive Director



## Executive Summary

The Department of Agriculture (DA) with its vision for “Food-Secure and Resilient Philippines with prosperous farmers and fisherfolk” through its OneDA Reform Agenda supported by the four (4) pillars of consolidation, modernization, industrialization and professionalization aims to collectively empower the farmers and fisherfolk towards the attainment of “Masaganang Ani at Mataas na Kita”.

As an ISO 9001:2015 certified organization, DA RFO 02 is directed by its Quality Policy in the delivery of its products and services, guided by the principles of social justice and equitable development imbued with the values of loyalty, integrity, resourcefulness, teammanship, service-orientedness and continuous learning. DA Cagayan Valley planned and executed new strategies to fulfill its obligations aligned with the Secretary's New Thinking in transforming the Agriculture Sector.

DA Cagayan Valley's approved budget for CY 2021 based on the General Appropriations Act (GAA) is Three Billion Six Hundred Seventy-Six Million Nine Hundred Sixty-Four Thousand Three Hundred Fifteen Pesos (Php3,676,964,315.00) for the implementation of various programs, projects, and activities to achieve its Congress-committed targets.

As of December 31, 2021, the overall physical accomplishment across programs and subprograms is at 97.73%. In parallel, for the financial performance, obligation rate is at 99.84% or equivalent to Php3,671,019,359.89 with corresponding disbursement rate of 83.97% equivalent to Php 3,082,635,091.16.

A total of 476,982 satisfied individuals and 1,154 group beneficiaries were served and benefitted from the various services and interventions delivered as evidenced by the result of the Client Satisfaction Feedback.

With the successful implementation of the committed targets for CY 2021, the DA RFO 02 was recognized as the **Top Performing Region** among all implementing units in the entire Philippines.

# 2021 GAA



# 3.7B

## OBLIGATION

P 3,671,019,359.09

## DISBURSEMENT

P 3,082,625,091.16

## VARIOUS PROGRAMS

### OVERALL PHYSICAL ACCOMPLISHMENT

As of December 31, 2021

97.3%

P 3,676,964,315.00



### FINANCIAL PERFORMANCE

As of December 31, 2021

99.84%



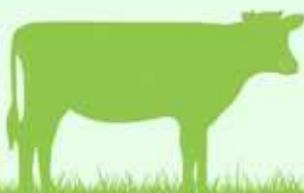
## VARIOUS SERVICE & INTERVENTION DELIVERED



476,982  
INDIVIDUALS



1,154  
GROUP BENEFICIARIES



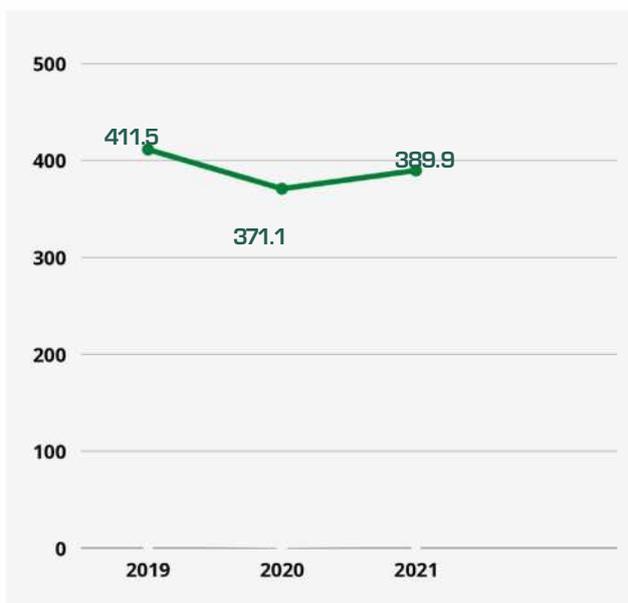


# CAGAYAN VALLEY'S AGRICULTURE SECTOR PERFORMANCE

The year 2021 was both a year of recovery and heightening of the agriculture sector performance of the Cagayan Valley Region. Despite confronted with various challenges, the agriculture sector remained as the mainstay of the region's economy with 30 percent share to the regional economy at 2018 constant prices. The services sector came out strong at 43.1 percent share of contribution to the region's economy for CY 2021, however, the agriculture sector employed over 664,000 or 43.2 percent of the region's workforce and contributed 5.1 percent share of increase in economic growth performance of the region to the national economy in CY 2021. The agriculture sector had gradually integrated its outputs with the services and the industry sectors with the transformation of raw materials into processed and value-added forms specifically in the aspect of food services and manufacturing.

## PERFORMANCE OF THE ECONOMY

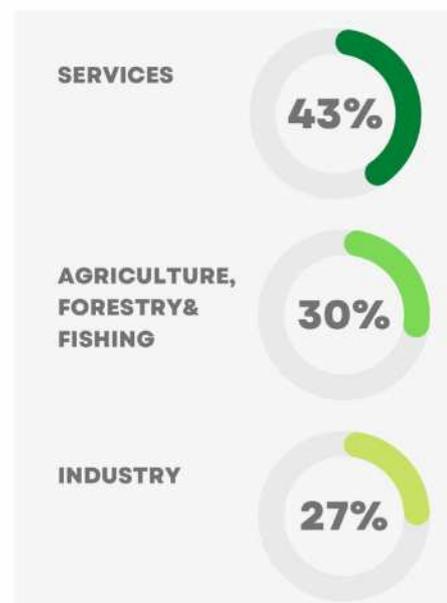
Region II - Cagayan Valley, 2019-2021  
at Constant 2018 Prices, In Billion Pesos

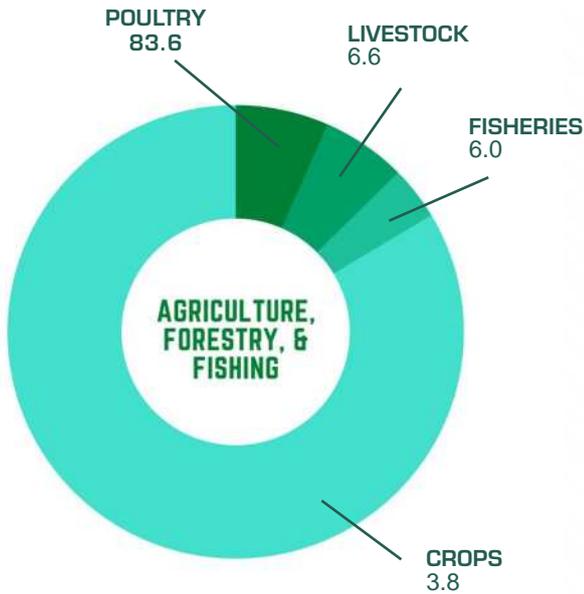


Source: Philippines Statistic Authority

## SHARE OF INDUSTRIES TO THE REGIONAL ECONOMY:

Region II - Cagayan Valley  
at Constant 2018 Prices, In Percent, 2021





Source: Philippines Statistic Authority

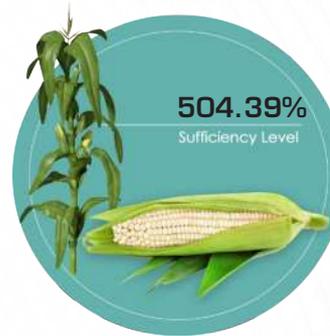
Comparing the different sub-sectors in agriculture, crop production dominated the agri-fisheries, capturing 83.6 percent of the total production followed by the poultry sub-sector, livestock sub-sector and fisheries sub-sector with 6.6, 6.0 and 3.8 percent, respectively.

Among the major crops in the region, corn production remained to be the strongest commodity with a total production of 1,891,169MT contributing about 22.78 percent to the national production. This sustained the position of Cagayan Valley Region as the top producer of corn among all regions in the entire country and recorded a 504.39 percent sufficiency level for CY 2021. Rice came second with a total production of 2,909,950.48MT contributing more than 14.0 percent to the national production making the Cagayan Valley Region as the 2nd top producer of rice in the Philippines. Rice sufficiency level in Cagayan Valley was also recorded at 297.52 percent. Performance of other important commodities of crops, livestock and poultry in the Cagayan Valley Region in terms of sufficiency level are as follows: pineapple-1,048.68 percent, highland vegetables-205 percent, banana saba-874.65 percent, mango-432.23 percent, onion-70 percent, lowland vegetables - 154 percent, chicken meat - 135.22 percent, beef - 257.37 percent, carabeef - 368.99 percent, pork - 161.31 percent chevon - 286.26 percent, duck egg - 464.57 percent and tuna - 179.08 percent.

With high surpluses especially on grains, the Cagayan Valley Region remained to be the **Grains Granary of the Philippines**. Its role as one of the major grains producers in the Philippines has been critical in addressing food sufficiency during the COVID-19 Pandemic. From the surpluses of production in the region since the pandemic in 2019, the region became a reliable local exporter of rice, palay, corn, and high value crops to Central Luzon, National Capital Region (NCR), Ilocos Region, CALABARZON, Cordillera Administrative Region, Bicol Region and MIMAROPA.

### 1st Rank

Cagayan Valley as Corn Producer in the Philippines



**22.78%**

Contribution to the National Production

**456,081.69 MT**

Volume of Corn Exported to Ilocos Region, Central Luzon, NCR, CAR, CALABARZON, MIMAROPA

**1,891,169.70MT**  
Total Production (2021)

### 2nd Rank

Cagayan Valley as Rice Producer in the Philippines



**14.0%**

Contribution to the National Production

**951,433.76 MT**

Volume of Corn Exported to Ilocos Region, Central Luzon, NCR, CAR, CALABARZON, MIMAROPA

**951,433.76 MT**  
Total Production (2021)

### Total Volume Exported Locally on Major Crops, 2019-2021 (in MT)



The continuous threat of the COVID 19 pandemic and other major challenges that are being faced not only by the Cagayan Valley Region but the entire nation as well would require intensified implementation of priority programs, projects and activities to increase productivity and income of farmers and fisherfolk in the valley to mitigate losses and adapt to the "New Normal".



# HIGHLIGHTS OF ACCOMPLISHMENTS



The Rice Program envisions  
**CAGAYAN VALLEY** to become a  
**RICE-INDUSTRIALIZED REGION**

- Increase average yield per hectare from 4.50 MT/ha to 4.92 MT/ha in 2022
- Contribute by at least 2.8 MT to the national production in 2022
- Increase income from Php 21,493 to Php 27,565.00
- Reduce average farm production cost per kilogram from P14.03 to P13.22/kg

**RICE  
PROGRAM**



## PRODUCTION SUPPORT SERVICES

### Provision of Hybrid Seeds

Farmers in the provinces of Cagayan and Isabela were the recipients of this project. Seeds of hybrid varieties were distributed as yield-boosting technologies. In collaboration with the Local Government Units (LGUs), a total of 4,240,547.89 kg seeds of commercial hybrid varieties were distributed to 269,880 farmers covering 282,703.19 ha. Moreover, 30,744.00 kg seeds of public hybrid varieties were distributed to 1,548 farmers covering 1,708 ha.

### Provision of Certified Seeds

In collaboration with the LGUs, there were 2,095,520.17 kg certified seeds distributed to 58,530 farmers in Cagayan and Isabela covering an area of 52,388 ha.



## Provision of Inorganic Fertilizers through the E-voucher System

Due to unanticipated price hike of inorganic fertilizer, DA RFO 02 encountered failure of bidding which prompted to the distribution of its targets following the fertilizer discount voucher system with approval from the Secretary. Fertilizer discount vouchers amounting to Php 3,000.00 for hybrid and Php 2,000.00 for inbred per hectare were distributed to farmers in Cagayan and Isabela.

There were 79,382 farmer-recipients for hybrid covering 80,918.47 ha and 43,063 farmer-recipients for inbred covering 38,621.02 ha.

## Seed Production and Distribution

Under this project, 16,000 kg of registered seeds and 68,800 kg of certified seeds were produced in the Research Centers and Experiment Stations (RCES). In support to the National Taskforce to End Local Communists Armed Conflict (NTF-ELCAC), a total of 16,000 kg of registered seeds were distributed to 219 farmers covering 200 ha. Moreover, 68,800 kg of certified seeds of adverse varieties were distributed to 2,145 farmers covering 1,720 ha.



## Disaster Risk Reduction and Management

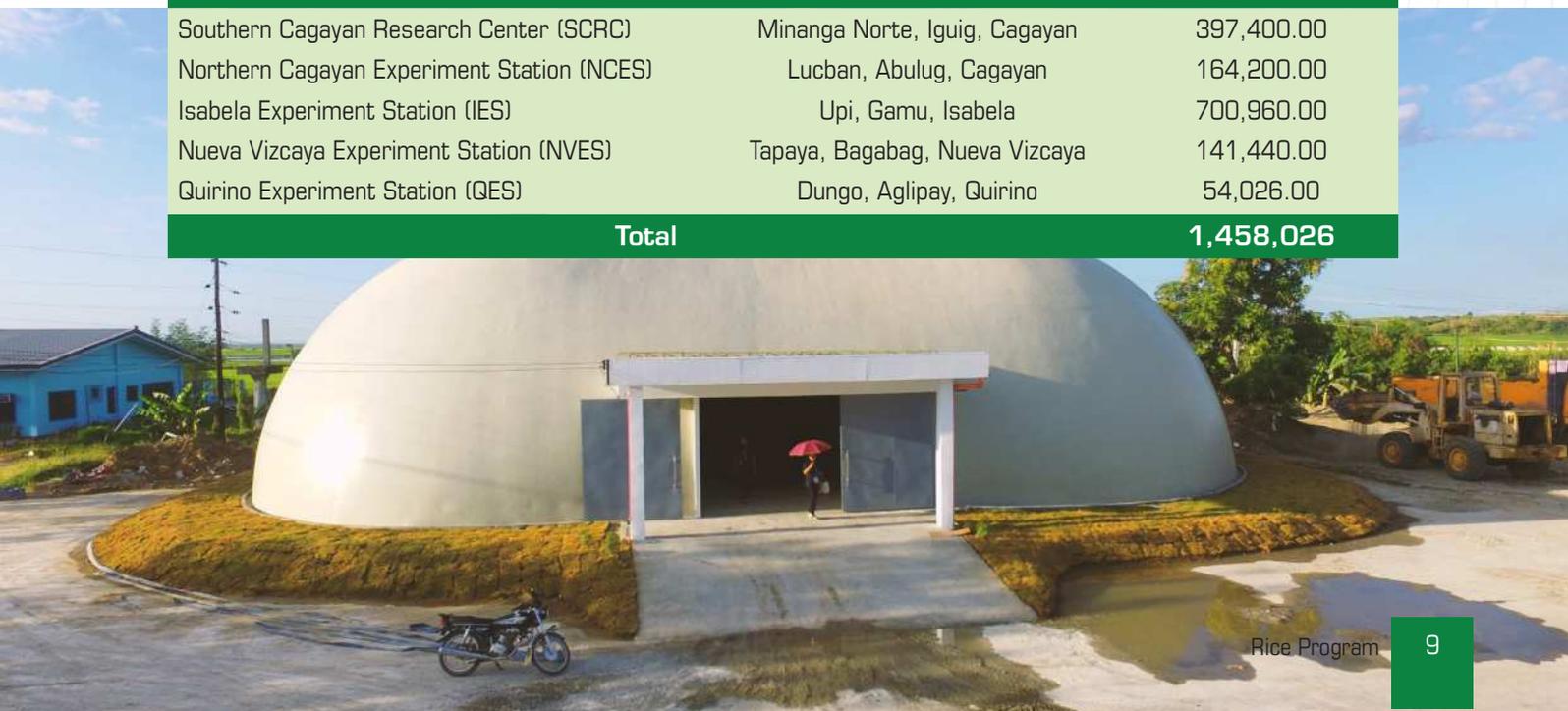
Through the Agricultural Program Coordinating Office (APCO) in the Research Centers and Experiment Stations, a total of 10,000 kg of registered seeds and 1,458,025 kg of certified seeds were procured for distribution to calamity-affected areas in the region. The seed reserves were distributed to 20,164 farmers in the provinces of Cagayan, Isabela, Nueva Vizcaya, and Quirino.

There were five (5) agricultural chemicals storage facilities maintained for epidemic mitigation and agricultural supplies/production inputs storages.

## Monolithic Domes and Warehouses

There were three (3) monolithic domes and 12 conventional warehouses maintained as effective means for seed reserves preservation and protection from natural calamities.

Warehouse	Location	Number of Bags Stored
Southern Cagayan Research Center (SCRC)	Minanga Norte, Iguig, Cagayan	397,400.00
Northern Cagayan Experiment Station (NCES)	Lucban, Abulug, Cagayan	164,200.00
Isabela Experiment Station (IES)	Upi, Gamu, Isabela	700,960.00
Nueva Vizcaya Experiment Station (NVES)	Tapaya, Bagabag, Nueva Vizcaya	141,440.00
Quirino Experiment Station (QES)	Dungo, Aglipay, Quirino	54,026.00
<b>Total</b>		<b>1,458,026</b>



## Buffer Chemical

In collaboration with the Regional Crop Protection Center (RCPC), agricultural chemicals were procured and maintained in the Research Centers and Experiment Stations. Distribution was done to 525 farmers whose crops were affected by pests and diseases covering 525 ha.

# EXTENSION SUPPORT, EDUCATION AND TRAINING SERVICES

## Incentives, Recognitions and Awards

Incentives were given to four (4) Provincial Agriculturists, 70 Municipal Agriculturists, four (4) Rice Provincial Coordinators, 311 Agricultural Technicians, 199 Local Farmer Technicians, four (4) Part time-Provincial Agriculture and Fisheries Council Coordinators and 36 Part time- Municipal Agriculture and Fisheries Council Coordinators. These AEWs have been consistently providing assistance in the implementation of rice-related programs, projects and activities in the Local Government Units (LGUs).

These were their outputs relative to their functions and responsibilities:

1. Supervised the distribution of agricultural inputs to farmers and submit weekly status reports of distribution and masterlist of farmer- beneficiaries with accomplished client satisfaction feedback forms to DA RFO 02;
2. Supervised the profiling, registration and updating of farmer records in the Registry System for Basic Sectors in Agriculture (RSBSA);
3. Promoted appropriate agricultural technologies to farmers;
4. Conducted technology demonstration on rice-based farming systems;
5. Facilitated the grouping of farmers into clusters and strengthen Farmer Cooperatives and Associations (FCAs);
6. Coordinated with National Government Agencies (NGAs) for the development of the local rice industry;
7. Supervised and monitored the conduct of pest and disease surveillance, early warning and control;
8. Facilitated and encouraged farmers in applying crop insurance and non-crop agricultural insurance to the Philippine Crop Insurance Corporation (PCIC) and facilitate claiming of indemnification; and
9. Submitted accomplishment and damage reports on planting, harvesting and standing crops.

## Deployment of RCM Recommendations

A total of 86,086 Rice Crop Manager (RCM) recommendations were generated and distributed to farmers as basis in applying fertilizers in their farms.

## Dissemination of IEC Materials

Radio, print, advertisement and audio-visual presentation (AVP) were used as media to facilitate transfer of technology and information to farmers. Airing of radio programs, radio plugs and jingles were conducted through DZDA radio station. Moreover, 10,000 copies of info-advocacy materials were produced and distributed in collaboration with the Regional Agriculture and Fisheries Information Section (RAFIS).



# RESEARCH FOR DEVELOPMENT SERVICES

The R4D projects implemented were attuned to the updated Rice Regional Integrated Research & Development/Extension Agenda Program (RIRDEAP) and to the guidelines set during the National Rice R&D, to wit:

1. Yield enhancing;
2. Productivity enhancement;
3. Ease of use of the technology;
4. Economic resilience; and
5. Climate Change Adaptiveness

Most of the R&D projects are currently conducted by the Research Centers/Experiment Stations. These R&D projects in the region are categorized as follows:

## National Rice R&D Project

1. DA-IRRI Partnership in support to Food Staple Sufficiency Program (FSSP) sustaining rice self-sufficiency in the Philippines
2. Strategic Rice R&D/E FSSP Support Projects

## Regional Rice R&D Project

1. Production -related
2. Policy -related
3. Irrigation-related
4. Postharvest & processing-related
5. Market-related
6. Collaborative R&D with other research institutions

There were 60 R&D projects conducted for CY 2021. Three (3) R&D projects were implemented under the DA-IRRI partnership in support to FSSP sustaining rice self-sufficiency in the Philippines, namely, Next Gen, PRIME and RCM. For the Regional Rice R&D projects, 57 projects are currently implemented. These projects are categorized as production, market, processing, postharvest, policy, irrigation & collaborative R&D with other institutions. Under the R&D Support to facilities, one (1) research facility was upgraded.





**Farm Production-related Machineries.** Three (3) types of farm production-related machineries were distributed to Farmer Cooperatives and Associations (FCAs), namely, four-wheel drive tractor, hand tractor with accessories and precision seeder.

## AGRICULTURAL AND FISHERY MACHINERIES, EQUIPMENT AND FACILITIES SUPPORT SERVICES

In Cagayan there were six (6) units of four-wheel drive tractor distributed to six (6) FCAs, two (2) units of precision seeder distributed to 2 FCAs, and ten (10) units of hand tractor with accessories distributed to 10 FCAs.

In Isabela, there were 12 units of four-wheel drive tractors distributed to 12 FCAs, three (3) units of precision seeder distributed to 3 FCAs, and six (6) units of hand tractor with accessories distributed to 6 FCAs.

**Postharvest Machinery and Equipment.** In the provinces of Cagayan and Isabela, there were two (2) units of rice mill distributed to 2 FCAs, two (2) units of rice combine harvester with bailer distributed to 2 FCAs, and four (4) units of combine harvester distributed to 4 FCAs.

**Postharvest Facilities.** To provide drying facility for palay, eight (8) Multipurpose Drying Pavements (MPDP) were constructed in the region. A total of two (2) units MPDP were constructed in Cagayan and six (6) units in Isabela,



# IRRIGATION NETWORK SERVICES

**Construction of Small Water Impounding Projects (SWIP).** There were three (3) units SWIP constructed in Claveria, Cagayan (Magdalena SWIP), Quirino, Isabela (Santiago SWIP) and Dupax del Norte (Bitnong Guijo SWIP) which generated 158 hectares irrigated rice area.

**Installation of Solar Powered Fertigation System (SPFS).** Construction of thirteen (13) units of SPFS in Piat, Amulung, Alcala, Solana, Cagayan, City of Ilagan, Cauayan City, Naguilian Isabela, Aritao, Nueva Vizcaya and Cabarroguis, Quirino were undertaken with expected 104 hectares service area generated.

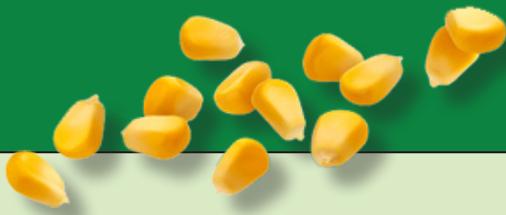




# CORN PROGRAM

envisioning the CAGAYAN VALLEY as PREMIER EXPORTER OF PROCESSED CORN AND BY PRODUCTS IN THE PHILIPPINES

- Increase production at 5% annual from 2021-2022;
- Increase average yield per hectare from 4.34 MT/ha in 2021 to 4.79 MT/ha in 2022;
- Establish corn-livestock and corn-high value crops integrated farming business; and
- Reduce cost of production per kilo of dry corn grain from P8.97 in 2021 to P8.00 in 2022.



## PROGRAM STRATEGIES

- Promotion of cost-reducing technologies
- Buffer stocking for climate change effect mitigation and reduce production cost;
- Enhancement of farm mechanization to reduce production cost and increase production;
- Provision of Pumps and Engines to mitigate the occurrence of prolonged drought/El Nino to vulnerable areas;
- Conduct of research and development towards increased productivity and support to value-adding
- Conduct of support to Good Agricultural Practices (GAP) trainings to improve product quality and food safety;
- Conduct of POT, Bantay Peste Brigade, livelihood trainings and other-relevant trainings; and
- Advocacy and information activities through print and media for technology promotion.



## COMPONENTS/PROGRAMS/ACTIVITIES/PROJECTS (PAPS)

- **Production Support Services (PSS)**
  1. Seed production and distribution
  2. Soil conditioner distribution
  3. Production of cassava seed pieces and distribution of cassava cuttings
  4. Procurement of white corn seeds for Disaster Risk Reduction and Management
  5. Distribution of agricultural chemicals for epidemic mitigation and control
- **Extension Support, Education and Training Services (ESETS)**
  1. Establishment of Sorghum Techno Demo Farm
  2. Establishment of model farm
  3. Establishment of SCoPSA Techno Demo Sites
  4. Capacitation of corn growers and farmer associations through trainings
- **Research for Development Services**
  1. Establishment of research studies
- **Farm Mechanization and Post-harvest Facilities**
  1. Provision of farm machineries/facilities
- **Irrigation Network Services**
  1. Allocation and distribution of PISOS



# PRODUCTION SUPPORT SERVICES

## Provision of Quality Seeds, Planting Materials, Fertilizers and Other Inputs

- Established 12.0 ha on-station registered Open-Pollinated Varieties (OPV) white flint and glutinous corn with a production of 28,000 kilograms. About 27,683 kilograms were distributed to 1,542 farmer-beneficiaries. There were readily available raw materials in support to rice-corn blend. Furthermore, promotion of OPV white corn production was ensured in support to food safety and sufficiency.
- Established 2.0 ha of OPV yellow corn with 4,424 kilograms produced and distributed to 251 farmer-beneficiaries.
- Distributed 1,063 bags of white, 350 bags of OPV yellow and 10,013 bags of GM hybrid yellow corn seed reserves to drought-affected areas covering 6,419.5 ha in Cagayan, Isabela and Quirino. There were 4,723 bags of GM hybrid yellow corn seed distributed to 5,266 farmer-beneficiaries in Cagayan under the roll-over scheme program.
- Increased the available cassava seed pieces and utilization of location-specific and market-preferred improved varieties of cassava through on-station and on-farm planting materials production. A total of 27.0 ha (nursery) served as source of quality planting materials. 1,778,000 seed pieces were distributed to 159 farmer-beneficiaries.
- Procured and distributed additional 925,000 cassava seed pieces to 192 farmer-beneficiaries.
- Procured and distributed 4,099 bags of urea, 5,432 bags of complete and 1,333 bags of muriate of potash to 1,433 farmer beneficiaries in support to white corn production.
- Procured 2,208 liters of insecticide to mitigate and control fall armyworm.

# EXTENSION SUPPORT, EDUCATION AND TRAINING SERVICES

## Conduct of Technology Demonstration

- Established 10 ha. Sorghum Techno Demo in Solana, Cagayan, Abulug, Cagayan, City of Ilagan, Isabela, Gamu, Isabela, Bagabag, Nueva Vizcaya and Aglipay, Quirino.
- Established 50 ha model farm for corn in Sta. Lucia, Bagabag, Nueva Vizcaya and 30 ha model farm for cassava in Daragutan East, San Mariano, Isabela. The projects showcased new technologies that increased the productivity of farmer-cooperators and improved the quality of grains and planting materials.
- Established 4 sites for Sustainable Corn Production in Sloping Areas (SCoPSA) Technology Demonstration covering 12 ha. The techno-demo showcased matured technology interventions and extended technical assistance for effective and efficient services to increase productivity and income.

## Capacity Building

- Capacitated and improved technical know-how of corn growers and farmer associations to produce

high-yield and quality corn and cassava through the conduct of 4 Bantay Peste Brigade trainings, 4 production trainings and 8 cluster development trainings participated by 358 participants.

## Provision of Incentives to LGU Partners

- Granted incentives to 4 Provincial Corn Coordinators, 12 Municipal Agriculturists, and 135 Agricultural Extension Workers (AEWs) from the Provincial and Municipal Local Government Units for their support-related services such as ensuring the facilitative submission of needed reports relative to project field implementation and monitoring.

## Distribution of IEC Materials

- Improved the technology and information access of corn and cassava farmers and stakeholders in Region 02 through the distribution of 22,700 pieces of IEC materials (flyers and booklets) with the following titles:
  - Corn: Incidence and Management for Fall Army Worm in Region 02 and FAW Poster
  - Cassava: Cassava Phytoplasma Disease and Management of Cassava Arthropods Pests



To spread agri-fishery information to a large number of people, five (5) audio plugs were produced and aired over six commercial radio stations in the region with the following subject areas covered: “Ano ang Fall Army Worm (FAW)”, “Papaano Mapuksa ang FAW o Hara-bas?”, “Masustansiyang Inumin ang Maize Silky Sip”, “Malaking kitaan sa Pagbuburo ng Mais at Pagproseso ng Pagkaing-hayop” and “Feed Formulation by Mr. Felix Ancheta”. Another four (4) audio-video clips were produced and aired over four commercial cable TV stations in the region with the following subject areas covered: “Incidence of Fall Army Worm (FAW) in Region 02”, “Advantages of Aflatoxin Test to Farmers: Maize Silky Sip Processing Technique”, “Corn Detopping 101”, and “Corn Silage as Alternative Feeds for Animals”.



# RESEARCH FOR DEVELOPMENT SERVICES

Under the Research for Development, there were three (3) continuing studies established for production-related through the different Research Centers and Experiment Stations on the “Development and Improvement of OPV Corn Varieties in Region 02”. These are Population Improvement, Variety Maintenance and Improvement, and Preliminary Yield Trial-On Station and On-Farm.

The results of the studies were:

- Release of variety for Corn'c (IES#6), glutinous corn and green corn (CVRC GLut #18-4);
- Continuous breeding of OPV white corn for commercialization of grains, corn grits as raw material for gournix, development of short/early maturing glutinous corn to combat climate change/changing weather, development of best variety for green corn that is comparable to the hybrid glutinous corn (early maturing), and silage production as feed for small and large ruminants; and
- Continuous breeding of OPV yellow corn to meet the demand of non-GM yellow corn for production of food (Chippy) and development of high-yielding varieties that are protein-rich.

Another completed research study under production-related through the Research Centers and Experiment Stations is entitled, “Technology Commercialization of Sustainable Corn Production in Sloping Areas (SCoP-SA)”. Results of the study were: a) increased yield by 1.72 mt/ha from 4.36 mt/ha to 6.08mt/ha, b) increased annual net income by 50% from Php59,464.0/ha to Php89,196.0/ha, c) reduced soil erosion 0.634m<sup>3</sup>/ha/year; and d) approved ordinances from LGUs on the adoption of SCoPSA.





## FARM MECHANIZATION AND POSTHARVEST FACILITIES SERVICES

The Corn Program implemented projects on enhanced mechanization on land preparation, planting, harvesting and post-harvesting/processing for reduced production cost through distribution of:

Machinery/Facility Provided	FCA Recipient	Address
Four-Wheel Drive Tractor for Corn	Dassun Dairy Producers and Farmers Cooperative	Dassun, Solana, Cagayan
	Valley High Value Agriculture Cooperative	Taggapan, Echague, Isabela
	Biga Occidental Agrarian Reform Beneficiaries Cooperative	Biga Occidental, Sto. Tomas, Isabela
	Sta.Lucia Corn Cluster Farmers Association	Sta. Lucia, Bagabag, Nueva Vizcaya
	Banuar Upland Farmers Association	Banuar, Cabarroguis, Quirino
	Blue Circle Grains Trading Agriculture Cooperative	Aromin, Echague, Isabela
	Quezon Tinig Haranista Credit Cooperative	Maddiangat, Quezon, Nueva Vizcaya
Combine Harvester with Baler	Rang-ay Ti Pussian Multi-Purpose Cooperative	Pussian, Alcala, Cagayan
	Valley High Value Agriculture Cooperative	Taggapan, Echague, Isabela
	Sta.Lucia Corn Cluster Farmers Association	Sta. Lucia, Bagabag, Nueva Vizcaya
	Povilus Farmers and Entrepreneurs Association	Poblacion Norte, Maddela, Quirino
Hammer Mill	Sto. Domingo MPC	Poblacion, Baggao, Cagayan
	Villa TJ Upland Farmers Cooperative	Carmencita, Delfin Albano, Isabela
	Sta.Lucia Corn Cluster Farmers Association	Sta. Lucia, Bagabag, Nueva Vizcaya
	Gunglo Farmers Association	San Ramon, Aglipay, Quirin
Cassava Chipper	Timpuyog Dagiti Agmul-mula Ti Barangay Paruddun Norte	Paruddun Norte, Aparri, Cagayan
	San Lorenzo Farmers Cooperative Association	San Lorenzo, Buguey, Cagayan
	Binalan Agriculture Cooperative	Binalan, Aparri, Cagayan
	Blue Circle Grains Trading Agriculture Cooperative	Aromin, Echague, Isabela
	San Mariano Diversified Producers Cooperative	Alibadabad, San Mariano, Isabela
	Bannawing Farmers MPC	Bannawing, Jones, Isabela
	Quezon Tinig Haranista Credit Cooperative	Maddiangat, Quezon, Nueva Vizcaya
Multi Crop Drying Pavement (MCDP)	San Dionisio 1 Corn and Cassava Planter Farmers Association	San Dionisio 1, Maddela, Quirino
	Binalan Agriculture Cooperative	Binalan, Aparri, Cagayan
	Angadanan Forest Region Agrarian Reform Cooperative	Bannawag, Angadanan, Isabela
	San Mariano Diversified Producers Cooperative	Alibadabad, San Mariano, Isabela
	Quezon Tinig Haranista Credit Cooperative	Maddiangat, Quezon, Nueva Vizcaya
Povilus Farmers and Entrepreneurs Association	Poblacion Norte, Maddela, Quirino	

## IRRIGATION NETWORK SERVICES (INS)

Under the INS, the program allocated and distributed 50 units of Pump Irrigation System-Open Source (PISOS) to 50 FCAs of corn farmers serving drought-prone production areas of 250 hectares.

# HIGH VALUE CROPS DEVELOPMENT PROGRAM

## A FOOD-SECURE & RESILIENT CAGAYAN VALLEY WITH PROSPEROUS HIGH VALUE CROPS FARMERS

- Increase food supply and resilient food system
- Increase farmers' income thru Farm Diversification and Product Value Addition





## PRODUCTION SUPPORT SERVICES

### Seeds Distribution (kilogram)

#### Mungbean

The mungbean industry in Cagayan Valley contributes an about 11% to the country's domestic supply. In 2021, there were about 2,740 kilograms of mungbean distributed to 8 FCAs covering 112 hectares. The average production is 1,370 mt which added an income of 22,685 Php per ha to rice farmers.

#### Peanut

Tagged as the "Peanut Capital of the Philippines", the region is contributing a 25% volume of production to the national level. The program produced and distributed 3,280 kilograms of certified peanut seeds to two (2) group-beneficiaries in Cagayan. We exceeded our production target because of the good weather condition and our farmers' eagerness to plant peanuts. The peanuts were planted to 32.28 hectares and produced 61.33 metric tons contributing to around 20,000 Php per ha added income to corn farmers.

#### Garlic

Batanes is the major garlic producing province of Cagayan Valley. The unique Batanes red and Itbayat white varieties solely grow in the province and are recognized as two of the best sources of planting material due to minimum virus infection. Through the DA's interventions, the province received 17,000 kg planted to 24.29 ha that produced 109.31 metric tons.

A 37 metric tons of both varieties were procured through the Bayanihan II or the Bayanihan as One Act amounting to 7.4 million Php. This undertaking helped the Ivatan garlic farmers market their produce. The 20 metric tons were shipped to Bambang, Nueva Vizcaya through Sual Port in Pangasinan while the 17 metric tons were utilized for product expansion in Batanes.

#### Yellow and Red Onion

Cagayan Valley has two (2) cropping seasons for onion. These are in the months of August to December (off season) and December to March (regular season). The Federation of Aritao Farmers Onion, Garlic and Ginger Growers Association Incorporated (FA-FOGGGA) saw the possibility that they can upscale their rice income through diversification of spices. From an initial income of Php 46,800.00 per hectare, they were able to gain an additional income to net return of 251,512/ha from onion farming. Fifteen (15) FCAs were benefited from the 542 kilograms of seeds (42 kg of yellow and 500 kg of red onion). The said intervention covered 135 ha which produced 1,620 MT.





### Lowland Vegetables

The High Value Crops Development Program distributed 392 kilograms of assorted seeds of lowland vegetables namely, Ampalaya, Eggplant, Okra, Squash, Pole Sitao, and Upo to nine (9) FCAs. These were planted to 130.67 hectares and produced 3,266.75 MT particularly in the low-lying areas of Cagayan, Isabela and Quirino.

### Highland Vegetables

Nueva Vizcaya is the major highland vegetables producing province in Region 02. A total of 388 kilograms of seeds were distributed to four (4) FCAs and were planted to around 77.60 hectares with a production of 1,552 mt.

### Buffer Stock produced and procured

The procured and produced lowland and upland buffer stock seeds were distributed during calamities. As one of the typhoon-prone regions in the country, we procured and produced higher than our target - lowland (1,047.3 kg) and upland (299.2 kg) vegetables for buffer stock.

### Planting Materials Distribution

#### Citrus

Sweet Abulug Pummelo, lemons and satsuma of around 46,723 pieces were distributed to 5 provinces (Batanes – 5,223, Cagayan – 13,000, Isabela – 13,000, Nueva Vizcaya – 10,500 and Quirino – 5,000) of the region. Thirty-five (35) FCAs were benefited for the planting materials which were planted to 283.17 hectares.

### Banana-Saba

Cagayan Valley is the major producer of Banana-Saba in Luzon with 897.97 % sufficiency. A total of 12,705 pieces of tissue-cultured banana planting materials were distributed to seven (7) FCAs in Cagayan and Isabela. These were planted to 28.11 hectares and are expected to produce 440.77 mt after 18 months.

The banana industry in the region needs to upgrade new strategies to promote the product and empower the banana sector for economic recovery. The Community-Based Banana Enterprise Project was initiated and implemented by banana producing municipality, San Agustin, Isabela, to plant, process, and buy more bananas for domestic and export consumption. The pandemic brought about by COVID-19 has showed us of the low purchasing power of the filipino consumers, therefore, it should be matched with value-addition since we have numerous locally-grown and processed bananas.



## Sweet Potato

The Cagayan Valley distributed 544,220 pieces of sweet potato cuttings to seven (7) FCAs. These were planted to 35.6 hectares and are expected to produce 284.8 MT. The said commodity served as staple food of the Ivatans .

## Production Facilities

- Nursery- Established three (3) nurseries that will serve as nursing sites for the production of planting materials. There were 7,500 of pineapple slips of sweet cayenne/Hawaii variety, 100 pcs. of MD3, other commodities such as cacao, citrus, longan, and rambutan planted to be distributed in the 5 provinces of the region.
- Greenhouse - Maintained 9 nurseries with 219,937 pieces of seedlings produced and distributed 150,288 pieces in support to Plant, Plant, Plant program.
- Tissue Culture Laboratory - Maintained 2 tissue culture laboratories. The station produced 5,250 of tissue cultured banana – saba.

- Seed Storage – Maintained 2 seed storage for seed preservation.
- Foundation Scion Grove, Clonal Garden & Budwood Garden - Maintained 4 clonal gardens with 12,506 trees as source for the production of different fruit trees.



# EXTENSION SUPPORT, EDUCATION AND TRAINING SERVICES

## School on the Air

With the imposition of quarantine and social distancing protocols, radio remains to be effective in reaching farmers in a large scale. This program offers a learning package through a series of lessons regarding highland vegetable production and other related technologies across Nueva Vizcaya in partnership with Local Government Units, stations, and seed companies.

The activity was conducted last September 3, 2021 with 50 AEWs and 590 farmers as participants. During the SOA graduation, Hon. Carlos M. Padilla – Governor, Nueva Vizcaya said, *“Sa tulong ng DA, lumawak at mas naging malaki ang pag-asa ng ating mga magsasaka na umangat ang ekonomiya ng Nueva Vizcaya gamit ang kanilang mga natutunan ditto sa programang School-on-the-Air (SOA). Sa nakamit ninyong makabagong kaalaman sa pamamaraan ng pagtatanim, siguradong ang Food Safety Act ay ating mapatotohanan.”* One of the farmer graduates expressed his gratitude to the program and said, *“Marami po kaming natutunan na mahahalagang impormasyon tungkol sa technology transfer and good agricultural practices sa mga serye po ng SOA. Umaasa po kami na patuloy niyo pa rin kaming gagabayon sa aming pagsasaka para kami rin po ay yayaman sa pamamagitan ng agrikultura.”*

## IEC Materials

There were 13,495 copies distributed to the 4 provinces in the region. These materials contained updated technologies/package of technologies to increase awareness of the beneficiaries for the different commodities: malunggay flyers, pesticide safety sticker labels, bounty valley newsletter, Techno Guide for Banana – Tagalog version, Farmers Handbook on Introduced and Local Banana Cultivars in the Philippines.

## TV Plugs

There were five (5) TV plugs produced which featured coffee, onion, Siamese Abulug Pummelo, calamansi and upland vegetables production in Cagayan Valley. Provision of Incentives to AEWs

We managed the 78 AEWs who assisted 7,800

farmers and strengthened the 5 provinces as our partners in project implementation.

## Techno-Demo

Rehabilitation/Rejuvenation of Old Trees – the intervention added a 2.5 kilograms to 3-5 kilograms per tree for cacao & coffee and additional 10 kilograms per tree for mango. About 56,633 mango trees were rehabilitated/rejuvenated, 44,333 for cacao trees, and 4,000 coffee, thus, further increased the production of mango, cacao and coffee in the region.

## Production Facilities

School Garden – 500 school gardens were established in the four (4) provinces of Cagayan Valley. 160 schools for Cagayan, 200 for Isabela, 80 for Nueva Vizcaya, and 60 for Quirino province.

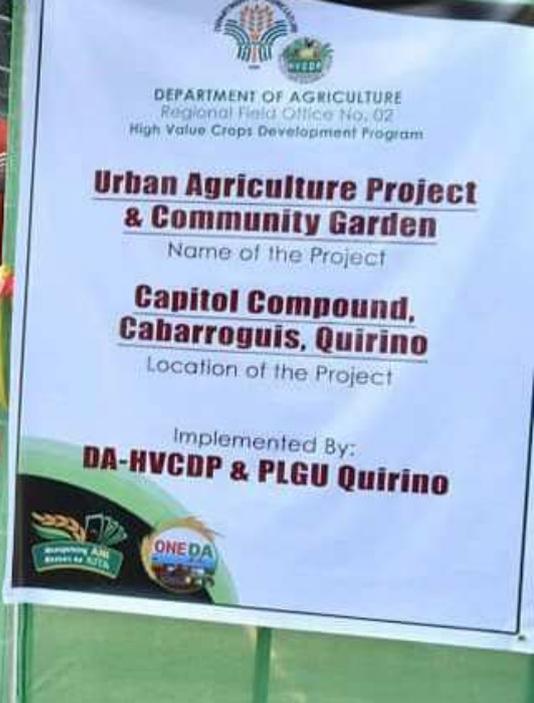
Hence, the DA's interventions had helped the institutions especially during DepEd's Brigada Eskwela and other agriculture-related activities of the schools. Every school received set of assorted vegetable seeds (pechay, okra, pole sitao, squash, bitter melon, bottle gourd, sponge gourd, tomato and eggplant), set of garden tools (shovel, wheel barrow, rake, sprinkler, seedling tray), humus as soil conditioner, net shade, and potting media.

## Urban Agriculture

Three (3) sites for urban-agriculture were established in San Isidro, Isabela, Solana, Cagayan and Bagabag, Nueva Vizcaya with an area of 2,500 square meters each. Every beneficiary received set of vegetable seeds (pechay, okra, pole sitao, squash, bitter melon, bottle gourd, sponge gourd, tomato and eggplant), set of garden tools (shovel, rake, grab hoe, sprinkler, wheel barrow, seedling tray), low tunnel nursery (2mx3m), multi-cultivator, plastic drum, and potting media. The project aimed to spark awareness to other urban communities that farming, specifically pot gardening, is indeed possible in urban areas.

With the concern on food safety and security and the pandemic, families are encouraged to plant hence, modernized Urban Agriculture was initiated.

In support to this initiative, the municipality/city of



Basco, Cabarroguis, Santiago, Cauayan, Ilagan, Solano, and Tuguegarao received 1-unit Greenhouse, 2 units of automated hydroponics system, assorted vegetable seeds, nutrient solution, and hydroponics materials worth one million, one mushroom house, and 2,000 fruiting bags each.

This initiative paved the way to the production of safe and fresh vegetables and the maximization of resources to augment the consumption of our growing population.

### Bayanihan II (Massive Seeds and Seedling distribution)

The HVCDP established two (2) tunnels at State Colleges and Universities (SUCs) for the production of seedlings. A total of 200,000 pieces of vegetable seedlings were distributed to the six (6) municipalities with 1,000 household beneficiaries. The project

has increased the production and encouraged the youth to engage in farm production.

### Gulayan sa Barangay

There were 200 sites of “Gulayan sa Barangay” established in the provinces of Cagayan - 61, Isabela - 45, Quirino – 30, Nueva Vizcaya – 35 & Batanes - 29. Every barangay received set of vegetable seeds (pechay, okra, pole sitao, squash, bitter melon, bottle gourd, sponge gourd, tomato and eggplant), set of garden tools (shovel, rake, grab hoe, wheel barrow, sprinkler, garden hose, seedling tray), mini nursery (2mx3m), net shade, mini multi-cultivator, plastic mulch, humus as soil conditioner, and potting media. Each barangay was required to have at least 200 sq. m for the establishment of the garden. The produce of the different barangays was sold (20%), given free (30%), and served as support to their quarantine facilities – COVID-19 patients/under quarantine.

## IRRIGATION NETWORK SERVICES (INS)

### Spring Development Project

There were 16 Spring Development Projects (SDP) constructed in the four (4) provinces of the region that supplied water in rain dependent production areas. It is expected that these projects will increase the production of farmers.

### Solar-Powered Irrigation System (SPIS)

Insufficient water supply is one of the main problems in rainfed production areas. The HVCDP augmented the needs of farm producers by establishing 8 solar

powered irrigation systems in the four (4) provinces of the region which in turn helped in the increment of the farmers' produce.



# LIVESTOCK PROGRAM

## CAGAYAN VALLEY AS MAJOR SOURCE OF QUALITY STOCKS OF CATTLE, GOAT AND SHEEP

- Propel economic growth in the region through increased production and income of the livestock-poultry farmers
- Support the enterprise development and promotion of cattle, goat, sheep, improved native pig, duck, and free-range chicken in corn and rice-based farming system as sources of quality and safe meat, milk and egg





Livestock Program is one of the priority programs of the Department of Agriculture. It plays a vital role in ensuring food security in the Philippines amidst the onslaught of the COVID-19 pandemic.

The Livestock-based Livelihood Assistance Project specifically aims to contribute to food security and supply. It seeks to ensure meat and egg availability, accessibility and affordability amidst the present crisis. The project involves distribution of animals to qualified farmer beneficiaries. It enables farmer households to produce their own food, create alternative source of livelihood, and provide opportunity to increase their income.

Though 2021 was a tough year, the program still determined to function in accordance to its mandate and delivered what is due to livestock and poultry raisers. The pandemic has been a great challenge since on-site visit, validation, distribution and documentation of recipients were required. Amidst these challenges, the Program even achieved its targets and sustained its performance for both physical and financial.



# THE BREEDER LOAN PROGRAM

The DA RFO 02 established and maintained four (4) Nucleus Farms in the region. These serve as source of purebred and genetically superior breeder stocks for the improvement of native and upgraded animals such as goat, cattle, and sheep. Moreover, these nucleus farms function as learning sites where raisers are updated on latest production and management technologies towards productivity.

The Nucleus Farms are composed of the following:

1. DA-Nueva Vizcaya Experiment Station (NVES) in Villaros, Bagabag, Nueva Vizcaya is tagged as the "Nucleus Farm for Dairy-Type Goats". It is where qualified applicants can obtain dairy goat breed namely, Anglo-Nubian, Saanen and French Alpine. The station distributed 43 heads of Anglo-Nubian buck to 16 farmer-beneficiaries.
2. DA-Quirino Experiment Station (QES) in Dungo, Aglipay, Quirino is tagged as the "Nucleus Farm for Brahman Cattle". The station distributed a total of 8 heads of beef-type cattle to 8 famer-beneficiaries.
3. DA- Isabela Experiment Station in Upi, Gamu, Isabela is the identified "Nucleus Farm for Sheep". The station distributed 88 heads of quality breeder sheep to 22 qualified recipients.
4. DA-Southern Cagayan Research Center-Cagayan Breeding Station (SCRC-CBS) in Maguirig, Solana, Cagayan promotes goat meat and chevon utilization. The station distributed 28 heads of Kalahari Red to 16 farmer-beneficiaries.





## UNIFIED NATIONAL ARTIFICIAL INSEMINATION PROGRAM

The Unified National Artificial Insemination Program (UNAIP) is a proven strategy to breed improvement in livestock and poultry. Cattle and goats are the focus commodities of DA-RFO 02 for this specific program. It is designed to improve genetic composition of breeder stocks. For the period of January to December, 2021, a total of 5,690 of semen straws for cattle and 592 semen straws for goat were distributed in 5 different provinces within the region. Artificial insemination services were provided to 3,566 heads of cattle and 357 heads of goat.

# LIVESTOCK-BASED LIVELIHOOD AND ENTERPRISE DEVELOPMENT PROGRAM

This program is designed to provide immediate livelihood assistance in the form of animal modules for cattle, goat, free-range chicken as initial breeder stocks for production of egg and meat. The office provided cattle, goat, sheep and free-range chicken to qualified FCAs.

For this year, a total of 4,800 heads of free range chicken were distributed to four (4) FCAs namely, Villaverde Livestock and Poultry Farmers Association, Benay River Almaguer Irrigators Association Inc., Nueva Vizcaya, Mengal Womens Organic Chicken Raisers Association, Isabela and Association of Provincial Cattle Upgrading Assistance Project Beneficiaries, Quirino.

A total of sixty (60) heads of upgraded goats were also distributed to two (2) FCAs namely, Integrated Farmers Association in Sto. Nino, Cagayan and Baggao Small Ruminants Raisers Cooperative, Cagayan. A total of 78 heads of beef-type cattle were also distributed to Magbabaka ng Bagabag Inc. in Bagabag, Nueva Vizcaya and Isabela Large Ruminants Raisers Association in Ilagan City, Isabela.

Further, a total of 72 heads of sheep were distributed to the FCAs in Isabela namely, (1) Amianan Farmers Entrepreneur Agriculture Cooperative and (2) Isabela Small Ruminant Raisers Association.



# FORAGE AND PASTURE DEVELOPMENT PROGRAM

Considering good nutrition as vital aspect in the successful production, distribution of forage and pasture seeds and plant materials is an integral part of the production support services. This program is designed for ruminants, especially large (cattle and carabao) and small (goat and sheep). Through this program, seeds and plant materials are provided to large and small ruminant raisers for free. A total of 329,508 pieces planting materials for recommended forages as source of nutritious roughage were distributed; benefiting 14 FCAs and 221 individual recipients. These beneficiaries plan to establish improved pasture as source of forage for their stocks.

## AGRICULTURAL AND FISHERY MACHINERIES, EQUIPMENT, AND FACILITIES SUPPORT SERVICES

The important elements to a successful production and enterprise development that are not provided under production support are provided through the AFMEF Support Services such as machineries, equipment, and facilities. These services are provided to organize FCAs, Local Government Units (LGUs), State Universities and Colleges (SUCs). The program distributed 6 units of electric stunner to 6 FCAs, 112 units of power spray with engine and 117 units of knapsack sprayers to 112 FCAs, respectively. Moreover, the livestock program also purchased 1 of unit vehicle mounted disinfection machine and 1 unit wall mounted disinfection machine installed in Sta. Fe, Nueva Vizcaya. These equipment helped in the prevention and control of African Swine Fever (ASF) virus and other economically important diseases.



## INSPIRE PROGRAM

The Integrated National Swine Production Initiatives for Recovery and Expansion (INSPIRE) Program aims to restore quality and genetically superior breeder stocks and finishers, modernize the production environment in ASF-free zones, and implement strict bio-security measures. Ultimately, the program aims to help producers recover lost incomes and make available pork supply at affordable prices to consumers. One component of the program is the calibrated repopulation involving ASF affected areas released from quarantine. These so-called "pink" areas had gone through the program's sentinel protocol successfully. The protocol requires a "rest period" from production for a period of 50 days -30 days are spent on cleaning and disinfecting the farm, and 20 days for bioassay to check if the area is ASF-free. Then, sentinel pigs are raised on the farm for 40 days. As part of the recovery and repopulation program, DA RFO 02 procured and distributed sentinel piglets as prelude to the repopulation to the different provinces and municipalities in the region affected by ASF. The office also procured 1 vehicle mounted disinfection system that can be used regionwide and 69 Knapsack sprayers distributed to 69 FCAs.

# ORGANIC AGRICULTURE PROGRAM

A PREMIER PRODUCER OF ORGANIC RICE, OPEN-POLLINATED VARIETIES (OPV) CORN, AND VEGETABLES IN THE COUNTRY, SUSTAINING A MARKET SUPPLY OF “CERTIFIED” ORGANICALLY GROWN/PREPARED FOOD, FEEDS, AND OTHER AGRICULTURAL INPUT PRODUCTS

- Increase organic rice, OPV corn, and vegetable production area from 1,886 hectares to 2,383 hectares
- Increase organic rice, OPV corn, and vegetable production volume from 937 MT to 1,226 MT in FY 2022



Different interventions such as Production Support Services (PSS), Extension Support, Education and Training Services (ESETS), Provision of Agricultural Equipment and Facilities (PAEF), and Irrigation Network Services (INS) were provided to attain the program's goal.

## PRODUCTION SUPPORT SERVICES

### Production and Distribution of Assorted Organic Open-Pollinated Varieties (OPV) Vegetables Seeds

This project covers the development of a seed system for organic vegetables in the five (5) provinces in Region 02. Seed production was undertaken as the prime activity of the Two (2) Research Centers and Four (4) Experiment Stations of the DA RFO 02. Seeds produced were distributed to farmers and farmer organizations.

DA RFO 02's Research Centers and Experiment Stations were required to seek Third Party Organic Certification in order to certify that field operations complied with the Philippine National Standards on Organic Agriculture. The OCCP-Inspection and Certification Services Inc. (OCCP-ICSI), an accredited 3rd Party Certifying Body for Organic Agriculture, certified six (6) production sites namely, Nueva Vizcaya Experiment Station (DA-NVES) in Bagabag, Nueva Vizcaya, Cagayan Valley Research Center (DA-CVRC) in San Felipe, City of Ilagan, Isabela, Southern Cagayan Research Center (DA-SCRC) in Iguig, Cagayan, Cagayan Breeding Station located in Solana, Cagayan, Quirino Experiment Station (DA-QES) in Dungo, Aglipay, Quirino, and Batanes Experiment Station (BES) in Basco, Batanes.

Organic inputs such as legume seeds, root crops, and OPV vegetable seeds are produced at these stations. By the end of December 2021, 392 farmer beneficiaries received a total of 84.61 kg of varied OPV vegetable seeds.

## Organic Upland Rice Seeds Production and Distribution

Organic practitioners in irrigated, lowland, and upland habitats were served by on-station seed production and distribution of upland rice cultivars. Seed growers were first hesitant to plant organically grown rice seeds since they yielded less than conventionally grown rice seeds. However, many growers are now convinced to plant upland rice types using an organic farming approach because of the health benefits. Three (3) DA Research Center/Experiment Stations with a total area of 3.0 hectares were planted with organic rice seeds. Traditional Rice Varieties (TRV) such as Dinurado, Calatrava, and Bonkitan were produced because they have been of good- eating quality, aromatic, and can be used in irrigated, rain-fed, and upland rice fields in Region 02. A total of 1,720 kg of upland rice seeds were supplied to 91 farmer-beneficiaries.



## Organic Open-Pollinated Variety (OPV) Corn Seeds Production and Distribution

In December 2011, the Department of Agriculture Regional Field Office No. 02 started a landmark activity of starting to produce purified/organic OPV white and yellow corn seeds, and it has reached its three (3)- year conversion period.

To meet the increasing demand of farmers, production of OPV corn seeds was maintained for CY 2021. These were delivered to local farmers and local seed producers of food and feeds. The Regional Field Office maintained its three (3) Experiment Stations for seed production.

Natural seed selection and seed purification were used to produce organic OPV corn seeds. As of December 2021, 86 farmer-beneficiaries had received a total of 1,510 kg of OPV corn seeds.

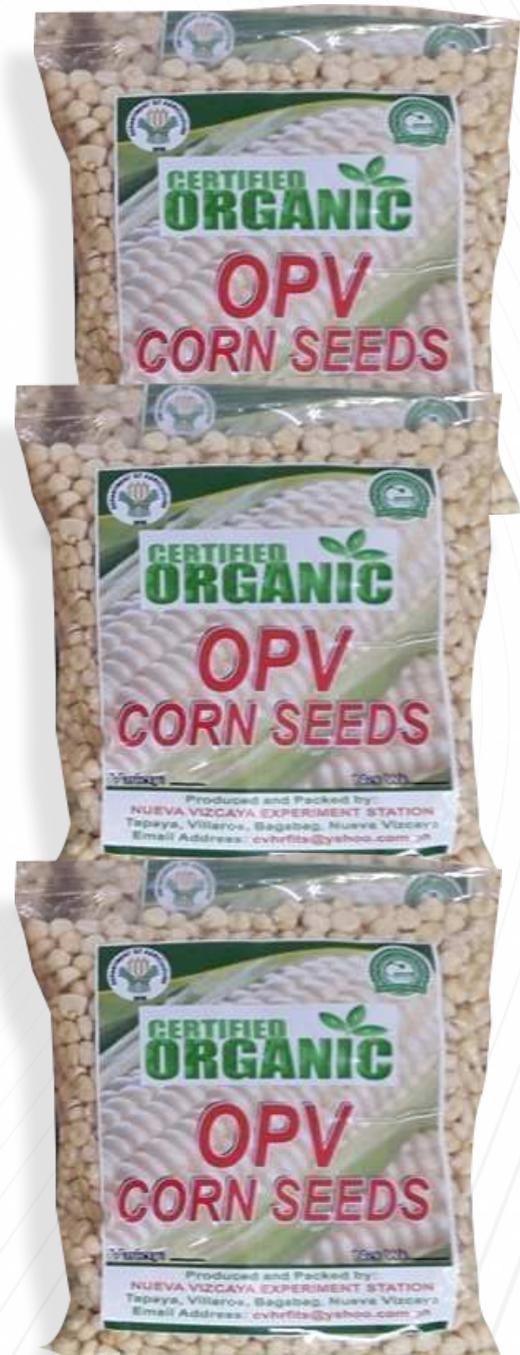


### Farm Supplies Distribution

To upscale organic food production and boost the productivity of organic areas, DA RFO2 provided access to production support services and agricultural farm supplies. Twelve (12) UV Plastic Polyethylene rolls were delivered and distributed to two farmer-groups in the region. The farm supplies are now being used by the recipients to build a rain shelter in the production of assorted vegetables.

### Upgraded Production Facilities

DA-related production facilities were upgraded to mitigate the effects of climate change and assure the availability and accessibility of organic seeds/planting materials and other organic farm inputs required for organic farming in the region. In support to the program, seven (7) Research Centers/ Experiment Stations in the region were upgraded to develop low-cost climate change mitigation technologies.



# EXTENSION SUPPORT, EDUCATION AND TRAINING SERVICES

## IEC Materials Dissemination and Radio Plugs Airing

In the promotion of organic agriculture, 2,500 Information Education, and Communication (IEC) materials were distributed, two (2) AVPs and four (4) radio plugs were packaged and aired on a regular basis throughout the year on DZDA, educational radio station of DA RFO 02, through its livestreaming program. These activities persuaded farmers to embrace organic farming.

## Technology Demonstration Maintenance

There were eight (8) technology demonstration sites that were maintained. These are situated at the DA's Experiment Stations and Research Centers. These served as learning sites for students, farmers and other organic agriculture stakeholders and enthusiasts. Various organic farming-related technologies were demonstrated for farmers' adoption. Additional technology-demonstration projects were maintained as expansion areas in order to cater to the needs of farmers in the locality and just recently, all of these research centers/experiment stations were certified by OCCP-ICSI as 3rd Party Organic Centers/Stations. This guarantees that the production system was inspected and it complied with the requirements of the Organic Agriculture - Philippine National Standards.

The following is a summary of the eight certificates shown in the image:

- Certificate 1:** Department of Agriculture-Quirino Experiment Station. Producer Code: 17000149. Issued to: Engr. Fidesimo A. Cabantog, Station Manager. Date of Issuance: 18 November 2021.
- Certificate 2:** Department of Agriculture - Nueva Vizcaya Experiment Station. Producer Code: 16020005. Issued to: MR. ARSENIO M. APOTOL, JR., MSAS, ACC 18/Station Manager. Date of Issuance: 18 NOVEMBER 2021.
- Certificate 3:** Department of Agricultural - Southern Cagayan Research Center (DA-SCRC). Producer Code: 17030148. Issued to: Engr. Blazita C. Teja, ACC 18/Manager. Date of Issuance: 18 November 2021.
- Certificate 4:** Department of Agriculture-Cagayan Valley Research Center (DA-CVRC). Producer Code: 18100107. Issued to: Engr. Rolando D. Peña, ACC 18/CVRC Manager. Date of Issuance: 18 November 2021.
- Certificate 5:** Department of Agriculture - Northern Cagayan Experiment Station (DA-NCES). Producer Code: 19100100. Issued to: Ms. Marissa B. Aguil, Ph.D., Station Manager. Date of Issuance: 18 OCTOBER 2021.
- Certificate 6:** Department of Agriculture-Batanes Experiment Station. Producer Code: 19100195. Issued to: Mr. Richard O. Peralta, DVM. Date of Issuance: 18 November 2021.
- Certificate 7:** Department of Agriculture-Cebu Experiment Station. Producer Code: 19100195. Issued to: Mr. Richard O. Peralta, DVM. Date of Issuance: 18 November 2021.
- Certificate 8:** Department of Agriculture-Cebu Experiment Station. Producer Code: 19100195. Issued to: Mr. Richard O. Peralta, DVM. Date of Issuance: 18 November 2021.



The Technology Demonstration Projects implemented were as follows:

Project Title	Location/Site
Management of Integrated Organic Farm Techno-Demo at Nueva Vizcaya Experiment Station	Nueva Vizcaya Experiment Station, Bagabag, Nueva Vizcaya
Integrated Organic Agriculture Production System Demonstration Project	Isabela Experiment Station, Gamu, Isabela
Technology-Demonstration on the Production of Organic Native Goat and Organic Fertilizer in Quirino Experiment Station	Quirino Experiment Station, Aglipay, Quirino
Organic Crop-Livestock Integrated Demo Farm	Northern Cagayan Experiment Station, Abulug, Cagayan
Mushroom Production Cum Vermicomposting Technology in Support to Biomass Utilization towards Sustainability of Traditional Rice Production	Southern Cagayan Research Center, Iguig, Cagayan
Establishment of Sloping Agricultural Land Technology (SALT) Organic Demo Farm	Batanes Experiment Station, Basco, Batanes
Technology Demonstration Showcase on Organic Bio-Intensive Gardening	Cagayan Valley Research Center, City of Ilagan, Isabela
Management of on station integrated organic duck cum corn production	Cagayan Breeding Station- SCRC, Solana, Cagayan

### Third Party Certification Assistance

The provision of 3rd Party Certification assistance to farmers is compliant with the Philippine National Standard for Organic Agriculture. This enhanced product competitiveness and guaranteed that organic integrity and food safety are continuously being undertaken by DA RFO 02.

In addition, DA RFO 02 also assisted five (5) private farms for Third Party Certification. As a result, the renewal of Third Party Certification was issued to the following:

List of Certified Farms/Operators	Location
Mataga-ay Coffee Growers Producers Cooperative	Maddela , Quirino
IT Pascua Agri-Products	Tuao, Cagayan
Vizcaya Fresh! Organic Advocates Inc.	Bayombong, Nueva Vizcaya
Agrizkaya Cooperative Federation	Bambang, Nueva Vizcaya
Willy's Integrated Farm	Mallig, Isabela

### Provision of Incentives to AEWs

An incentive allowance was granted to 40 Agricultural Extension Workers (AEWs) who served as front-line implementers of the Organic Agriculture Program in order to strengthen partnerships with private sectors, LGUs, NGAs, SUCs, and other stakeholders. Such program contributed to the effective implementation of the Organic Agriculture Program at the Local Government Unit (LGU) level.

# AGRICULTURAL AND FISHERY MACHINERIES, EQUIPMENT, AND FACILITIES SUPPORT SERVICES

## Provision of Agricultural Equipment and Facilities

Agricultural facilities and equipment were distributed to organic farmers to improve productivity and profitability. This year, the targeted seven (7) units of cultivator machine and four (4) units of portable rice milling machine were distributed to organic practitioners region wide.

These equipment were used for the production of organic vegetables which led to the diminishment of problems on post-harvest losses.



## IRRIGATION NETWORK SERVICES

### Solar Pump

Organic farming aims to optimize the use of on-farm resources and sustain the use of natural resources. Active water retention, water harvesting, and storing of water are important practices, especially for organic farmers. Vegetables and other crops need more water when the sun shines a lot. Therefore, a large quantity of energy is available when it is actually needed. Renewable energy is one of the ways that is used for irrigation nowadays to sustain good production and increase farmers' productivity, especially in organic farming.

This year, five (5) units of Solar Pumps were installed in the region. The project supported the solar power irrigation system and contributed to the attainment of the NOAP target of 5% of the total agricultural land area devoted to organic farming. Moreover, the project promoted renewable energy as source of water in organic farming system.





# The Mushroom Story

Chapter III  
**PROCESSING PLANT**  
Gourmix • Crispy Mushroom



# HALAL FOOD INDUSTRY DEVELOPMENT PROGRAM





## Halal Food Industry Development Program

For CY 2021, two (2) orientations/briefings on Halal were conducted to increase the level of awareness of FCAs on Halal Certification. Participants were members of Sanggir Ti Nueva Vizcaya Farmers Association, Inc. which is involved in rice and vegetable production and Aurora Citrus Farmers Marketing Cooperative which is also engaged in calamansi production.

Moreover, the Regulatory Division in collaboration with DOH-FDA and DTI provided assistance to Providers MPC of Magsaysay, Naguilian, Isabela for the Halal Product Certification of Pinoy GOURmix, the first ever Halal product certified in Region 02.





# ASPIRE

**THEME:**  
 "LEVELING UP THE  
 OPERATION OF  
 AGRIPRENEURS  
 FOR SUSTAINABLE  
 TOMORROW"

Robinsons Place  
 Tuguegarao City, Cagayan

**Agribusiness Support for Promotions & Investment in Regional Enterprises**



# MARKET DEVELOPMENT SERVICES

The Department of Agriculture – Regional Field Office No. 02 (DA RFO 02) through the Agribusiness and Marketing Assistance Division (AMAD) implements various projects in support to Agri-preneurship.

Driven by the enthusiasm to help FCAs in their entrepreneurial activities, the AMAD team had continuously provided support services amidst the pandemic. Various interventions were undertaken to ensure agribusiness competitiveness and sustainability which significantly contributed to the attainment of the “Twin Goal” of the Department of Agriculture, Masaganang Ani at Mataas na Kita.





## MARKET PROMOTION AND DEVELOPMENT

### Market/Product Promotion

AMAD had implemented the KADIWA ni Ani at Kita program to provide direct market access, reduce market layers to producers, and ensure accessibility of safe, fresh and quality agri-fishery products such as rice, fish poultry and livestock products, fruits, vegetables and other basic commodities at affordable prices to the consumers.

AMAD conducted three (3) KADIWA ni Ani Kita sa trade fairs and exhibits in malls participated by 20 agripreneurs and 16 individual enterprises and generated a total gross sale of Php581,424.00. These trade fairs assisted the agripreneurs to showcase their products and opened new business opportunities through market linkaging.

Ten (10) KADIWA ni Ani at Kita Market Outlets were established in different locations of Region 02 in partnership with Farmer Cooperatives and Associations (FCAs) and Research Centers and Experiment Stations (RCES) that generated a total sale of Php2,237,970.00 and sold a total volume of 16,505 kg of agri-fishery products. It also created 15 jobs, receiving daily wage of P270.00-300.00 per day.

### Enhanced KADIWA ni Ani at Kita Financial Grant Assistance

The DA RFO 02 through AMAD evaluated and provided Financial Grant Assistance to six (6) FCAs and two (2) LGUs under the Enhanced KADIWA ni Ani at Kita and marketed 79,963 kg of agri-products, valued at Php 3,292,239.00.

The provision of hauling trucks to FCAs, ease transport of agri-commodities, increased buying capacity to members produce from 3,000 kg to 5,000 kg, reduce postharvest losses and reduce transport cost from Php 2.00/kilogram to Php 0.8/kilogram. The FCAs traded 1,394,789 kilograms valued at P40,778,718.00 and generated 103 jobs.

Continuous provision of assistance to the 20 FCAs recipients of the Bayanihan I and II on their business operation resulted to an increased market reach. The FCAs traded 1,394,789 kilograms valued at Php 40,778,718.00 and generated 103 jobs.

As a result of the intervention provided, six (6) FCAs recipients established their market outlet at Balagtas, Guguinto, Bulacan. They paid P100,000.00 for stall rights and P1,362.00 daily rental. One stall occupied by four (4) FCAs. Meanwhile, three (3) FCAs are renting their own stall. The FCAs hired staff to man the stalls.

Some FCAs established continuous delivery of agri-products to Manila. KAFDECO delivers agri-products like vegetable at COGE Public Market, Antipolo, Rizal and rented a stall at Parañaque. Likewise, Aurora Citrus Farmers' Marketing Cooperative delivers agri-products to Metro Manila regularly.

Moreover, even during the pandemic, the One Stop Agribusiness Center (OSAC) serves as a promotional center, assisted 64 agripreneurs/processors in promoting their products and 10 researched-based products of DA RFO 02. This undertaking supplied the needs of customers from other agencies and clients.

## Business Linkage

Intensive business linkage activities were conducted as part of the continuous market assistance to producers/processors of agri-products. Truly, these business linkage activities of AMAD increased the market reach of 13 FCAs and 9 individual producers in the region. A total volume of 541.39 metric tons of agri-products were sold to various buyers valued at Php36,081,039.00. This endeavor is expected to sustain a positive position for the FCAs and individual producers' income.

Producer/Supplier	Buyer	Commodities Product	Volume	Sales Generated
Iluru Sur Mango Growers and Workers Association, Rizal, Cagayan	KLT Fruits Inc., Cavite	Mango	69.06 MT	1,878,813.00
Alcala Corn Farmers	Barcelona Food Products, Inc., Santiago City 3 Shers, Cauayan City	White Corn	7.61 MT	175,030.00
Alcala Peanut Farmers	Daisy Yogyog, CAR	Peanut	8 MT	520,000.00
Agrizcaya Cooperative Federation, Bambang, Nueva Vizcaya	Department of Education (DepEd)	Banana	224 packs	4,032,000.00
Integrated Farmers Cooperative, Tuguegarao City		Gourmix	6,576 liters	624,720.00
Providers MPC, Naguilian, Isabela		Milk	29,529 packs	739,800.00

# AGRIBUSINESS AND DEVELOPMENT

## Capacity Enhancement

The comprehensive approach initiated by AMAD changed the business outlook of 18 entrepreneurs enrolled under the Agribusiness Support Promotion and Investment in Regional Enterprises (ASPIRE) for 2021. They were engaged in food processing and adopting developed technology of the DA RFO 02 Research Division, Research Centers and Experiment Stations.

These ASPIRE enrollees were representatives from different FCAs who participated a series of trainings provided by AMAD. These trainings enriched their knowledge and skills on business operation and helped them improve their product presentation. The training was conducted in three (3) batches due to the restriction on physical gatherings. One batch for Cagayan FCAs, another for Isabela and one for Nueva Vizcaya and Quirino.

As part of the assistance, starter kits composed of improved packaging and labeling materials were given to all the enrollees. These ASPIRE enrollees were all considered exhibitors to trade fairs and market linkage activities of AMAD as a promotional marketing strategy to attain expanded market of their products.

## Investment Concept/Opportunities

To continually deliver the needed support to agri-enterprises, the AMAD had jointly conducted Webinar on Investment opportunities for Corn, Peanut and Mungbean Production and Processing in collaboration with AMAS on June 15, 2021, June 24, 2021 and July 21, 2021, respectively.

On October 11, 2021, these 100 young entrepreneurs were awarded a grant assistance amounting to Php50,000.00 each which served as their start-up capital for their proposed business enterprises. The winners composed of 25 from Cagayan, 49 from Isabela, 19 from Nueva Vizcaya, five (5) from Quirino and two (2) from Batanes.

Out of 100 young entrepreneurs, 49 were qualified in the Regional Level Competition. The following top three (3) were chosen and received an additional cash assistance amounting to Php150,000.00 as Regional Winners.

1. Jerry Mar G. Rafael  
Malasin, San Mateo, Isabela  
3R Zero Waste Project
2. John Reynald Simon  
Pinas, Claveria, Cagayan  
Oyster Mushroom Cultivation using mixed Ricestraw and Sawdust Technology
3. Jecerlene Sabio  
Lombay, Angadanan, Isabela  
Contract Growing and Dressing of Upgraded Native Chicken

The Top Three Regional Winners were qualified in

the National Level Competition. One of them in the person of Mr. Jerry Mar Rafael was selected as one of the Top 15 and made it as one of the 6 National Winners and won Php300,000.00.

### **Credit Facilitation**

AMAD is responsible in facilitating loan application and providing technical assistance to farmers and fishers on credit awareness, loan acquisition, utilization and repayment.

For 2021, loan applications of agri-fishery enterprises composed of 15 FCAs and 3,483 individual applicants were endorsed to ACPC. From these applicants, 3,662 beneficiaries had already availed a total loan amounting to Php251,528,000.00.

## **AGRIBUSINESS INDUSTRY SUPPORT**

### **Price Monitoring and Price Trend Analysis**

Price Monitoring and Price Trend Analysis provided price awareness to producers/processors, buyers and the consuming public. Updated price and market information of identified agricultural commodities established by AMAD were provided to the Consumer Affairs-AMAS, DA Management, RBPMT, Local Price Coordinating Council (LPCC) and Regional Tripartite Wages and Productivity Board 02 as basis/reference of various stakeholders on the suggested retail price, price wage planting of commodities, planning purposes and policy making.

### **Issuance of Food Lane and Food Pass**

Nine (9) trucking services were given Foodlane Accreditation to transport agricultural products of Cagayan Valley to other regions, particularly vegetables, fruits, fresh pineapple and other agri-products.

Issuance of Food Pass to food providers, producers, processors, suppliers and truckers delivering food products was an intervention in support to the continuous provision of food to the community during the community quarantine. A total of 963 food pass certificates were issued from January to October 2021.

### **Farmers and Fisherfolk Enterprise Development Information System (FFEDIS) Registration**

AMAD had already conducted five (5) virtual orientation seminar and registered 165 agri-fishery enterprises composed of 94 FCAs and 71 individual enterprises. FFEDIS registration is one of the requirements for ACPC loan/credit windows and Enhanced KADIWA Program. The system serves as a mechanism for product promotion and online advertisement.

### **Monitoring of Market-related Infrastructures**

Three (3) market-related infrastructures were monitored regularly by AMAD for their management operation, namely OTP in Bayombong, Nueva Vizcaya managed by Vizcaya Fresh Organic Advocates, Inc., the Isabela Agricultural Product Trading Center (IAPTC) in Roxas, Isabela, and the Nueva Vizcaya Agricultural Terminal – Agricultural Product Trading Center in Bambang, Nueva Vizcaya. NVAT is the depository of vegetables produced by farmers in Nueva Vizcaya and other nearby provinces with a daily outflow of 109,499.47 metric tons. Vegetables were distributed to Regions 1, 2, 3 4-A, 8, CAR and NCR thru the terminal.



# INTEGRATED LABORATORY SERVICES



## THE CAGAYAN VALLEY INTEGRATED AGRICULTURAL LABORATORY (CVIAL): REGION 02'S ACE TOWARDS FOOD SAFETY AND SECURITY

**A**s mandated in the Agriculture and Fisheries Modernization Act (AFMA) Rule 81.8.4 of its Implementing Rules and Regulations, the Department of Agriculture (DA) approves policies for the operationalization and continues strengthening of its institutional capacities. The integration of the Research and Development/Extension (R&D/E) system and the different laboratory services gears towards efficiency and effective systematic actions of DA RFO 02. It contributes to the national goal of a global competitiveness through production of quality and safe agricultural products for domestic and international market. According to Climate Change, Agriculture and Food Security (CCAFS), food security is experienced when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

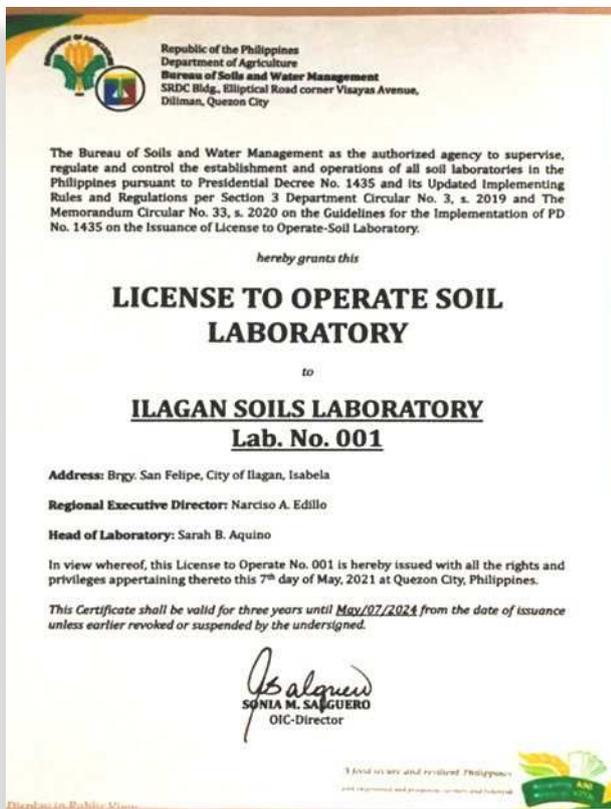
The Regional Soil Laboratory (RSL) and its satellite laboratory, Ilagan Soil Laboratory (ISL), provided technical information, analysis and ameliorant recommendations relative to soil condition and plant nutrient requirements to aid farmers in attaining optimum yield from their crops, reduce cost of inputs and maintain soil health. It also provided quality bio-fertilizers and technical assistance through soil, water, plant tissue and fertilizer analysis in support to research, development and extension.

Thirty-two (32) Soil Fertility Maps for Rice, Corn and High Value Crops were developed based on the 8,347 soil report analysis posted in the Local Government Units (LGUs) regionwide in collaboration with Regional Agricultural Engineering Division (RAED). Soil Fertility Mapping guided farmers in increasing their crop yield while reducing production cost based on fertilizer recommendation.

The Mobile Soils Laboratory exceeded its annual target wherein the laboratory generated 1,320 soil report analysis (Rice, Corn & HCV) in four (4) municipalities in Dupax Del Sur, Kayapa, Maddela and Bayombong and five (5) FCAs in Kasibu: Vegetables Grower Association (KAVEGA), Malabing Valley MPC, Giayan Matabbu IA, Mataddi Farmers IA, and Sto. Niño North Agrarian Reform Cooperative. High accomplishment was due to the continuous communication with the Municipal Agriculturists who availed the Mobile Laboratory Services.

Moreover, RSL accomplished over 100% of its target on the provision of bio-fertilizers. About 3,108 packs of legume inoculant for peanut & mung bean distributed to four (4) FCAs covering 160 hectares of peanut & 375 hectares of mung bean. About 8,478 kg of Bio-N were distributed to six (6) FCAs covering 7,065 hectares of corn areas and about 3,824 kg of Compost Fungus Activator (CFA) were distributed to 12 FCAs covering 6,373 hectares of rice areas across the Region.

The DA-Ilagan Soil Laboratory (ISL) was the 1st soil laboratory to be issued with License to Operate-Soil Laboratory (LTO-SL) in compliance with PD 1435, by the Bureau of Soil & Water Management System (BSWM).



The Regional Feed Chemical Analysis Laboratory (RF-CAL) provided analysis to ensure compliance to animal feed product standards for consumer safety and product acceptability both locally and globally. RFCAL provided and facilitated release of accurate analysis on 1,410 feed samples of feed establishments submitted by the Regulatory Division.

During the calendar year 2021, a total of 1,230 corn & 132 peanut samples for aflatoxin monitoring were collected within the vicinity of Region 2. After performing aflatoxin analysis on the corn & peanut

samples, it was confirmed that about 87% of corn & 95% of peanut samples were below maximum level of 50ppb based on PNS general standard for contaminants and toxins in food & feed.

The Regional Animal Disease Diagnostic Laboratory (RADDL) is an existing research and development facility provided efficient animal disease diagnostic services to livestock farmers, performed variety of disease diagnostic surveillance and procedures, and generated information and technologies on prevention and control of priority livestock diseases

In 2021, the RADDL displayed an overall accomplishment of 165.33%. Blood samples for PCR assay drastically increased due to re-emerging African swine fever affecting the hog industry in the region. Samples for rabies examination using Direct Fluorescent Antibody Test (DFAT) increased due to efficient rabies awareness program of the organization and catering of samples from CAR.

Other initiatives of RADDL are the following:

*Inauguration and Turn Over Ceremony of Anthrax Building (June 8, 2021)* – Anthrax building was granted by Black, Veatch and US-Defense Threat Reduction Agency (US-DTRA). RADDL is armed with high caliber equipment and good security system to ensure the over-all biosafety and biosecurity. RADDL analysts are equipped with technical expertise to strengthen and improve laboratory confirmation of Anthrax suspected specimens and deliver high quality laboratory services.



*Turn-over of RT-PCR 7500 Fast ABI Biosystems from Bureau of Animal Industry (November 4, 2021) and Virtual training on 7500 FAST Real Time PCR of Applied Biosystems (November 16, 2021)* - Additional laboratory machines were used in the laboratory for the conduct of syntheses and analyses, development of new products, processing of smallest quantities, and quality control. The use of laboratory machines resulted to a considerable acceleration and facilitation of work procedures in the laboratories and the ability to reproduce once achieved results.

*Validation of GenAmplify ASF PCR Detection test kit from Manila Health Tek (November 18, 2021)* - This validation demonstrated the kit's diagnostic accuracy, analytical sensitivity, analytical specificity, and ruggedness. An inter-laboratory comparison study was also conducted.

The Regional Crop Protection Center-Plant Health Clinic (RCPC-PHC) and its satellite laboratory RCPC-Ilagan is a Research for Development facility which provided products and services to address problems on plant pests, diseases and pesticide residues to sustain sufficient, affordable and safe food for every Filipino. Plant Pest and disease outbreak poses a great risk to food security in the country.

As the leading laboratory on Plant Diagnostics, one of the PHC staff was invited as Resource Speaker during the 2021 Regional Science and Technology Week "Plant DiagKNOWStics: Disease Indexing for High Value Crops", a collaboration activity with the Department of Science and Technology (DOST 02) and Nueva Vizcaya State University (NVSU). It was attended by researchers/faculty staff of different State Universities/Colleges and other stakeholders in Region 02. Advances in Plant Diagnostics and ILD Services, specifically on the Methods on molecular diagnosis on Philippine Downy Mildew in Corn, were discussed during the webinar.



The DA RFO 02 established a mini-laboratory at Nueva Vizcaya Agricultural Terminal (NVAT) to monitor the level of pesticide residues of the products coming from different vegetable growers associations/cooperatives. Series of hands-on training were conducted on the use of colorimetric rapid test kits in the three (3) vegetable growers cooperative. Continuous monitoring on the level of pesticide residues of vegetables from ten (10) GAP certified vegetable growers association in Nueva Vizcaya was also conducted.



Adoption of technology and use of Biological Control Agents (BCAs) were important for the management of pests and diseases in vegetable production. The PHC assisted the DA RFO 1 & 5 on Food Safety Benchmarking. They visited the mini-laboratory at NVAT in Bambang, Nueva Vizcaya to observe the actual collection and analysis of vegetables, implementation of Food Safety Program, Biological Control Agents (BCAs) laboratory at NVES in Nueva Vizcaya, RCPC in Ilagan and Cagayan Valley Integrated Agricultural Laboratory (CVIAL) in Tuguegarao City.

Conducted Research for Development entitled “Technology Commercialization of Biological Control Agents and Rapid Test Kit” in the promotion of pesticide-safe vegetables in Cagayan that empowered five (5) Farmer Cooperative Associations (FCAs) as producers of pesticide-safe vegetables through adoption of the technology.

Despite the threat of the pandemic, the Regional Crop Protection Center (RCPC) successfully implemented all the following programs and activities:

#### *Pest Surveillance and Monitoring*

A total of 23,134 hectares infested by various pests were monitored and validated. Under rice, 8,115 hectares were infested with Fall Armyworm, Brown Planthopper, Green Leaf Hopper, Rice Black Bug, Stem-borer, Rodent, Leaf blast, Bacterial Leaf Blight, Stem rot and Leaf folder affecting 8,118 farmers. Under corn, 14,836 hectares were infested with Fall Armyworm, Cutworm, Corn Planthopper affecting 14,845 farmers. Under high value crops, 183 hectares of banana, cacao, and vegetables were infested with black sigatoka, helopeltis bug, aphids, eggplant fruit, shoot borer, and fruit worm affecting 148 farmers.

#### *Extension Support, Education and Training Services (ESETS)*

Technical briefings, capability buildings, hands-on training were conducted region wide to capacitate Agricultural Extension Workers (AEWs), farmer leaders and farmers in the identification, diagnosis, reporting and management of different insect pests of commodities in Cagayan Valley. These activities contributed to the early detection and reporting of incidence thus, early management was recommended and executed.

Four (4) batches of Barangay Bantay Peste Brigade were conducted in the province of Cagayan, Isabela, Nueva Vizcaya and Quirino. Eighty-eight (88) AEWs were capacitated on new corn pests updates. Sixteen (16) batches of technical briefings on pests updates on rice, corn and high value crops were conducted. A total of 587 farmers were capacitated during the activity.

Three (3) batches of Information Caravan on pests identification, diagnosis, monitoring, surveillance and management were conducted in coordination with Regional Agriculture and Fisheries Infor-

mation Section (RAFIS) and Regulatory Division. The activity was held at DA-SCRC in Iguig, Cagayan, DA-CVRC in Ilagan City, Isabela, and DA-NVES in Baguio, Nueva Vizcaya. A total of 150 new DA-RFO O2 technical staff and contractual employees were capacitated during the event.

#### *Production and Distribution of Biological Control Agents (BCAs)*

The Center is responsible in the production of high quality Biological Control Agents (BCAs) in the region.

#### Entomophagous Fungi (EPF)

1. Green Muscardine Fungus (*Metarhizium anisoplae*) – 8,888 kilograms were produced and 8,569 were distributed to 1,187 farmers covering an area of 1,149 hectares.
2. White Muscardine Fungus (*Beauveria bassiana*) – 6,466 kilograms were produced and 6,200 were distributed to 826 farmers covering an area of 826 hectares.
3. *Isaria fumorosorea* – 5,235 kilograms were produced and 5,150 kilograms were distributed covering an area of 686 hectares with 686 farmers.
4. *Trichoderma harzianum* - 1,200 kilograms produced and 1,145 kilograms distributed to 151 hectares with 140 farmers beneficiaries for composting and for soil-borne disease management.



## Parasitoids

Three (3) species of *Trichogramma* were produced and maintained to parasitize the eggs of lepidopteran pests such as fruitworm, earworm, fruit and shoot borer, corn borer and rice stem borer.

1. *Trichogramma chilonis* - 40,250 cards produced and 38,800 cards distributed to 260 individual farmer covering 268 hectares vegetable area.
2. *Trichogramma evanescens* – 291,500 cards produced and 273,000 cards distributed to 2,730 individual farmers covering 2,730 hectares Open Pollinated Varieties (OPV) corn
3. *Trichogramma japonicum* - 50,000 cards produced and distributed to 500 farmers covering 500 hectares of rice field.

## Predator-Earwig (*Euborellia annulata* and *Euborellia annilipes*)

There were 6,200,000 individual earwigs produced and 5,870,000 distributed to 587 farmers covering 587 hectares.

## Mass Production of Spawn (*Volvariella volvacea*) - Straw Mushroom

Mushroom R&D Center initiated the implementation of Community-Based Mushroom Production Project. The project components include On-Station Mushroom Production focused on pure mother culture, spawn, and fruiting bag production and Community-Based Mushroom Enterprise Establishment to assist and support business enterprise for fresh mushroom and processed products.

A total of 18,398 spawns were produced and used for on-station hands on training (walk-in), National Government Agencies (NGAs) and Non-Government Organizations (NGOs) for straw mushroom production.



## Conduct of Research

The center strengthened its dedication to conduct various changes to address the needs of farmers across the region in the field of crop pest management by utilizing Integrated Pest Management (IPM).

## Department of Agriculture -Bureau of Agricultural Research Funded Project

1. Outscaling of Upland Rice-Based Farming System In Jones, Isabela
2. Outscaling of Container Straw Mushroom Cultivation
3. Development of Early Warning System and Database Management of Corn Arthropod Pest And Diseases In Region 02
4. Assessment on the Incidence of Arthropod Pests and Diseases of Cassava in Region 02 as Influenced by Fertilization and Elevation (On-going)



## On-Station Research

On-Station Assessment and Management of Fall Armyworm (FAW) with 5 components were completed.

1. Yield Loss Assessment of FAW Damaged in Different Growth Stages of Corn;
2. Evaluation of Different Recommended Insecticides in the Management of FAW;
3. Evaluation of Biological Control Agents (BCAs) in the Management of FAW;
4. Studies on Host Preference and Damage Behavior of Fall Armyworm (*Spodoptera frugiperda*) in Choice and Non-Choice Test; and
5. Evaluation of Different GM Corn Varieties Against Fall Armyworm Infestation

# RESEARCH FOR DEVELOPMENT SERVICES





The Department of Agriculture Regional Field Office No. 02 (DA RFO 02) Research Division (RD), together with its Research Centers and Stations (RCES), effectively and efficiently implemented its Research for Development (R4D) programs and projects through maximizing the available funds from various sources despite of the numerous restrictions caused by the COVID-19 pandemic.

For CY 2021, there were 40 R4D projects aligned to the Technology Innovation and Digital Agriculture (TIDA) under the Modernization Pillar of OneDA Reform Agenda: Key Strategies in Transforming Philippine Agriculture. These were funded under the General Appropriations Act (GAA) fund. A total of Php 59.045 M was utilized to continuously finance these projects. There were 31 projects for rice, two (2) for corn, two (2) for livestock and five (5) under various support services. These R4D projects were implemented by the seven (7) Research Centers/Experiment Stations (RC/ES), two (2) satellite stations and other R4D implementing divisions of DA RFO 02 such as Integrated Laboratory Division (ILD), Regional Agricultural Engineering Division (RAED), and Regional Crop Protection Center (RCPC). Through this collaboration, 100% physical accomplishment was achieved.

A total of Php 33.85M was also generated from the Department of Agriculture-Bureau of Agricultural Research (DA-BAR) under the Plant, Plant, Plant Program (P4) for the completion and continuous implementation of the 18 projects (16 continuing and 2 newly funded) benefiting 3,258 farmers and 19 FCAs. Another Php 37.5M was also generated from the Bayanihan II Program of DA-BAR to finance the Research Facilities Development Grant (RFDG) of DA RFO 02.

The funds generated transformed the RC/ES R4D facilities into state-of-the-art and climate resilient buildings utilizing renewable energy such as solar power and rainwater harvesting components. Modern laboratory equipment were also procured geared towards obtaining more accurate laboratory results, thus, ensuring the integrity of data gathered. Moreover, these R4D projects ensured the availability, affordability and accessibility of quality seeds, planting materials, livestock semen, farm machineries and safe & nutritious food products for the benefit of the farmers and other stakeholders.

Furthermore, these resources can also be utilized by member-agencies of the Cagayan Valley Regional Research, Development and Extension Network (CVRRDEN) such as State Universities and Colleges (SUCs), Local Government Units (LGUs), Regional Line Agencies in their research and extension works and on-the-job trainings/immersion of students.



With the implementation of 40 regular and 18 externally funded projects, technologies/breakthroughs were identified during the series of On-site/Online R4D Monitoring, Pre-In-House and Annual Agency-In-House Reviews. The following are the technologies to be transferred to Field Operations Division (FOD) for further support in the promotion and inclusion in their Extension Support Education and Training Services (ESETS) activities:

### Rice R4D

1. Systems of Rice Intensification (SRI) proven effective in increasing yield and income of rice farmers from 14-16% and 6-9% during wet season (WS) and dry season (DS) in Maddela and Aglipay, Quirino, respectively and income of Php6,620.00/ha to Php7,994.00/ha
2. Strawberry production in rice-based areas in Cagayan province
3. Mushroom production module adopted by 12 Farmer Cooperatives Associations (FCAs) including Locally Stranded Individuals, Persons with Disability, Senior Citizen, Women, Youth/Sangguniang Kabataan with potential export thru Integrated Farmers' Association of Gamu, Isabela (IFAGI) in Canada and establishment of Mushroom Processing Plant in Region 02
  - Grain spawn production
  - Fruiting bag production
4. Soil loss assessment in Small Water Impounding Projects (SWIP) areas
5. Regional database information system on mechanization for crop production
6. Updating of ground water resource assessment in Region 02
7. Pest Risk Identification Management (PRIME)
8. Rice Crop Manager (RCM)
9. Plant intensification for improved mungbean productivity in rice-based areas in Isabela
10. Establishment of science-based information on the performance efficiency of the following:
  - Hand tractor mounted leveller
  - Mechanical palay seeder in lowland irrigated
  - Mechanical palay seeder in upland
  - Weeder
11. Nextgen varieties (inbred and special (glutinous/ aromatic) which served as basis/ reference of FOD in procuring seeds for CY 2022 (NSIC Rc510) in the different ecosystem
12. Waterrice that resulted to increase in yield from 4.2mt/ha to 5.5mt/ha during WS and 7.4mt/ha to 10.3mt/ha during DS
13. Commercialization of NSIC Rc480 (GSR 8) and NSIC Rc27
14. Free flowing/Artesian well for rice production
  - Increased in yield from 3.15MT to 5.3MT of palay
  - Increased income of rice farmers by at least 174%
  - Increase cropping intensity from one cropping to two (2) cropping a year
  - Reduced irrigation costs by Php9,000.00/ha to Php13,000.0 per season by eliminating the irrigation (fuel/electric) costs
15. Commercialization of mungbean in other potential rice areas
16. Integration of rice+Sweet Abulug Pummelo (SAP)
17. Outscaling of rice+poultry (duck and chicken) integration
18. Outscaling of off-season onion in the rice-based areas
19. Development of rice-based food products adopted by 3 FCAs as one of their business enterprises
  - Red Rice Brew
  - Bibingkinitan/cookies
  - Mushroom miki
  - Mushroom seasoning
20. Upscaling of Nana oryza products

## Corn R4D

1. Reduction of aflatoxin occurrence to 4% using mechanical dryer Village-Type Dryer (VTD) 1, VTD 2, Mobile Recirculating Dryer and GSI Dryer)
2. Registration of one (1) Yellow corn (Glutinous OPV) NSIC 2020 Cn328, CVRC Glut #18-14 to NSIC
  - Yield (mt/ha): 4.78 (Luzon); 5.60 (Visayas)
  - Percent (%) yield advantage: 1.06 (Luzon); 6.16 (Visayas)
  - Maturity (days): 103 DS; 100 WS
  - Plant height at maturity (cm): 214 DS; 218.38 WS
  - Ear length: 14.30 cm
  - Shelling recovery: 77.28%
3. Development of triple-cropping of glutinous corn;
  - Forty two thousand seven hundred (42,700) pieces/cropping per hectare of hybrid glutinous corn with a net income of Php83,900.0/ha/cropping
  - 7,620 kg/cropping/0.50 ha of silage as feed for livestock for 152 days with a potential net income of Php52,529.98/ha
  - P136,429.0/ha potential annual farm income
4. Commercialization of Sustainable Corn Production in Sloping Areas (SCoPSA)

## Livestock R4D

1. Establishment of African Swine Fever (ASF) maps as basis of issuance of the following:
  - Advisory
  - Disease control
  - Provision of appropriate interventions for depopulation and repopulation
  - Ordinance by LGUs
2. Development of breeds of dairy goat (F1 Sanglopine)
3. Tested 174 heads of sheep for productive and reproductive performance; male White Dorper Ram cross with female St. Croix Ewe registered the highest lambing rate of 100% and production rate of 160% with a lamb size of 1.6
4. Development of (two) breeds of cattle (Holstein-Sahiwal bull-cross and Holstein-Sahiwal cow-cross)
5. Development of DA-Dos Chicken (Phase I)
  - Plumage/Feather: Barred Gray/Yellow/Black
  - Shank Color: Dirty White
  - Comb: Pea Comb
  - Beak Color: White/Brown
  - Egg Laying: 200-220 Eggs Per Year

- Mature Weight @ 6-8 Months: 3.5 kg (Rooster), 2.8-3kg (Hen)
  - Highly Heat Resistant
6. Development/processing of 22 poultry products dubbed under the Cagayan Valley's Duck and Native Chicken Delight



## High Value Crops R4D

1. Commercialization of Biological Control Agents (BCA) and Rapid Test Kit (RTK) for pesticide safe vegetables
2. Mass production of lowland and indigenous vegetables and legumes, garlic, sweet potato, ginger, banana and onion
3. Upscaling of Pinoy Gourmix product, soybean-based products and mungbean-based products



In partnership with the Agribusiness and Marketing Assistance Division (AMAD), the Research Division conducted continuous capacitation of R4D researchers in establishing profitability analysis and financial viability of different products developed benefiting 20 participants from seven (7) RCES. The interested Farmer Cooperatives/Associations (FCAs) were trained and capacitated on the technologies, procedures/ protocols of their chosen products as one of their enterprises prior to its commercialization.

A training cum workshop on research publication in partnership with Isabela State University (ISU) which was attended by 40 researchers regionwide was also conducted. The Memorandum of Understanding (MOU) between DA RFO 02 and ISU was signed by both parties as binding agreement to strengthen the publication of research papers to refereed journals.

There were 11 research papers submitted to ISU Linkers for publication. These are as follows:

1. Carrageenan: Rice Yield Booster
2. Soil Loss Assessment on Watersheds of Small Water Impounding Projects in Region 02
3. Effect of Probiotic Supplementation on the Growth Performance of Pre-weaning and Post-weaning Lambs
4. Sustainable Corn Production in Sloping Areas (SCoPSA) in Maddela, Quirino, Philippines: Viable Farming in the Uplands
5. Nematophagous Fungi as Potential Control Agent for Nematodes in Small Ruminants
6. Off Season Onion Production in Rice-Based Areas in Aritao, Nueva Vizcaya, Philippines
7. Performance Evaluation of Mechanized and Conventional Transplanting Using New Released Inbred Rice Varieties under the Different Local Conditions in Cagayan
8. Technology Verification of Urea-treated Rice Straw in Beef Cattle Production
9. Mangi Maxi: Leading the Income
10. Quad Media: As Extension Support in Boosting Rice Productivity in Region 2 Philippines
11. Rice-Muscovy Duck Farming System: A Friendly Technology and a Business Opportunity

To date, two (2) research papers namely: Sustainable Corn Production in Sloping Areas (SCoPSA) in Maddela, Quirino, Philippines: Viable Farming in the Uplands and Soil Loss Assessment on Watersheds of Small Water Impounding Projects in Region 02 were given a copyright agreement for publication in the ISU Linkers for CY 2021 June and December Issues. Two (2) research papers were published entitled, "Degree of Soil Erosion of Small Water Impounding Projects' Watersheds in Cagayan Valley: An Assessment" and "Sustainable Corn Production in Sloping Areas in Quirino, Philippines: Viable Farming in Uplands".

Various Information, Education and Communication (IEC) materials such as annual report, research digest, compendium of technologies and customized calendar and fans were produced for the benefit of researchers, academe, youth, farmers, fishers and other agriculture stakeholders. The Research Digest, official magazine of the Research Division, is published quarterly. This magazine contained and/or featured 2-3 technologies for every quarter issue. Likewise, the compendium of technologies were transferred to Province-led Agriculture and Fisheries Extension System (PAFES) in Quirino Province. These served as guide in technology commercialization towards increased productivity and attainment of food sufficiency in preparation of the Mandanas Ruling implementation.

To date, 12 technologies/products/information were already transferred to 18 technology takers (FCAs, small and medium enterprises (SMEs), youth, women, senior citizen and persons with disability) through awarding of Technology Transfer Certificate and signing of Memorandum of Understanding (MOU), and Licensing/Marketing Agreement (LMA). The transfer of technology was done in partnership with AMAD to assist the FCAs in marketing their produce and possible finance linkaging. Likewise, product launching of Panderise was conducted with MBs Food Products as product takers.

Various technologies were likewise transferred and disseminated through field days and media platforms like broadcast and social media to reach more farmers due to pandemic limitations. Technologies on rice+duck integration and off-season onion production were likewise discussed through virtual forms/webinar series conducted by DA-BAR and DA-Agricultural Training Institute (ATI).

## Awards and Recognition

There are 61 researchers nationwide that are now Magna Carta (RA-8439) eligibles.

With the presence of dedicated, committed and competent researchers and mentors in the region, worthy and notable science-based technologies and breakthroughs for CY 2021 were generated and recognized in the field of R4D as enumerated below:

- 1st International Virtual Congress and 2021 Philippine Agriculturists' Summit
  - Best Poster Presentation for Socio-Economic Category for the project titled "CPAR on Off-season Onion Production in Rice-based Areas in Aritao, Nueva Vizcaya, Philippines" by DA RFO 02 Research Division and Nueva Vizcaya Experiment Station.
- 32nd Cagayan Valley Agriculture and Aquatic Resources Research & Development - Regional Symposium on Research, Development & Extension Highlights (CVAARRD RSRDEH) spearheaded by the Cagayan Valley Agriculture, Aquatic and Resources Research and Development (CVAARRD)
  - a. Research Category
    - 1st Place Best Paper - "Optimum Yield of Three Peanut Varieties Under Innovative Water Management and Fertilization in Light Soils Along River Flood-prone Corn-based Areas of Region 02" authored by DA RFO 02 CVRC.
  - b. Development Category
    - 1st Place Best Paper - "Enhancement and Commercialization of Developed Mungbean-Based Food Products" authored by DA RFO 02 CVRC.
    - 2nd Place Best Paper - "CPAR on Rainfed Rice-based Areas of Namabbalan Norte, Tuguegarao City, Cagayan" by authored DA RFO 02 CVRC.
  - c. Poster Category
    - 1st Place - "Support to Mass Production of Quality Planting Materials through Mass Propagation of Vegetable Technique in Cagayan Valley" authored by DA RFO 02 CVRC/ SCRC/ NCES/CBS/Research Division.
    - 3rd Place - "Optimum Yield of Three Peanut Varieties Under Innovative Water Management and Fertilization in Light Soils Along River Flood-prone Corn-based Areas of Region 02" authored by DA RFO 02 CVRC.



3. National Conference on Agriculture, Fisheries and Forestry

a. Agricultural Track Category

- 2nd Place Best Paper - "Degree of Erosion of Small Water Impounding Projects' Watersheds in Cagayan Valley, Philippines: A spatial analysis" authored by DA RFO 02 SCRC.

4. 2nd RAFNRET Virtual Research Conference

a. Agriculture, Fisheries and Natural Resources Category

- 3rd Place Best Paper - "Optimum Yield of Three Peanut Varieties Under Innovative Water Management Towards Attainment of Optimal Yield Under Light Soil Condition in Corn-based Areas in Cagayan Valley, Philippines" authored by DA-RFO 02 CVRC and "Degree of Erosion of Small Water Impounding Projects' Watersheds in Cagayan Valley, Philippines: A spatial analysis" authored by DA RFO 02 SCRC.

5. 5th International RDE Management Congress and 30th National PhilARM Convention

a. Social Responsibility Award awarded to Ms. Lovelyn A. Gaspar, Chief, Research Division

b. William C. Medrano Best Paper Award

- 2nd Place Best Paper - "R4D 2.0: Upgrading DA-CVRC Technology Transfer Efforts through Sustainable Adoption and Commercialization by Partner-Beneficiaries Amidst Pandemic" authored by DA RFO 02 CVRC.
- 5th Place Best Paper - "R4D&E Management Strategies in Packaging, Implementing and Transferring R4D

Projects Addressing Food Security" authored by DA RFO 02 Research Division

6. Regional Invention Contest and Exhibits (RICE) – Likha Award

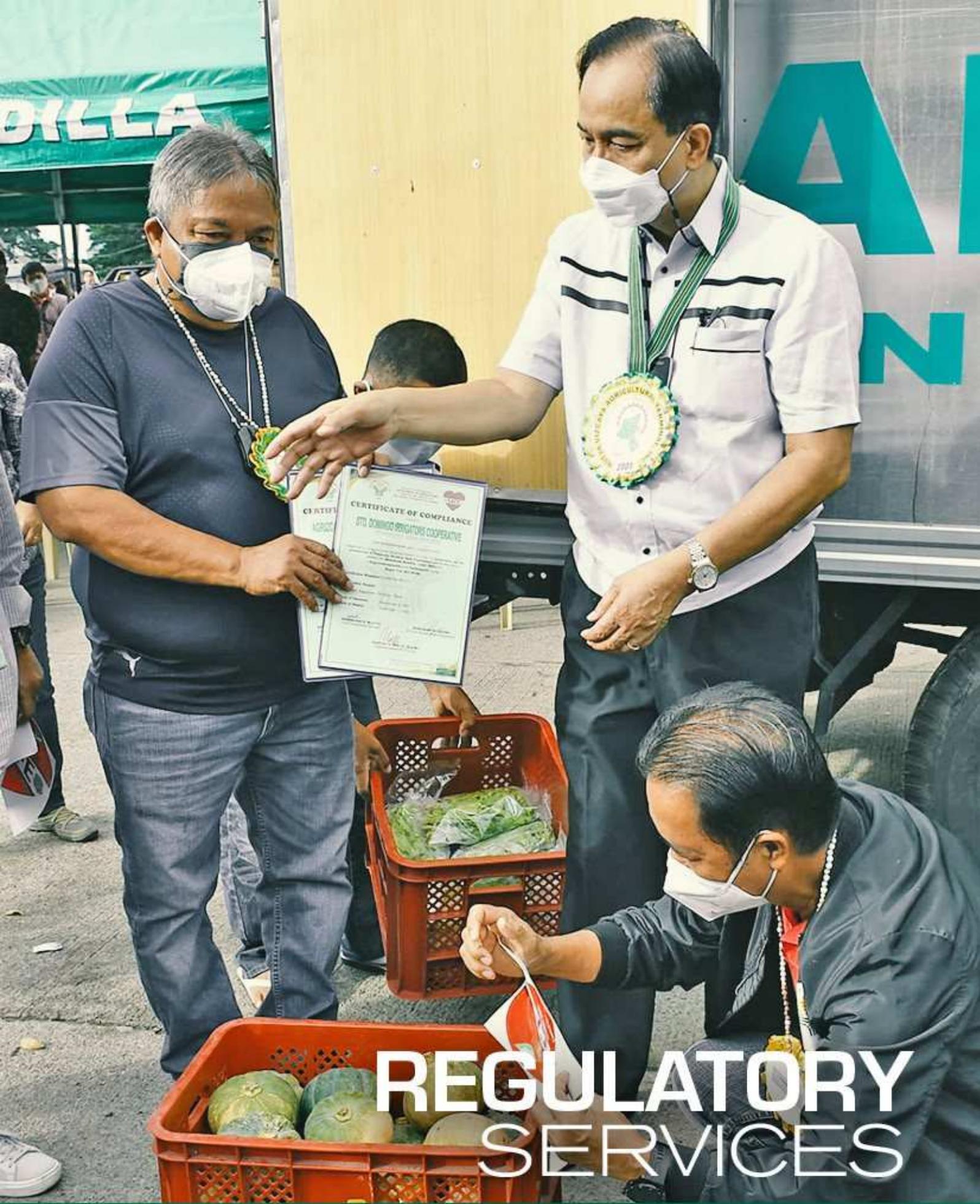
- a. 3rd Finalist: Pinoy GOURmix
- b. 4th Finalist: Mangbean Products

To continuously carry-out the R4D mandate, nine (9) consultation/planning workshops and 13 monthly and special meetings anchored in research extension agenda were conducted that contributed much in the smooth implementation of 40 R4D programs/projects which were funded internally and externally.

The development, verification, and adaptation of location-specific technologies should be a regular activity because research is a continuous process as it provides solutions to specific problems. Adoption of matured technologies highly contributed to the attainment of the twin goals of the department; increasing productivity and income of our farmers. Likewise, strengthening of the capability development of researchers resulted to a more productive outputs.

The R4D management practices of DA RFO 02 on packaging and implementing R4D projects and transfer of technologies through various platforms are highly recommended to be sustained and continuously be undertaken. Further, harmonization with other divisions and partner research institutions and possible publication of research papers to international refereed journals are to be part of management practices. These shall lead to inclusive growth, better productivity, and higher farm income towards resilient and prosperous farmers amidst pandemic and global economic challenges.





# REGULATORY SERVICES

Trailblazing the Implementation of Food Safety Act of 2013



The Regulatory services were implemented under the Regulatory Division which has the mandate on the enforcement of policies on food safety and quality including the regulation of animal and plant material and by-products movement in the region, and promotion of Philippine National Standards such as Good Agricultural Practices and Good Animal Husbandry Practices. It also promotes the observance and adherence on Republic Act (RA) 8485 (Animal Welfare Act of 1998), licensing and registration of feed and Veterinary Drug and Product (VDAP) establishments, transport carriers and handlers license in consonance with RA 1556, RA 3720 and DA AO 08.

In collaboration with the various operating units, the following milestones on regulatory services were attained in 2021.

### Implementation of Good Agricultural Practices (GAP)

Recognizing the importance of food safety, the Department of Agriculture Regional Field Office No. 02 motivates and encourages farmers to practice GAP and apply for PhilGAP certification.

Amidst the pandemic, 15 technical briefings were conducted through focused-group discussion. From among the farmers oriented on GAP, 107 signified their intent to apply for GAP certification.

Evaluation/inspection of their farms were conducted and technical assistance were provided. As a result, application for GAP certification of 60 individual farms were endorsed to the Bureau of Plant Industry.

Moreover, the guidelines on the certification of Pesti-

cide Residue-Safe Vegetables and Fruits was crafted. LGU's engagement in the implementation of Food Safety Program has been strengthened thru legislative support. For the year, the Provincial Local Government (PLGU) of Nueva Vizcaya issued Ordinance No. 2021-212 entitled "An Ordinance Strengthening the Food Safety Regulatory System in the Province of Nueva Vizcaya to Protect Consumers' Health and Facilitate Market Access of Local Foods and Food Products, and for Other Purposes". The said ordinance has been adopted by four (4) Municipal Local Government Units (MLGUs) in the province namely, Bagabag, Solano, Dupax del Norte and Villaverde.

As a result of the conscientious practices of the farmers in the application of GAP particularly in the strict observance of Pre-Harvest Interval (PHI) in the use of synthetic pesticides and the use of Biological Control Agents (BCAs) in the control of plant pests and diseases, to date, 35 FCAs were certified producers of pesticide residue-safe vegetables and were compliant to Maximum Residue Limit (MRL) for organophosphate and carbamates.

Twenty-eight (28) of the compliant FCAs were from the province of Nueva Vizcaya, 4 from the province of Cagayan and 3 from the province of Isabela.

With these initiatives on GAP, Regions I, CAR, IV-B and V visited Region 02 for benchmarking purposes. Moreover, the Regulatory Division hosted and facilitated a webinar entitled, "Upscaling of Food Safety Program Field Implementation on Vegetables and Fruits: The Region 02 Experience" last October 26, 2021. This was participated by the members of Food Safety Team of Regional Field Offices (RFOs) nationwide.

## Implementation of Animal Welfare Act (AWA) and Good Animal Husbandry Practices (GAHP)

The Good Animal Husbandry Practices (GAHP) Certification Program was created to ensure the adoption of livestock and poultry farmers to food safety standards, such as the Philippine National Standards: Code of GAHP and its species-specific counterparts. The main objectives of the program are the following:

1. To provide safe and quality animal products to the consumers;
2. To ensure animals' welfare and comfort;
3. To ensure workers' welfare and comfort; and
4. To ensure that the farming operation does not cause degradation of the environment.

Although the COVID-19 pandemic has affected every segment of society including the Agriculture sector, none of this slowed down the implementation of Food Safety Program of the Department of Agriculture in the region. Animal Welfare Act (AWA) registration and Good Animal Husbandry Practices (GAHP) certification program were continuously implemented. These undertakings led farmers to produce disease-free poultry and livestock products, including registered animal facilities that safeguard the health and safety of pet animals against cruelty.

For CY 2021, a total of 10 orientations and Focused-Group Discussions (FGDs) on AWA and GAHP were conducted at DA Experiment Stations and

animal facilities. The orientations were participated by 425 attendees, composed of animal facility owners, veterinarians, farm managers, municipal and provincial livestock inspectors, and farm personnel.

Amidst series of lock downs, inspection of establishments/facilities continued. Seventy-one (71) facilities were registered of which nine (9) were endorsed to BAI-GAHP Secretariat for GAHP certification.

Later part of this year, three (3) animal facilities were inspected by the National GAHP Inspection Team. The release of GAHP Certificate of the said facilities is expected early next year. The Regional AWA/GAHP team of the Regulatory Division will continue to encourage and assist farm and animal facility owners to apply for AWA/GAHP registration/certification for the succeeding year.

## Registration and Licensing

Registration and licensing of feed and VDAP establishments, livestock handlers, and transport carriers is carried out by the Department yearly. This is in line with RA 1556 of 1956 "An Act to Regulate and Control the Manufacture, Importation, Labelling, Advertising and Sale of Livestock and Poultry Feeds", RA 3720 "An Act to Ensure the Safety and Purity of Foods, Drugs and Cosmetics Being Made Available to the Public" and DA-AO No. 08 instructing to register and license all handlers of livestock, poultry and its by-products and accredit transport carriers in the country.

Description/Specification	Cagayan	Ifugao	Isabela	N. Vizcaya	Quirino	Total
Feed Dealers (FD)	8	-	6	4	2	20
Feed Manufacturer (FM)	-	-	7	2	1	10
Feed Retailer (FR)	159	1	165	58	50	403
VDAP	35	-	18	1	5	62
<b>Total</b>	<b>202</b>	<b>1</b>	<b>166</b>	<b>65</b>	<b>61</b>	<b>495</b>

Furthermore, there was an increase in the number of registered handlers of livestock, poultry and its by-products and licensed transport carriers with 402 and 330, respectively. This was brought by the influx of applicants for foodpass and foodlane among those involved in food distribution within and outside the region. Breakdown is as follows:

Description/Specification	Batanes	Cagayan	Ifugao	Isabela	N. Vizcaya	Quirino	Total
Livestock Handler (LH)	3	109	177	19	10	12	330
Transport Carrier (TC)	-	177	164	19	15	27	402
<b>Total</b>	<b>3</b>	<b>286</b>	<b>341</b>	<b>38</b>	<b>25</b>	<b>39</b>	<b>732</b>

To comply with the rules of “Ease of Doing Business”, an orientation for online registration of feed dealers was conducted. This replaced the usual tedious process of manual registration.

It is only in Region 02 where DA-registration plates were issued to all registered feed dealers and establishments. DA-stickers were also given to all licensed livestock handlers and transport carriers for proper identification.

To ensure that quality feeds are offered for sale to consumers, 1,323 feed samples were collected from among the registered feed establishments. These were submitted to Integrated Laboratory Division (ILD) for laboratory analysis. Report on the result of analysis indicated that 80%-90% were compliant. This was endorsed to the Bureau of Animal Industry and to respective feed dealers for information, continuous monitoring and provision of technical assistance for their compliance on quality feeds standards.

### Plant Pest Surveillance

The Plant Pest Surveillance and Early Warning System Unit of the Regulatory Division took their part in conducting pests monitoring and surveillance in coordination with the Local Government Units (LGUs) and the Regional Crop Protection Center (RCPC).



For this year, a total of 10,966.65 hectares were monitored and surveyed with 2,302.00 hectares reported damaged by pests affecting 1,810 farmers. Fall armyworm (FAW) was still the main pest observed in corn especially in open-pollinated variety (OPV) and hybrid varieties damaging 50% at vegetative stage and 80%-100% during seedling stage. Bt-corn varieties recorded 25% infestation. For rice, brown planthopper (BPH) recorded the highest infestation causing mild to severe hopperburn to 900.27 hectares in the region. Likewise, fall armyworm was

first seen infesting rice seedlings in the region. Monitoring of cecid fly in mango orchards in Nueva Vizcaya was also done where such pest was first observed in the region. Management of pests was stringently supervised by the RCPC.



With the different pests observed, the Unit issued several pest advisories (from shared and organic articles) through the Plant Pest Surveillance Region 02 Facebook Page reaching 1,545 people broken down in the following:

- PhilRice’s Managing Stem Borer: 69 people
- PhilRice’s False Smut sa Palayan, Agapan Yan!: 115 people
- Plant Pathology and Agriculture’s Banana and Papaya Bunchy Top: 20 people
- Gabay sa Pamamahala ng Kurikong (Cecid Fly) sa Manga : 85 people
- Brown Planthopper, Mataas ang Populasyon ayon sa PRIME Data: 204 people
- Fall armyworm sa Palayan, naobserbahan sa Gonzaga at Sta. Ana, Cagayan : 952 people
- GMA News’ Taniman ng Palay, Inatake ng Peste (GLH): 100 people



#### Plant Pest Surveillance Region 02

Dec 28, 2021 · 🌐

Maari po kayong makipag-ugnayan sa Opisina ng Municipal Agriculturist sa inyong munisipyo o di kaya sa pinakamalapit na istasyon ng DA RFO2. Maaari din po kayong makipag-ugnayan dito sa aming FB Page.

Salamat po at tayo po ay magtutulongan upang maiwasan ang pagdami ng pesteng ito.





Moreover, the Unit facilitated the conduct of a two-day Information Caravan on Plant Pests Identification, Diagnosis and Management through the funding assistance of the Regional Agriculture and Fisheries Information Section (RAFIS) and technical expertise of RCPC staff. The caravan was conducted face-to-face in four (4) provinces while through Zoom platform in Batanes. This was attended by Local Farmer Technicians in the region and all the new technical staff of DA RFO 02.

### Animal Disease Surveillance

To secure the health and welfare of animals, the Animal Disease Monitoring and Surveillance Unit ensures relevant and responsive interventions to maintain the region as Foot and Mouth Disease (FMD) and Avian Influenza free. Pro-active surveillance and testing was conducted for the prevention, control and containment of African Swine Fever (ASF) virus in the region.



This year, the Animal Health and Welfare Unit intensified the monitoring and surveillance of economically-important diseases such as African Swine Fever (ASF), Avian Influenza (AI) and Foot and Mouth Disease (FMD) in the region. In the case of ASF and FMD, a total of 3,349 blood samples were collected for examination and 577 of the samples were found to be positive for ASF equivalent to 17% of the 3,349 blood samples collected. On the other hand, a total

of 1, 981 blood samples from poultry species were collected and analyzed, yielding negative results. As a result, the region remains FMD and AI free.

Upon the declaration of African Swine Fever (ASF) disease outbreak in the region, the Department of Agriculture Regional Field Office No. 02 (DA RFO 02), in collaboration with the Provincial & Municipal Local Government Units (P/MLGUs) and with the assistance of the Philippine National Police (PNP), immediately implemented different strategies in containing the spread of the disease as follows:

1. Pro-active disease monitoring and surveillance;
2. Provision of Convective Polymerase Chain Reaction (CPCR) machines in the provinces of Cagayan, Isabela, Quirino and Nueva Vizcaya;
3. Proper hog depopulation/burying and massive disinfection;
4. Information Education Campaign (IEC) Materials given to P/MLGUs and Bus Stations, DZDA Facebook live streaming, radio broadcasting; and
5. Strengthening of border checkpoints and creation of "Bantay ASF sa Barangay or BABay ASF Ordinance".



The need to "recover" areas previously affected by ASF is paramount to increase the swine population's inventory and eventually stabilize the prices of pork in the longer term. Exit and reclassification of an ASF

outbreak zone are initial steps for recovery, followed by rehabilitation and repopulation. These were undertaken at the barangay level, and progressing to the whole city or municipality itself. Likewise, the “Sentinel Program” is a science- based approach to detect the presence of ASF.

With this, the DA RFO 02 was able to launch the Integrated National Swine Production Initiatives for Recovery and Expansion (INSPIRE). A farmer should first comply to the minimum biosecurity protocol implemented by DA RFO 02 as a requirement for qualification in the program.

After complying with the minimum biosecurity protocol, the farmer will also need to comply with the sentinel protocol.

As a result of the Swine Recovery and Repopulation in the region, a total of 21 municipalities with 96 barangays and 336 farmer beneficiaries received 1,344 hogs for repopulation with additional 4,032 bags of feeds from the 21 million Quick Response Fund. The targets for the said funding were 100% accomplished. For the 75 million Quick Response Fund, 208 barangays were done cleaning/ disinfecting for the 1st bioassay and 157 barangays for the 2nd bioassay ready for the distribution of sentinel hogs.

Granting of cash assistance to ASF affected farmers asserts that cash assistance shall be implemented to alleviate production losses and to encourage early reporting by animal farmers of actual suspected cases of diseases of their animals, thus avoiding further spread of the disease. In Region 02, a total of 47,574 hogs were culled with 8,394 affected hog raisers and overall indemnification fund amounting to Php 237,870,000.00 have been 100% accomplished.

The “BANTAY ASF SA BARANGAY”, a community- based approach to prevent, control, and manage African Swine Fever (ASF) was successfully implemented in the region to intensify risk assessment, surveillance and monitoring. It strengthens biosecurity implementation, capability building, awareness campaign and institutionalization of LGU engagement for the recovery of hog industry in the region.

For this year, a total of 3 provincial ordinances were crafted from the target of 4 provinces and 32 municipal/ city ordinances.





# FARM-TO-MARKET ROAD PROJECTS



The Department of Agriculture is mandated to undertake various infrastructure projects in order to provide better services to farmers by establishing roads for easy access and transportation of goods from remote areas to the market or various trading centers, hence, the establishment of Farm-to-Market Road (FMR) projects within the region. The Regional Agricultural Engineering Division (RAED) is responsible in the review of plans, design and cost estimates of proposed Farm-to-Market Road (FMR), Site Validation, Road Tracking and Geo-Tagging and monitoring/inspection of projects for implementation.

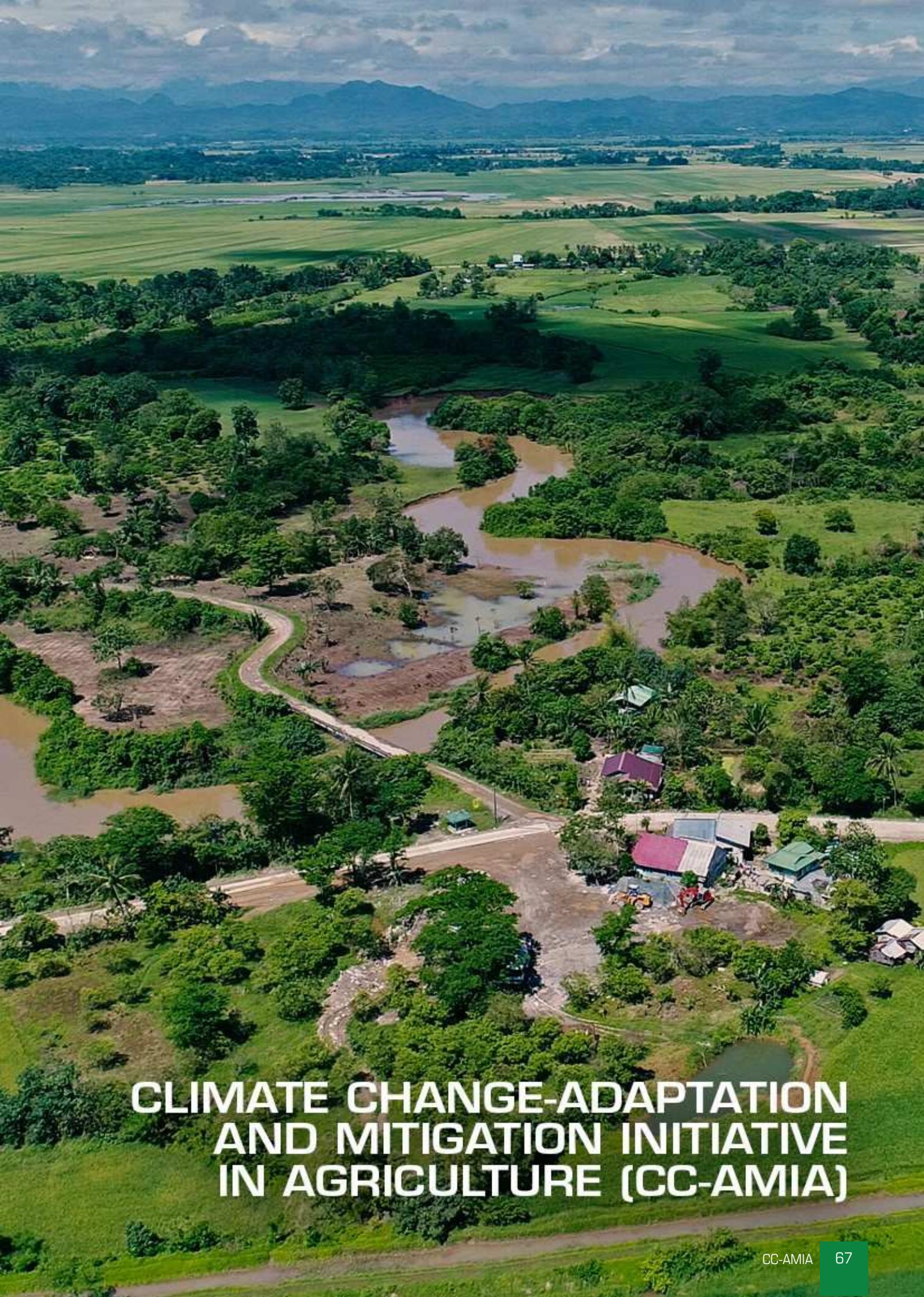
The Department of Agriculture budgeted under GAA 2020 an amount of Three Hundred Two Million Pesos (P 302,000,000.00) in partnership with the Department of Public Works & Highways as the implementing agency thru its District Engineering Office in Region 02 for targeted 25 projects/sites region wide. Improved and rehabilitated PCCP (Portland Cement Concrete Pavement) benefited more or less 3,375 farmers with a total length of 26.043 km two (2) in Batanes, six (6) in Cagayan, twelve (12) in Isabela, three (3) in Nueva Vizcaya and two (2) in Quirino. Out of these projects targeted, the actual length was down a total of 2 5.224km due to some variations to suit actual field condition. All were 100% accomplished.

Under the Bayanihan Act II CY- 2020 budget, the Department of Agriculture allocated a budget amounting to Four Hundred Seventy-four Million Pesos (P 474,000,000.00) which was fund transferred to Department of Public Works & Highways (DPWH) implemented by its District Engineering Office in Region 02 for the thirty nine (39) projects/sites that were targeted region wide with a total length of 42.515 km. These benefited more or less 5,556 farmers: one (1) in Batanes, eighteen (18) in Cagayan, ten (10) in Isabela, three (3) in the Provinces of Quirino and Nueva Vizcaya with seven (7) project/sites. All were 100 % completed.

For CY 2021, the Department of Agriculture allocated a budget amounting to One Million One Hundred Sixty-Five Thousand Five Hundred Billion Pesos (P 1,165,500,000.00) which was fund transferred to Department of Public Works & Highways (DPWH) implemented by its District Engineering Office Region 02 for the 79 projects/sites which were targeted region wide with a total length of 97.133 km. One (1) in Batanes, twenty-seven (27) in Cagayan, thirty-three (33) in Isabela.

Three (3) sites were completed in the Province of Quirino, fifteen (15) in the Province of Nueva Vizcaya, eleven (11) in the Province of Cagayan and twenty-eight (28) in the Province of Isabela with a completed total length of 81.711 km or 87.54%. The remaining sixteen (16) sites in the Province of Cagayan, five (5) sites in the Province of Isabela, six (6) sites in the province of Nueva Vizcaya and one (1) site in the Province of Batanes are still on-going construction.





# CLIMATE CHANGE-ADAPTATION AND MITIGATION INITIATIVE IN AGRICULTURE (CC-AMIA)



The Department of Agriculture had launched the Climate Change - Adaptation and Mitigation Initiative in Agriculture (CC-AMIA) in 2014 with an overall vision of a Philippines agri-fisheries sector that enables local communities to manage climate risks while pursuing sustainable livelihoods. As its overall approach, CC-AMIA develops and promotes Climate-Resilient Agriculture (CRA) through implementing technologies and practices, introducing institutional and social innovations, and accessing climate-relevant support services.

“

*“Whether we like it or not, isang malaking factors na nag-papababa or hindi ma-achieve ng mga magsasaka ang potential or attainable yield ng mga different commodities na meron tayo sa Region 02 and more particularly in Batanes ay ito po and badya ng Climate Change”* - Regional Technical Director Rose Mary G. Aquino.

”

As of 2021, there were four (4) AMIA Villages established/maintained:

1. Lucban, Benito Soliven, Isabela
2. Sta. Victoria, City of Ilagan, Isabela
3. Calamegatan, Buguey, Cagayan
4. Nararagan, Ballesteros, Cagayan

### Climate Risk Vulnerability Assessment (CRVA)

To cover all the provinces of Region 02, a workshop for Climate Risk Vulnerability Assessment in the Province of Batanes was conducted on November 23-25, 2021 in blended face-to-face and virtual platforms. The activity identified and prioritized region-specific climate risks that threaten the resilience of agri-fishery communities. The CRVA team gathered data on sensitivity, hazard, and adaptive capacity indices which are necessary in crafting CRVA maps. The assessment also included sensitivity analysis of different grown crops in the province and the adaptive capacity of Municipal Local Government Units when subjected to climate shocks.

The participants provided data on crop prioritization, crop occurrence, climate resilient agriculture practices, hazard weight scoring, and adaptive capacity index in each municipality.

## Capacitation of Farmers through Trainings and Technology Demonstration

### 1. Hands-on training on Oyster Mushroom Production

A Hands-On Training on Oyster Mushroom Production was conducted together with the mushroom specialist of DA RFO 02 Regional Crop Pest Management Center in Isabela. The training aimed to strengthen the knowledge and skills of the AMIA cooperators on oyster mushroom production as source of additional income and eventually, as business enterprise.

AMIA village in Sta. Victoria produced 249 fruiting bags and 100 bottles of mushroom spawns on March 11-12, 2021. AMIA village in Lucban also produced 495 fruiting bags on March 17-19, 2021. The products were ready for growing oyster mushrooms and marketing.

### 2. Introduction of Fish Farming Technologies as Basis for Income Diversification

A seminar on Aquaculture Technologies on Tilapia, Shrimps, and Crabs was conducted on July 28-29, 2021, in partnership with the Bureau of Fisheries and Aquatic Resources (BFAR) and MLGU Buguey, Cagayan. With a vast area for rice cultivation and wide natural water resource (freshwater lagoon and sea water), this activity aimed to impart an in-depth knowledge and skill development to the 44 fisherfolk for a better livelihood and sustainable income source. This can be an option for income diversification towards increasing their adaptive capacities and resiliency to climate risks and hazards in the future.

Ms. Kay S. Olivas, AMIA Project Leader, explained how climate change affects the agri-fishery industry and what measures are needed to adapt and mitigate its effects while increasing income and productivity.

### 3. Training on Asexual Plant Propagation and Orchard Management

Asexual Plant Propagation and Orchard Management Training was conducted on October 5-8, 2021. Experts from DA-NCES, headed by Dr. Marilou B. Agaid, Station Manager, and Mr. Jeffrey Talosig, Farm Supervisor, shared their expertise on how to propagate plant materials and properly manage and maintain citrus production areas.

A total of 390 grafted and budded citrus were produced. The training capacitated the citrus grow-

ers in Nararagan, Ballesteros, Cagayan to strengthen plants' resistance to certain diseases, retain varietal characteristics, adapt varieties to adverse soil or climatic conditions, ensure pollination, and produce multi-fruited citrus stocks.

### 4. Introduction of Nipa Production Technologies as Basis for Livelihood for Income Diversification

A seminar on Nipa Production Technologies was conducted on October 21, 2021 at AMIA village in Calamegatan, Buguey, Cagayan. The activity was participated by 32 nipa farmers/producers. Ten (10) of them were from the adjacent barangay Mala Weste, Buguey, Cagayan.

In partnership with the Community Empowerment thru Science, Technology, Education, Environmental Protection, and Health (CESTEEPH) Program, a collaborative project of Cagayan State University- Gonzaga Campus with the Department of Science and Technology (DOST) on the best key technologies and management practices on nipa production was introduced to the 32 nipa producers. This aimed to enhance their knowledge and hone their skills with the right technique on nipa production to produce more, sustain and increase their productivity, and achieve scale for processing.

### 5. Introduction of Best Key Strategies and Management Practices on Rice Production thru Palay Check System

In cooperation with the Philippine Crop Insurance Corporation (PCIC) and MLGU Ballesteros, a seminar on Rice Production Technologies highlighting the Palay Check System was conducted in Nararagan, Ballesteros, Cagayan on October 26-29, 2021. Two (2) batches composed of 120 AMIA villagers attended the seminar.

The activity introduced the technologies that are adaptable to the location of AMIA villages to avert the effects of climate risks and hazards brought about by natural disasters, especially flood and drought. As they gradually adopt appropriate technologies, the villagers are expected to realize increased adaptive capacity to climate events resulting to community resilience.

Experts from DA-NCES in Abulug, Cagayan namely, Dr. Marilou B. Agaid, DA-NCES Manager, Ms. Amedita D. Ampe, Science Research Specialist II, and Mr. Emmanuel P. Tapon, Science Research Specialist I,



presented and discussed the best key technologies and management practices in the Palay Key Checks to help farmers improve their rice crop management practices and increase their adaptability to climate events/elements.

Further, Mr. Lexter Tapeç, PCIC staff, also explained the process on how to avail of their services and how crop insurance will help address agricultural risks.

## 6. AMIA Villagers Learn Business Planning the DA-PRDP Way

Anchored on creating a clear path towards financial sustainability, the CC-AMIA beneficiaries learned business planning using the DA-PRDP way. The activity was headed by Ms. Precious Anne S. Partible of AMAD and Ms. Emilyn A. Baculi and Ms. Ma. Lourdes Corsino of PRDP on December 9-10, 2021 at the AMIA village in Sta. Victoria, Ilagan City, Isabela. It was participated by 30 cooperators and 10 cooperators from Calamegatan, Buguey, Cagayan. Same activity was conducted at the AMIA village in Lucban, Benito Soliven, Isabela on December 1 - 3, 2021. It was participated by 30 cooperators.

The workshop aimed to equip the participants with the fundamental principles and techniques in planning, managing, and operating a business. The topics were focused on business planning and basic financial management to train the villagers on how to develop a business plan and to imbibe the principles of financial management to properly design and effectively implement various lines of business and prepare them to manage their own enterprises.

## Provision of Climate-Resilient Facilities, Agricultural Equipment, and Machineries

### Establishment of Post-Harvest Facility

Another objective of CC-AMIA is to lessen postharvest losses and to increase farmers' productivity by implementing modern and alternative technologies in agricultural production such as Multi-Purpose Drying Pavement (MPDP) and palay sheds.

Two (2) units of MPDP and one (1) unit of palay shed at the AMIA village in Nararagan, Ballesteros, Cagayan, 1 unit of MPDP in Calamegatan, Buguey, 1 unit of palay shed in Mala Weste, Buguey, 1 unit of MPDP and 1 unit of palay shed in Maddalero, Buguey and 1 unit of MPDP in San Lorenzo, Buguey, Cagayan were constructed.

## Provision of Organic and Inorganic Fertilizer Based on Soil Analysis Recommendation

Soil analysis is a basis for the procurement of organic and inorganic fertilizer and in determining appropriate nutrient application rates to optimize crop production, improve the nutritional balance of the growing media, and help in the reduction of global emissions of nitrous oxide or the greenhouse gas. The organic and inorganic fertilizers were distributed on September 15-16, 2021.

## Provision of Reinforced Fiberglass Boats and Cast Net

In support to Alternative Livelihood for income diversification, AMIA villagers in Calamegatan, Buguey, Cagayan received five (5) units of reinforced fiberglass boats and 10 cast nets on April 20, 2021. Based on the result of Participatory Rural Appraisal (PRA) conducted in the village, one of the identified problems is insufficient boats. Since fishing is one of the major sources of income in the village, the boats and cast nets will be extremely beneficial to the 44 fisherfolk. Fish and other aquatic species will be harvested more frequently since they have more boats and cast nets to use. This will result to an increased income, adaptive capacities and climate risks and hazards resiliency in the future.

## Provision of Grain Collecting and Bagging Machine

The AMIA villagers in Nararagan, Ballesteros, Calamegatan, Buguey, Cagayan and Sta. Victoria, Ilagan City, Isabela received postharvest farm machineries particularly grain collecting and bagging machine on December 27, 2021. Such intervention will address high postharvest losses during drying of grains and lack of labor during peak season which causes high cost of labor.

## Mechanization on Rice Production

The AMIANan Farmers Entrepreneur Agriculture Cooperative in Sta. Victoria village received combine harvester from Philippine Center for Postharvest Development and Mechanization (PHilMech) on September 26, 2021.





## Climate Information Services

### Introduction of Localized Climate Information Services

A seminar on Localized Climate Information Services was conducted on both AMIA villages in Isabela on February 19-18, 2021. The seminar aimed to familiarize the AMIA villagers on how to prepare and interpret the Seasonal Climate and localized 10-Day Farm Weather Outlooks and Advisories from PAGASA.

The said advisories provided a full range of advice regarding climate, its impacts on crops, livestock, fisheries and management practices to be done to prevent, mitigate and/or manage risks.



### Establishment of Automated Weather Station (AWS)

One (1) unit of AWS was established at the AMIA village in Nararagan, Ballesteros, Cagayan on October

4, 2021. One (1) unit was also established at the AMIA village in Sta. Victoria, Ilagan City, Isabela on December 8, 2021. The AWS will be used to generate forecasts in making informed estimates that are predictive in determining the seasonal climate and farm weather at the AMIA village. The importance of the AWS, its operation, and maintenance were presented to the 20 AMIA villagers.

### AMIA Village Approach as a Strategy in the Implementation of Balik Probinsya, Bagong Pag-Asa (BP2) Program

With support and incentives on transportation, livelihood, housing subsistence, and education, the BP2 Program aimed to encourage people, especially informal settlers, in congested areas in Metro Manila to return to their home provinces thereby fostering balanced regional development and equitable distribution of wealth, resources, and opportunities.

True to its commitment and support to project implementation, Climate Change-Adaptation and Mitigation Initiative in Agriculture (CC-AMIA) assisted and facilitated activities to capacitate BP2 beneficiaries, such as:

1. Conducted community organizing and social preparation of BP2 programs;
2. Distributed Livelihood Assistance to BP2 beneficiaries in San Mariano, Isabela, Matusalem, Roxas, Isabela and Union and Minante Uno, City of Cauayan, Isabela; and
3. Facilitated technical trainings on Climate-Resilient Agriculture technologies.



# KABUHAYAN AT KAUNLARAN NG KABABAYANG KATUTUBO (4Ks) PROJECT

# 4Ks PROJECT



The **Kabuhayan at Kaunlaran ng Kababayang Katutubo (4Ks) Project** is a three-year special project of the Department of Agriculture (DA) which is mandated to provide assistance to the Indigenous Cultural Communities/ Indigenous Peoples (ICCs/IPs) in the Cagayan Valley Region. It focuses on the following objectives:

1. Develop the Ancestral Domain of the ICCs/IPs in order to improve its productivity by developing sustainable agricultural enterprises and profitability by increasing their income in consideration with their customs, traditions, values, beliefs and interest;
2. Capacitate the ICC/IPs through community participation, agricultural skills training and workshops to increase their knowledge and productivity;
3. Increase the number of ICCs/IPs farmers and fisherfolks with access to Department of Agriculture assets and services;
4. Improve the income of the ICCs/IPs through culturally responsive and environmental sustainable livelihood activities; and
5. Provide various agri-fishery assistance such as agri-inputs, tools, machineries/equipment and facilities for production, post-harvest, processing and packaging to improve the economic condition of the ICCs/IPs in the country.

The following strategies were implemented in line with the program goals and objectives:

1. Provided agricultural and fisheries related livelihood, investments, and services for the development of indigenous communities; and
2. Conducted briefings, orientations and trainings to increase knowledge of IPs on the aspect of agricultural and fisheries production.

# SOCIAL PREPARATION COMPONENT

The DA RFO 02-4K project team conducted consultative meeting and dialogue with the National Commission on Indigenous Peoples (NCIP) regarding the project objectives and guidelines to the IP leaders. Briefings, orientations, consultative meetings and community needs-assessment were also conducted to discuss the concept of Kabuhayan at Kaunlaran ng Kababayang Katutubo (4K) Project, identify the status of the community and the existing IPO, and properly address the needs and requests of the community.

These were conducted at Agta (Isigiran) Tribe – Callungan, Sanchez Mira, Cagayan , Agta (Ilaben) Tribe – Cabiraoan, Gonzaga, Cagayan , Bugkalot Tribe – Belance, Dupax Del Norte, Nueva Vizcaya, Gaddang Tribe – Quirino, Solano, Nueva Vizcaya, Agta Tribe – Digumased, Dinapigue, Isabela, and Agta Tribe – Disimungal , Nagtipunan, Quirino.

## Project Briefing and Consultative Meeting

The DA RFO 02 4K project team conducted project briefings and consultative meetings in Sitio Pureg, Callungan, Sanchez Mira, Cagayan on February 4, 2021, Cabiraoan, Gonzaga, Cagayan on February 5, 2021, Digumased, Ayod & Dibulo, Dinapigue, Isabela on February 10, 2021, and Disimungal, Nagtipunan, Quirino on February 16, 2021.

The activities oriented the IPs and ICC members regarding the project objectives and plans which are geared towards developing their livelihood and ancestral domains. The activities were successfully conducted in coordination with the Department of Agriculture-Northern Cagayan Experiment Station (DA-NCES), concerned Municipal Agriculture offices and National Commission on Indigenous Peoples (NCIP) offices.

## Community Needs Assessment

Community Needs Assessment was conducted in Digumased, Ayod and Dibulo, Dinapigue, Isabela on February 10, 2021, Belance, Dupax Del Norte, Nueva Vizcaya on February 23, 2021, Quirino, Solano, Nueva Vizcaya on February 24, 2021, Sitio Pureg, Callungan, Sanchez Mira, Cagayan on March 3, 2021, and Cabiraoan & Santa Clara, Gonzaga, Cagayan on March 4, 2021.

The activity aimed to gather helpful information such as arising problems, issues, concerns and needs of the ICCs and IPs. The participants were interviewed through focus group discussion (FGD). They were divided into three (3) groups. Through a short open forum, their answers were discussed in front of the whole community.

The activity was successfully conducted in coordination with the respective Municipal Agriculture offices, Provincial Local Government Units (PLGUs), and National Commission on Indigenous Peoples (NCIP) offices of the participating IPs and ICCs.





## Capacity Building

The 4K project staff conducted capacity building activities through trainings and workshops on lowland vegetable and assorted fruit-bearing trees production such as rambutan, lanzones, cacao, mandarin, lemon, pummelo, cassava, native chicken and duck production and management to guarantee the competence of the ICCs/IPs in developing their ancestral domains and increase their knowledge on agricultural production.

The activities were conducted on April 6-8, 2021 in Sitio Pureg, Callungan, Sanchez Mira, Cagayan, April 20-23, 2021 in Sta. Clara, Gonzaga, Cagayan, April 27-28, 2021 in Nagtipunan, Quirino, May 4-5, 2021 in Dinapigue, Isabela, June 2-3, 2021 in Solano, Nueva Vizcaya, and June 2-3, 2021 in Dupax Del Norte, Nueva Vizcaya.

The 4K project team conducted project launching, headed by Mr. Paul Vincent G. Balao, on August 3, 2021 in Sta. Clara, Gonzaga, Cagayan, August 4, 2021 in Sitio Pureg, Callungan, Sanchez Mira, Cagayan, August 6, 2021 in Nagtipunan, Quirino and Dinapigue, Isabela, and on August 17 and 18, 2021 in Quezon and Dupax Del Norte, Nueva Vizcaya, respectively.

The said activity was conducted to properly turn-over the responsibilities and ownership of the provided interventions to increase the income of the IPs and ICC members.

The DA 4K-NPMO and DA RFO 02 thru 4K project team conducted site visitation and coordination meeting among the Agta Indigenous Cultural Communities (ICCs) in Sitio Pureg, Callungan, Sanchez Mira, Cagayan and Bugkalot Indigenous Cultural Communities (ICCs) in Belance, Dupax Del Norte, Nueva Vizcaya to ensure the productivity and development of the implemented projects and meet the Indigenous People (IP) leaders, BLGU, MLGU, PLGU and NCIP for the harmonization and strengthening of support to the ICCs in developing their ancestral domains.



## PRODUCTION AND LIVELIHOOD COMPONENT

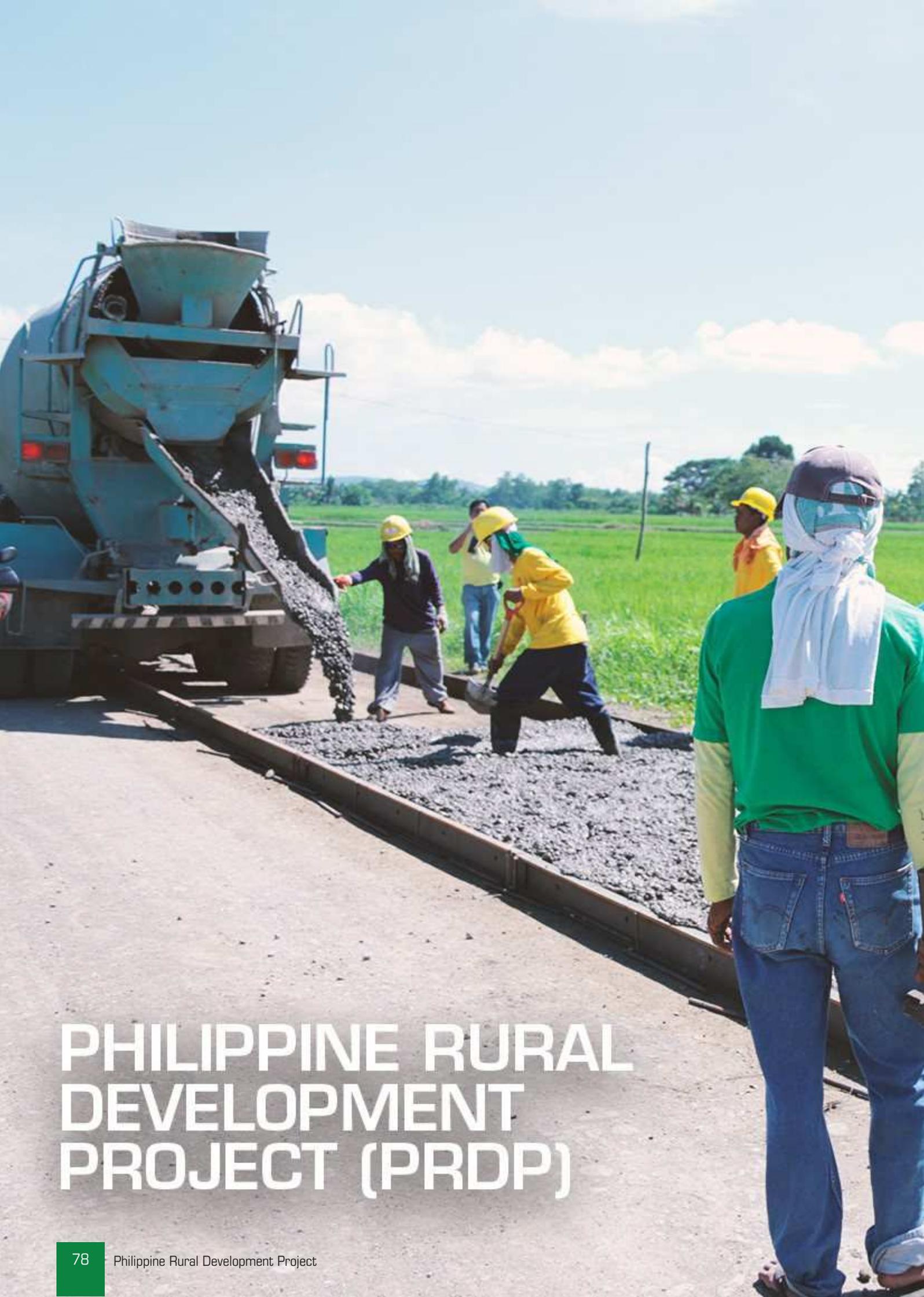
The 4k project allocated and distributed various agricultural inputs, poultry/livestock, and machinery to create additional livelihood, increase the income of the IP Communities, and improve the nutrition status of the community.

A total of 50 IP households were benefitted with the 16,500 assorted fruit- bearing tree seedlings, 139 kg of assorted lowland vegetable seeds, 78 kg of assorted upland vegetable seeds, 50,000 kg of organic fertilizer, 1,200 heads of free range native chicken, 1,000 heads of muscovy duck, 185 bags of commercial poultry grower feeds, 6 heads of carabao, 2043 kg of hybrid yellow corn seeds, 26,400 kg of inorganic fertilizer, and 1 unit Hand Tractor with planter.

### Other Activities

The 4K project team headed by Mr. Paul Vincent G. Balao, 4K Action Officer, distributed slippers to 130 Agta children in Digumased, Dinapigue, Isabela and Sitio Pureg, Callungan, Sanchez Mira, Cagayan on November 25, 2021 and December 28, 2021, respectively.





# PHILIPPINE RURAL DEVELOPMENT PROJECT (PRDP)



The Philippine Rural Development Project (PRDP) is designed to establish the government platform for a modern, climate-smart and market oriented agri-fishery sector in partnership with the LGUs and the private sector in providing key infrastructure, facilities, technology and information that will raise income, productivity, and competitiveness in the countryside which is jointly funded by the World Bank, National Government and participating LGUs.

The PRDP likewise aims to strengthen good governance, transparency and accountability mechanisms at all stages of the project cycle. It also intends to operationalize a local-level convergence platform among relevant national line agencies and other stakeholders such as the private sector, civil society and academe to synergize programs and projects. This multi-stakeholder convergence is seen to facilitate the implementation of more relevant interventions that benefit a bigger segment of farmers and fishers, ushering them towards inclusive growth.

The PRDP is guided by the following development objectives:

- 5% increase in annual real farm incomes of PRDP in household beneficiaries,
- 30% increase in income for targeted beneficiaries of enterprise development,
- 7% increase in value of annual marketed output, and
- 20% increase in number of farmers and fishers with improved access to DA services.

PRDP has created coordinating units in the different DA regional offices which are called Regional Project Coordination Offices (RPCOs) to closely coordinate with the Local Government Units. The implementation of the PRDP in Region 02 is realized with the forging of Memorandum of Agreement (MOA) of the Department of Agriculture with the five provinces of the region, namely: Batanes, Cagayan, Isabela, Quirino and Nueva Vizcaya and the City of Santiago.

The PRDP is being implemented regionwide with the Department of Agriculture-Regional Project Coordination Office 2 orchestrating its operationalization in the region through the four major components such as the Local and National Level Planning or I-PLAN, Infrastructure Development or I-BUILD, Enterprise Development or I-REAP, and Project Implementation Support or I-SUPPORT in partnership with the Provincial/Municipal/City Local Government Units as the project lead implementers.

The total project cost is Two Billion Three Hundred Sixty Million Pesos (P2,360,000,000 for I-BUILD and I-REAP only) with fund sources from the Official Development Assistance-World Bank (ODA) and Government of the Philippines (GOP) both from DA and the LGUs. The PRDP implementation period is from CY 2014 – CY 2021 with Additional Financing 1, continuing until December 31, 2022 for the Physical completion of all funded SPs and until March 2023 for the full disbursement of funds. An operational fund is also allocated to RPCO 2 to allow the various components and units deliver their specified roles and functions in project implementation amounting to Two Hundred Twenty-Six Million One Hundred Thirty-Seven Thousand Two Hundred Eleven Pesos (P226,137,211.00).

As a result, the region was ahead of schedule as the year ended. The Intensified Building-Up of Infrastructure and Logistics for Development (I-BUILD) Component consisting of 41 approved subprojects, registered an overall physical accomplishment of 98.66 percent with a total cost of 2.127 Billion Pesos. As for the Investment in Rural Enterprises and Agriculture and Fisheries Productivity (I-REAP) Component, overall physical status of the 58 approved subprojects was recorded at 95.66 percent with a total cost of 232.5 Million Pesos implemented in the region.

With all mechanisms in place and strong partnership with all stakeholders, the implementation status of the PRDP as of December 31, 2021 has been successful.





## INVESTMENT FOR AFMP PLANNING AT THE LOCAL AND NATIONAL LEVEL (I-PLAN) COMPONENT

The I-PLAN Component aims to strengthen the DA's planning and budget execution processes through the institutionalization of the AFMP as the basis for resource allocation and prioritization of DA programs, projects, and activities implemented at the national and regional levels.

Cognizant of the importance of optimizing the use of scarce resources, prioritization of commodities and programs has to be done. I-PLAN will provide tools for prioritization of both commodities to be supported and the critical public programs and services and investments needed to effectively support the development of these commodity value chains. I-PLAN will also ensure the integration of the small farmers and fishers in these priority value chains.

I-PLAN support will be by way of appropriate combinations of technical assistance, capacity building, and science-based planning tools for mainstreaming the DA's AFMP Planning Framework.

### **Status of the Value Chain Analyses (VCAs)**

Through the I-PLAN Component, there were 8 approved commodity value chains with No Objection Letter (NOL) for Banana, Citrus (satsuma & mandarin), Coffee, Dairy, Pineapple, Upland Rice, White Corn and Seaweeds (Gracilaria) at regional level and a dopting 13 cluster-wide VCAs.

### **Status of the Provincial/City Commodity Investment Plan (P/CCIP)**

Cagayan Valley Region has existing five (5) Provincial Commodity Investment Plans (PCIP) which were already approved by their corresponding Sangguniang Panlalawigan (SP) and/or their Provincial Development Council (PDC). As an independent city, Santiago City in Isabela had also crafted its own City Commodity Investment Plan (CCIP) which was approved by its City Development Council & Sangguniang Panlungsod. These five provinces and one city adopted their own priority commodity/ies. Their Commodity Investment Plans were crafted and updated through the initiative of RPCO2 IPLAN.

The existing commodities from other provinces/implementing units are provided by the table below.

Province/ City	Existing Commodities Included in the PCIP	Date of PDC/SP approval
Batanes	Garlic, Sweet Potato, Beef Cattle	PDC: March 16, 2018 SP: March 22, 2018
Cagayan	Dairy, Mango, A/P Rice, Peanut, Beef Cattle	PDC: Oct. 5, 2020
Isabela	Dairy, Mungbean, A/P Rice, Tilapia Pineapple, Whitecorn, Beef Cattle, Banana	PDC: October 20, 2021
Nueva Vizcaya	Mandarin, Onion, Tomato, Pineapple, Coffee, A/P Rice, White corn, Sweet Potato, Banana	PDC: Dec. 14, 2020 SP: Dec. 28, 2020
Quirino	Coffee, Banana	PDC: Aug. 6, 2014 SP: Dec. 8, 2014
Santiago City	Peanut, Mungbean, Mango, Beef Cattle, Dairy, Tilapia	PDC: March 21, 2019 SP: April 2, 2019

Note: Sangguniang Panlalawigan (SP) Provincial Development Council (PDC)

### Assessment on the Performance of Agri-based Cooperatives in Region 02

The Nueva Vizcaya State University (NVSU) Bayombong Campus was selected to be the Implementing Agency (IA) of this study which aimed to identify the best practices of cooperatives in the region to enhance sustainability, financing and operational arrangement and find out and document the perceived factors influencing the failures of selected agri-based cooperatives. This is to support and develop the PRDP proponent group profiling, operational guidelines and processing procedures.

The study showed that the agriculture-related cooperatives had an increasing trend from 2015 to 2017. From eight (8) cooperatives in 2015 to 124 by 2016, and exorbitantly increased to 455 in 2017 or a percentage increase of 1,450% and 266.93%, respectively. For cooperatives dealing with agriculture type of business, the study also showed that 92 out of the 111 cooperatives were found to be compliant; 62 of them were actually issued with Certificate of Compliance (COC). There were three (3) cooperatives issued with show cause order and 16 were found to be non-compliant. Five (5) of the 16 non-compliant were issued with notice of non-submission of required reports while the remaining 11 were issued with show cause order.

Several inputs or factors are supposed to influence the performance of a cooperative, either its success or failure. It includes cooperative profile, support system/ environment of cooperatives, access to

technologies, risk management, regulatory system, market, competition and opportunities, economy's growth and potentials, current issues and concerns and strategies employed to resolve these problems.

### Climate Risk Vulnerability Assessment (CRVA)

A key step in the targeting and planning for CRVA communities would be to assess climate-risk vulnerability at the proposed project sites. This ensured that investments are cost-effectively channeled to support its overall goals and outcomes. This also addresses the inherent spatial and temporal variabilities within and across sites. The DA has undertaken vulnerability assessment focusing on key hotspots for risks and hazards in the country. Although this was a useful starting point for vulnerability assessment – representing exposure to climate risks, a combined analysis for sensitivity and adaptive capacity would result in a more comprehensive Climate-Risk Vulnerability Assessment.

The following were the key findings/result of the CRVA for Cagayan Province:

- Identified the exposure of the communities to climate risks (long term & recurring climate variability and extremes) which threaten their production systems and livelihood.
- Determined capacities of commodities to respond to climate-related threats.
- Identified pilot areas for DA intervention (short-term and long-term actions) to mitigate and adapt to climate risks.

## I-PLAN enhanced Operations Manual (eOM)

The updating of the IPLAN Operations Manual (OM) is a Technical Assistance (TA) of the World Bank (WB) to PRDP IPLAN. It primarily aims to enhance the planning process as experiences over the past six years, incorporate risks and resiliency criteria in the formulation of the Provincial/City Commodity Investment Plans (P/CCIPs), and address the evolving needs in the agriculture and fishery sector. Isabela Province was piloted among the provinces of North Luzon Cluster.

After several iterations, consultations, and pilot testing of the enhancements in the PCIP process particularly in the integration of climate and other risks considerations into the PCIP, the final draft of the IPLAN EOM was issued with NOL by WB dated December 20, 2021 with minor comments which were already incorporated and will be rolled out.



### Activities for the Preparation/Localization of Value Chain Analyses (VCA's)

#### Localization and Updating of VCA for Onion

Value Chain Analysis for Onion was approved last 2014 covering North Luzon Cluster (CAR, Region I, Region II, and Region III). This report provided an overview and analysis of the onion industry in the Luzon A Cluster with the aim of identifying main leverage points and key strategies to improve competitiveness and promote development in a pro-poor and sustainable manner. It provided the basis for the formulation of the Provincial Commodity Investment Plan and laid the foundation for PRDP's cooperation with the private sector and other government agencies active in the onion industry.

The RPCO 02 IPLAN conducted primary data gathering in the top three (3) producing provinces and municipalities in Cagayan Valley from June 30-July 22, 2021 for the updating and regionalization of the Value Chain Analysis of Onion to cover other onion producing provinces in the region.

#### Preparation of VCA for Hog (Breeders and Fatteners, Backyard and Commercial Scale)

The preparation of VCA for hog aimed to describe the status of the hog industry in North Luzon Cluster,

viz-a-viz the national perspective and under the African Swine Fever pandemic situation. It also meant to determine the strengths, weaknesses, opportunities and threats in the industry brought about by the existing situation of 2020 and onwards. It would also venture on a rapid marketing appraisal of hogs (breeder and fatteners) and the marketing prospects of Native Philippine hogs.

#### Orientation on LGU Module Encoding cum Workshop

In line with the aim to gauge uptake of the LGUs to the CIPs developed through the project's assistance, the PRDP NPCO has developed the "LGU Module". The PRDP Web-based Management Information System (MIS) also called as the LGU Module MIS was developed to monitor the status of PCIP uptake by other funding agencies, and to assess and update the lists of non-PRDP funded interventions in the PCIP which is one of the requirements by the World Bank.

RPCO 02 I-PLAN Component together with the M&E Unit in coordination with PSO I-PLAN and M&E Unit spearheaded the conduct of Reorientation cum Workshop on the LGU Module on September 28-29, 2021 at Piazza Zicarelli Hotel, Restaurant and Bakeshop, Gamu, Isabela to demonstrate the process and the information needed for the registry of the status of P/CCIP implementation in the LGU Module segment of the Web-based system.



## INVESTMENT IN RURAL ENTERPRISE AND AGRICULTURAL & FISHERIES PRODUCTIVITY (I-REAP) COMPONENT

The general objective of the I-REAP component is to strengthen and develop viable agrifishery based enterprises through efficient value chains of key agricultural and fishery products in targeted program areas.

This component aims to engage broad sections of the sector in the production of marketable surplus through investments in strategic segments of priority commodity value chains and strengthening collaboration between DA and the Local Government Units. It shall strengthen and develop viable agri-fishery based enterprises through efficient value chain of key regional agri-fishery product.

I-REAP would support the development implementation and sustainability of agricultural, livestock or fishery-based entrepreneurial activities, based on the analysis of priority value chains being supported under the Regional AFMPs, and as reflected in the PCIPs. This component is central to the achievement of PDO. It translates the VCA and interventions identified in the PCIPs into industry-competitive and sustainable subprojects.

RPCO 2 has a total of 58 subprojects in its portfolio distributed among the 5 provinces and the City of Santiago with a total household beneficiary of 24,196. The total value of all subprojects amounted to 232.5 Million Pesos.

Under the Investment in Rural Enterprises and Agriculture and Fisheries Productivity (I-REAP) com-

ponent, overall physical status of the 58 projects was recorded at 90.0 percent with 52 already completed, 5 subprojects under on-going implementation status, and 1 still under procurement.

### Organizational Development Training

The activity was a three-day training facilitated by RCPO2 I-REAP Component. As a result of the Business Process review conducted for the identified enterprises, one offshoot activity was to conduct an Organizational Development (OD) Training to address the issues and concerns of the subproject. It also aimed to allow the proponent groups in determining the bottlenecks of enterprise operation and enhance their capability as operators of the project.

There following topics were discussed:

1. Basic Cooperative Course
2. Organizational Management
3. Operational Plan
4. Marketing
5. Enterprise Operations Manual (with workshop)
6. Financial Management

The training was participated by:

1. Samahan ng OFW ng Santiago City Consumers Cooperative (SOSCCC)
2. Wigan Settlers' MPC
3. Federation of Aritao Farmers Union Ginger Garlic Growers Association, Inc (FAFOGGGA)
4. Mataga-ay Coffee Growers Producers Cooperative
5. Cofcaville Banana Farmers Producers Cooperative

## Business Process Review

The activity was facilitated by representatives from RPCO I-REAP and P/CPMIU. The objectives of the activity were to (a) assess the current status of the enterprise operation in the aspects of management, marketing, technical, financial and sustainability; (b) determine strong and weak points of the enterprise management; (c) identify emerging positive results of the operation; and (d) prepare an action plan based on the result of the assessment.

It was administered through a face-to-face interview with the Proponent Group using a structured questionnaire devised by NPCO I-REAP. Based on the results of the assessment, SWOT Analysis and Capacity Development Plan regarding all aspects of the Enterprise were developed.

There were five (5) enterprises that were assessed by 33 PGs and IAs.

## Business Proposal Writeshop of E-KADIWA Assisted FCAs

The activity was conducted last April 12-16, 2021 at DA MPC San Gabriel, Tuguegarao City, Cagayan. It was a four (4) day activity participated by nine (9) Farmers Cooperative Association (FCA), AMAD Staff and I-REAP Staff. The workshop/ activity aimed to craft the Business Plan for their financing modalities proposed under E-KADIWA Project.

The following Farmers Cooperative Association participated and were assisted by the IREAP staff:

1. Integrated Farmers Cooperative
2. San Agustin Dairy Cooperative
3. Mataga-Ay Coffee Growers and Producers Cooperative
4. Cofcaville Banana Farmers and Producers Cooperative
5. Lucban Small Water Irrigation Association
6. Pentur Farmers Cooperative
7. LGU Alcala, Cagayan
8. MarDag RiceBis Association
9. Iselco 1 Employees MPC

A Business Planning Workshop was also conducted for Cagayan Seed MPC for the proposed Aromatic and Pigmented Rice Production and Marketing Enterprise in the province.

## Good Agricultural Practices (GAP)/ Good Aqua-cultural Practices (GAQP) Training

The activity was conducted last June 30- July 2, 2021 at the office of the Proponent Group, Ambaguio, Nueva Vizcaya. The objective of the activity was to impart knowledge about GAP to the coffee farmers. It was participated by the official and farmer-members -Langak Farmers Association, Inc. The activity was spearheaded by the technical staff of DA RFO 02. Lecture on GAP and Hands-on Training with inspection and evaluation was conducted.

Similar activity on GAQP was conducted last June 23-25, 2021 at the offices of the Proponent Groups. The objective of the activity was to impart knowledge about GAQP to the tilapia fisherfolk. It was participated by the officials and farmer-members of Wigan Settlers MPC and Ramon Farmers MPC. The activity was spearheaded by the technical staff of BFAR RFO 2.

## Orientation on Data Captured Form cum Workshop

In line with the recommendation of the World Bank to harmonize monitoring forms used by the I-REAP Component, the I-REAP, together with the M&E Unit, had started developing the Enterprise Operations Monitoring System (EOMS). The system will be used in gathering necessary enterprise operations information from the I-REAP Proponent Groups (PGs) to assess the PRDP's performance relative to its Key Results Areas (KRAs) and the Project Development Objectives (PDOs). Data Capture Form (DCF) was developed which will serve as the basis in developing an MIS-based enterprise operations monitoring system.

## Crafting/Enhancement of Enterprise Operations Manual

Aside from the Business Plan, the Enterprise Operations Manual is a vital part of an enterprise that serves as a guide in business operations. During the activity, RPCO2 presented and discussed the EOM outline to be filled up by the PG. Draft EOM will then be presented to the BODs for finalization and approval. Present during the activity is the proponent group, RPCO2 I-REAP, and PPMIUs.

## Disaster Risk Reduction and Management Training

A three (3) day activity was conducted last September 28-30, 2021 and was participated by four (4) Proponent Groups namely: Mallig Dairy Cooperative, San Agustin Dairy Cooperative, Rang-ay Ti Farmers Cooperative and Integrated Farmers Cooperative, at the end of the course, the participants were able to describe how Business Continuity Plan helps manage economic losses, protect employees and gains client confidence, assess business risks, identify requirements, strategies and processes of managing business risks, build Business Continuity Plan (BCP) for natural and human-induced hazards, and assess the accuracy of a BCP and Draft their BCP.

The course is designed for the beneficiaries of DA-PRDP dairy sub-projects to be better prepared and more resilient to business disruptions brought about by natural and human induced hazards by coming up with a business continuity plan, and incorporating their existing emergency plan.

The four (4) Resource Speakers during the training discussed several topics that include:

1. Introduction and Basic DRR Concepts
2. DRRM tools: Hazard Hunter
3. Assessing Risk
4. Open for Business: Introduction to Business Continuity
5. Negosyong Pilipino, Negosyong Laging Nagpapatuloy
6. Resilient Business
7. Understanding Business Risks
8. Knowing my Critical Business Assets
9. Developing Business Continuity Strategies
10. Emergency Preparedness and Response
11. Creating a Practical Business Continuity Plan
12. Making my BCP Work Through Exercise and Testing
13. Series of Workshops





## INTENSIFIED BUILDING-UP OF INFRASTRUCTURE & LOGISTICS FOR DEVELOPMENT (I-BUILD)

The Intensified Building-Up of Infrastructure and Logistics for Development (I- BUILD) component aims to develop a strategic network of climate-resilient rural infrastructure and facilities supportive of the value chain in the Project areas.

Consultations made with various groups during Project preparation revealed that the types of rural infrastructure that are clearly the most needed during PRDP such as farm-to-market roads, bridges, communal irrigation, potable water supply, post-harvest facilities, production facilities, marketing facilities, fish landings, fish sanctuaries, tram lines, cold storage facilities, trading posts, green houses, solar driers, watch towers, nursery watch towers and slope stabilization works are eligible for funding.

At the end of PRDP, the I-BUILD Component envisions to attain the following as stated in the Project's logical framework:

- At least 50% reduction in average travel time from farm to markets in subproject areas by the end of Project;
- At least 60% increase in traffic count in subproject areas by the end of the project;
- At least 150% cropping intensity and 100% yield increase for new CIPs and 180% cropping intensity and 50% yield increase for rehabilitation of CISs in subproject areas by the end of Project;
- At least 65% of water-fetching time reduced in subproject areas by the end of Project;
- At least 70% decrease in household affected by water-borne diseases by end of Project;
- At least 25% increase in farmer households with access to postharvest/production/processing/marketing and fishery infrastructure facilities by end of Project.

The types of rural infrastructure to be the focus of PRDP are rehabilitation and construction of: (a) Farm-to-market roads and bridges; (b) Irrigation; (c) Potable water supply; and (d) "Other types of rural infrastructures" needed in the value chains to enhance the productivity and give value added qualities to products in agri-fishery industries e.g. i) production facilities, postharvest facilities, marketing facilities, fish landings, fish sanctuaries/marine protected areas, tram lines, green houses, solar driers, watch towers, nursery watch towers and slope stabilization works; and ii) municipal/city/provincial roads, cold storage facilities and trading post. Those sample interventions listed in item (ii) are relatively costly and unless these are elaborately proven to be the only viable options in the value chain study, greater priority shall be given to FMR and smaller scale production, processing and marketing facilities.

The I-BUILD component will fund the above facilities either identified under I-BUILD or IREAP components' procedures and processes. Infrastructure types categorized as public infrastructure are those included in the I-BUILD identification and prioritization processes while those to be operated by private entities are included in the I-REAP identification and prioritization processes. These I-REAP support infrastructures will be identified, prioritized and to be operated under the I-REAP component. However, the design, review, approval and implementation is under the I-BUILD component.

The following lists of items or activities are not eligible for financing out of the proceeds of the Loan through Sub-projects: (a) use of pesticides, herbicides, insecticides, and asbestos; (b) purchase of land, ammunitions; (c) construction of school buildings; (d) construction of health centers; (e) construction of dam with height of 15 meters and above; (f) construction of roads within protected areas, national highways and national irrigation systems; (g) construction of level 3 water system when purely used for domestic water supply; (h) repair of government offices and (i) activities for fiestas, religious and other cultural activities.

This component aims to improve links from production areas to markets to enhance the efficiency of transporting agricultural products. It also aims for higher productivity as a result of increased cropping intensity and yields, food security and improved health from readily available potable water and lower post-harvest losses resulting in higher volume of outputs and more efficient support facilities.

RPCO 2 has a total of 41 subprojects in its portfolio with 1 subproject under on-going implementation status (2%) and 40 already completed (98%). The total value of all infrastructure subprojects amounted to Two Billion One Hundred Twenty-Seven Million Eight Hundred Fourteen Thousand Four Hundred Forty-One and 82/100 Pesos (2.127 Billion).

As of December 31, 2021 the Intensified Building-Up of Infrastructure and Logistics for Development (I-BUILD) Component, consisting of 41 projects, registered an overall physical accomplishment of 99.35 percent.

From the 41 completed subprojects under the I-BUILD Component, a total of 38,785 households was recorded to have benefited regionwide.

In the implementation of infrastructure subprojects, Cagayan Valley or the RPCO2 was highly commended during the 13th World Bank Mission for being the 1st region in the Philippines that completed the I-BUILD Subprojects under the Original Loan amounting to P1.5 Billion. RPCO2 is consistently on the top in terms of disbursement and physical accomplishment of on-going I-BUILD Subprojects.

On top of the distinction, in CY 202, there were 10 I-BUILD SPs that were issued with NOL 1 under the Additional Financing 2 (AF2) amounting to P939 Million.





## IMPLEMENTATION SUPPORT TO PRDP (I-SUPPORT)

I-SUPPORT is programmed to provide the strategic administrative, logistical, and operational assistance to the various components in implementing their activities.

The following support functions were undertaken to facilitate the project implementation:

1. Appraised and recommended for approval to Regional Project Advisory Board (RPAB) 28 sub-project proposals for additional funding (AF2) from qualified LGUs during the three (3) conducted RPAB Meetings
2. Provided technical assistance to recipient LGUs in complying with all conditions contained in the Implementation Management Agreement (IMA)
3. Reviewed and endorsed the request of LGUs for the release of funds and the submitted Statement of Receipts & expenditures (SRE) to Project Support Office (PSO)
4. Maintained subsidiary records for the receipts and disbursements of funds
5. Consolidated the submitted SREs of LGUs and submitted to PSO
6. Prepared financial and physical monitoring reports

The following were the accomplishments of the different units of the I-SUPPORT component:

### Monitoring & Evaluation (M&E) Unit

1. Actual Field Activity for the conduct of Rapid Appraisal of Emerging Benefits (RAEB) of the PRDP completed subprojects of PPMIU Isabela, namely the Tilapia Production and Marketing Enterprise and Palay Production Enterprise subprojects of RamCor Farmers MPC (RAMFARMCO) on July 28, 2021 in Planas, Ramon, Isabela.
2. Virtual Training/Workshop Geo-Enabling Initiatives for Monitoring and Supervision (GEMS) held last July 26-27, 2021
3. Virtual Orientation: Pilot Testing of the Operation and Maintenance Audit System (OMAS) using KoBoToolbox application last September 14, 2021.

Coordinated with the LGUs/organizations on the conduct of the semi-annual (which started at March-December 2021) Operations & Maintenance (O&M) Audit using the O&M Audit System by the Regional Operation and Maintenance Audit Team (ROMAT).

The said team conducted audit for the 34 I-BUILD Sub-projects (SPs), specifically 7 in Quirino, 1 in Nueva Vizcaya, 22 in Isabela and 4 in Cagayan. In addition, the team also audited 5 civil works under IREAP. In total, the ROMAT audited 39 SPs.

RPCO2 conducted most of the Operations Audit in the North Luzon Cluster with a total of 72 audited SPs covering 33 SPs during the 1st Audit, 28 SPs during the 2nd Audit and 11 SPs during the 3rd Audit.

These audit activities of ROMAT assessed the effectiveness and timely implementation of the Operation and Maintenance Plan as committed in the Implementation and Management Agreement (IMA) of the completed subprojects. Pursuant to IMA under Article 7, other covenants in Section 7.06 states that “upon the issuance of the Certificate of Completion, the PLGU shall operate and maintain, or cause to be operated and maintained properly, the structures, systems and facilities constructed, installed or established under the subprojects and shall pass an appropriation ordinance providing for the funds, facilities, services and other resources required for the purpose for the next ten (10) years after subproject completion. The DA-RFO shall be copy furnished with the copy of the Appropriation Ordinance for monitoring purposes.”

The team recommended that the Operation and Maintenance Plan shall be strictly and timely implemented to sustain efficient and effective usage of the subproject and to avoid “Poor” rating in the succeeding O&M audit, that may hamper the possible issuance of NOL 1 for the pipelined subprojects in the municipality/city/province.

### Geomapping and Governance Unit (GGU)

The Geomapping and Governance unit (GGU) with the use of the Applied Geotagging Technology (AGT) aims to promote holistic planning, transparency and accountability that will deepen the impacts and institutionalization of such reforms within and outside the Department.

With the implementation of the PRDP subprojects for CY 2021 in Region 2, the GGU provided critical support functions and accomplishments, as follows:

1. Assisted in the conduct of Joint Inspection Team (JIT) and reviewed progress photos and issued 16 AGT Certifications for progress and Final Billing for I-BUILD subprojects and 8 AGT Certifications for liquidation of goods delivered for I-REAP subprojects as one of the required documents for bill-

ing to fast-track billing process.

2. Updated the monthly progress photos for I-BUILD subprojects and geotagged photos of goods/equipment's delivered for I-REAP subprojects.
3. Documented the conduct of RAEB and OMAS with the use of Geotagging and the new innovations for this year, the Geo-video and Drone technology.
4. Participated in the conduct of validation of 19 proposed I-BUILD subprojects and 2 I-REAP proposed subprojects. The GGU is in charge on the verification of overlapping of other funded subproject to avoid overlapping of Road Influence Area (RIA) and duplication of proposed projects.
5. Participated in the conduct of Subproject Appraisal Review of 13 proposed I-BUILD subprojects and 2 proposed I-REAP subprojects.
6. Participated in the conduct of Joint Technical Review (JTR) for 10 proposed I-BUILD subprojects and 2 proposed I-REAP subprojects.
7. Assisted MLGUs and PLGUs in their compliances under GGU guidelines.
8. Conducted Field Coaching on the use of geotagging and video-tagging to MLGUs, PLGUs and Project Contractors.
9. Conducted geo-tagging, video-tagging and drone shoots and uploading/updating to the Management Information System (MIS).



## Information, Advocacy, Communication and Education (INFO-ACE) Unit

1. Provided information, documentation coverage of major PRDP activities such as field visits, mission progress, meetings and seminars;
2. Conceptualized and produced AVPs and radio plugs that covers the projects' accomplishments especially value-adding activities of enterprises, also during the launching of eMerkado;
3. Took part as the moderator and technical team member during the eMerkado launching;
4. Gathered, processed and packaged information from other components/units as well as from subproject site visits, for the production of IEC and advocacy materials; and
5. Covered and documented the conduct of World Bank Implementation Support Mission.

## Social and Environmental Safeguards (SES) Unit

The year 2021 marked the second year of the COVID 19 pandemic which has dramatically altered the normal course of development efforts and imposed restrictions that posed as challenges to project implementation. One of the units most affected by the prohibition on personal face-to-face interactions due to the health risk or high transmissibility of the virus is the SES. In the SES the conduct of public/stakeholders' consultations particularly the project affected persons or people in the barangays most likely be adversely affected by the implementation of the project is an indispensable process in PRDP scheme.

Despite the difficulties, the SES has adopted a blended approach to comply with the necessary meetings, consultations, mentoring sessions and joint reviews via online means maximizing the use of the internet. A total of 19 virtual meetings focusing on the review of subprojects in the course of Feasibility Study formulation/ finalization were held during the year. In some review sessions, the proponent LGUs were invited to interact with RPCO2, PSO and NPCO SES staff and to articulate their issues and problems related to their submission of documentary requirements or compliances.

At least 45 Summaries of Comments (SOCs) have been issued by RPCO2 at various stages of the SP review for: I-BUILD- eight (8) Farm-to-Market Roads (FMRs); six (6) warehouses proposed by the province of Isabela; and ten (10) newly-approved FMRs & Warehouse proposals issued with No Objection Letters (NOL 1) under the Additional Financing<sup>2</sup>. One on-going FMR, the Tiblak-Dulli SP in Ambaguio has also necessitated follow-up actions to address emerging SES issues during implementation. For the I-REAP Component, the civil works of an on-going subproject in Ambaguio, Nueva Vizcaya, the Tiblac-Langak Coffee enterprise, was likewise included in the review process.

In response to LGU requests for validation of proposals, SES has also actively participated in joint validation activities of eight (8) proposals for warehouses with solar dryers in the provinces of Cagayan, Isabela and Nueva Vizcaya. Technical assistance has been extended to five (5) municipalities (2 in Cagayan and 3 in Isabela) for the finalization of their FS documents. SES has also joined joint site monitoring and validation of variation orders and SPAR spearheaded by I-BUILD.

The GRM directory has been revisited 6 times to update the status of grievances lodged. In the aspect of database management, 9 updating activities were undertaken.

The RPCO2 SES has also participated in an important Training on Property Appraisal Focusing on Compensation of Right-of-Way (ROW) and Damages with Ms. Maya Gabriela Q. Villaluz, WB Environmental Safeguards Specialist as Speaker.

Efforts at mainstreaming SES into the AMIA have been initiated during the later part of the year with 2 orientations/briefings at the AMIA sites in Ilagan City and the municipality of Benito Soliven both in Isabela.

Overall, the SES has been successful in adjusting to the new normal brought about by the pandemic without jeopardizing the completion of the expected deliverables.

## Procurement Unit

The unit covered the procurement activities of RPCO2/MPMIU/CPMIU/PPMIU and PGs from January to December 2021. The scope included the sub-projects issued NOL 1, NOL 2, completed sub-projects, related trainings, workshop/technical assistance and meetings for both I-REAP and I-BUILD sub-projects.

Prior to the issuance of NOL 1, all proposed sub-projects had undergone the different levels of review. The required documents reviewed by the procurement are the Procurement Plan, Pre-canvass with the specification, the mode of procurement to be used and the draft Philippine Bidding Documents for civil works.

Prior to the issuance of NOL 2 through the shopping method, there was a proper procurement process conducted with the technical assistance and review of related documents by the RPCO 2 Procurement Unit. Procurement activities were as follows:

1. Preparation and approval of PR, Procuring Entity (PE) posting of the ITQ in the PhilGEPS
2. Canvassing, submission and opening of quotation, conduct of post-qualification, PLGU Bid Evaluation Report, BAC Resolution
3. Preparation of RPCO2 Bid Evaluation Report (BER) Review and PSO BER Review Report

The procurement process/activities of all I-BUILD sub-project are based on the PRDP Harmonized Procurement Guidelines for both National Competitive Bidding and shopping method. Prior to the issuance of NOL 2 the following activities are properly conducted:

1. Pre-procurement conference, Published / Posted advertisement to bid in the PhilGEPS
2. Pre-bid Conference, Evaluation/Opening of Bid Proposal
3. Joint Post Qualification
4. P/M/CBAC Bid Evaluation Report
5. BAC Resolution
6. RPCO2 BER Review Report
7. PSO BER Review Report



## ACRONYMS

A	ADING	Agriculture Dialogue Information Network Group
	AEWs	Agricultural Extension Workers
	AFC	Agriculture and Fisheries Council
	AFF	Agriculture, Fisheries and Forestry
	AFMESS	Agricultural And Fishery Machineries, Equipment And Facilities Support Services
	AMAD	Agribusiness and Marketing Assistance Division
	AMIA	Adaptation and Mitigation Initiative in Agriculture
	ASF	African Swine Fever
	ATI	Agricultural Training Institute
	AVP	Audio Visual Presentation
	AWA	Animal Welfare Act
B	BCA	Biological Control Agents
	BES	Batanes Experiment Station
	BFAR	Bureau of Fisheries and Aquatic Resources
C	CRA	Climate-Resilient Agriculture
	CRVA	Climate Risk Vulnerability Assessment
	CS	Certified Seeds
	CVAARRD	Cagayan Valley Agriculture, Aquatic and Resources Research and Development
	CVIAL	Cagayan Valley Integrated Agricultural Laboratory
D	CVRC	Cagayan Valley Research Center
	DA RFO 02	Department of Agriculture Regional Field Office No. 02
E	DRRM	Disaster Risk Reduction and Management
	EPFs	Entomophatogenic Fungi
F	ESETS	Extension Support, Education And Training Services
	FAW	Fall Armyworm
	FCA	Farmer Cooperatives and Associations
	FMD	Foot and Mouth Disease
	FMR	Farm-to-Market Road
	FOD	Field Operations Division
G	FSSP	Food Staple Sufficiency Program
	GAA	General Appropriations Act
	GAHP	Good Animal Husbandry Practices
	GAQP	Good Aquacultural Practices
H	GAP	Good Agricultural Practices
	HVCDP	High Value Crop Development Program
I	IEC	Information-Education-Communication
	IES	Isabela Experiment Station
	ILD	Integrated Laboratory Division
	INS	Irrigation Network Services
	INSPIRE	Integrated National Swine Production Initiatives for Recovery and Expansion
M	IPM	Integrated Pest Management
	MA	Municipal Agriculturists
	MAFC	Municipal Agriculture and Fisheries Council
	MCDP	Multi Crop Drying Pavement
	MFO	Major Final Output
	MRL	Maximum Residue Limit

## ACRONYM

N	NCES	Northern Cagayan Experiment Station
	NGA	National Government Agencies
	NGO	Non-Government Organization
	NTF ELCAC	National Taskforce to End Local Communists Armed Conflict
	NVAT	Nueva Vizcaya Agricultural Terminal
	NVES	Nueva Vizcaya Experiment Station
O	OAP	Organic Agriculture Program
	OCCP	Organic Certification Center of the Philippines
	OPV	Open Pollinated Variety
P	PA	Provincial Agriculturists
	PAFES	Province-led Agriculture and Fisheries Extension System
	PCIC	Philippine Crop Insurance Corporation
	P/C/M LGU	Provincial/ City/ Municipal Local Government Unit
	PCR	Polymerase Chain Reaction
	PISOS	Pump Irrigation System-Open Source
	PMED	Planning, Monitoring and Evaluation Division (PMED)
	PRDP	Philippine Rural Development Project
	PSS	Production Support Services
Q	QES	Quirino Experiment Station
	QRF	Quick Response Fund
R	R4D	Research for Development
	RAED	Regional Agricultural Engineering Division
	RC/ES	Research Centers/Experiment Stations
	RAFIS	Regional Agriculture and Fisheries Information Section
	RCM	Rice Crop Manager
	RCPC	Regional Crop Protection Center
	RFDG	Research Facilities Development Grant
	RIRDEAP	Rice Regional Integrated Research & Development/extension Agenda Program
	RSBSA	the Registry System for Basic Sectors in Agriculture
	RTK	Rapid Test Kit
S	SALT	Sloping Agricultural Land Technology
	SAP	Sweet Abulug Pummelo
	SCoPSA	Sustainable Corn Production in Sloping Areas
	SCRC	Southern Cagayan Research Center
	SEWS	Surveillance and Early Warning System
	SOA	School-on-the-Air
	SPFS	Solar Powered Fertigation System
	SRI	System of Rice Intensification
	SUC	State Universities and Colleges
	SWIP	Small Water Impounding Projects
T	TIDA	Technology Innovation and Digital Agriculture
U	UNAIP	Unified National Artificial Insemination Program



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