

# Bubalus

Quarterly Newsletter of the Philippine Carabao Center

Vol. 2 No. 4 • 2019



## FEATURES

### High yield, income with the use of new technology

By Chrissalyn Marcelo

**Isagani Cajucom's life went through a major shift after he started his business on grass and corn silage production and commercialization in Lupao, Nueva Ecija.**

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### 5th NCC highlights significant contributions of carabao as an instrument for development

By Ma. Cecilia Irang

The special role of the carabao in improving the lives of many farming families was accentuated in a series of plenary sessions during the Philippine Carabao Center's (PCC) 5th National Carabao Conference (NCC) held last November 14-15 at the Central Mindanao University (CMU) Convention Center in Maramag, Bukidnon.

The impact of this important animal on the lives of farmers was substantiated by CMU President Dr. Jesus Antonio Derije in his keynote message. He said the carabao is a productive animal that contributes not only in farm works by way of its draft power but also as a profitable commodity in a business venture

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# Editor's Word




As the Philippine Carabao Center (PCC) helps pursue the Department of Agriculture's twin mission of "bountiful harvest" and "high income" among its farmer-clientele, we saw it fit to highlight in this issue of Bubalus some of the former's significant undertakings in the regions.

Foremost of which relates to the PCC's provincewide strategic approach to carabao development program (CDP) dubbed as "ALAB (Accelerating Livelihood and Assets Buildup) Karbawan", which partners with conduit cooperatives as entry points for development interventions. Bohol is considered a model for this endeavor, having demonstrated successfully through the Bohol Dairy Cooperative, as facilitated by PCC@USF with the help of partner-agencies like DepEd, DSWD, and local government units, the benefits of buffalo-based enterprises. Other PCC regional centers are preparing their respective provinces as well. Take for example PCC@MMSU, which partnered with NISAC with the recent entrustment of dairy buffaloes and launching of FLS-DBP in Cagugao, Ilocos Sur; PCC@DMMMSU, which also entrusted dairy buffaloes to farmers in Agoo, La Union; PCC@CMU, which facilitated a training on milk processing and handling involving 32 participants from Don Carlos, Bukidnon; and PCC@LCSF, which promoted the potentials of carabeef as a very promising economic commodity through the Buglasan Organic Farm Family Congress and Agri Fair held in Dumaguete City, Negros Oriental. All ALAB Karbawan efforts and developments in other provinces were underscored as well during the successful holding of the 5th National Carabao Conference in Maramag, Bukidnon, as hosted by PCC@CMU, which saw, once again, the convergence of all stakeholders in the carabao value chain. But this time, they are filled with renewed motivation amidst challenges, in anticipation of the full implementation of the nationwide milk feeding-supplementation of undernourished children by way of the RA 11037, which will harness locally produced milk. These are welcome developments that we should all be thankful for.

At this juncture, on behalf of the Bubalus editorial staff, let me greet all of you a joyous season of hope and thanksgiving. It has been a productive and blessed 2019 for PCC and CDP stakeholders. Our sincerest thanks to all of you, avid readers of Bubalus, for always inspiring us in writing and sharing interesting stories, as they unfold before our very eyes.

Have a meaningful Yuletide season. Likewise, may our "vision" be clearer in the coming new year, for it's going to be 2020!

  
**Dr. Eric P. Palacpac**

## About the cover

Isagani Cajucom is the epitome of a successful farmer-entrepreneur or carapreneur with higher income and abundant harvest through silage production technology. Despite discouragements, he took the risk to commercialize corn silage. This technology, coupled with hard work and perseverance, paved way for Isagani to relish on his gains from this viable enterprise.



Photo by Rowena Bumanlag

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## Sen. Villar sees 'Bohol Dairy' as a model for dairy enterprise

By Ma. Cecilia Irang

"Bohol can be a model in showing the rest of the country how to develop the dairy industry for the benefit of everyone. If it can be done in this province, then it can be done in the whole country as well."

This was underscored by Senator Cynthia Villar, chairperson of the Senate Committee on Agriculture and Food, in her keynote message during the 5th Bohol Milk Festival held last November 28 at the Farmers Trading Post, Lomangog, Ubay, Bohol.

In her speech, she extended her appreciation towards the efforts of the province in organizing such activity to live up to its unofficial title as "dairy capital of the country".

She also shared how the Bohol Dairy Cooperative (BoDaCo), assisted by the Philippine Carabao Center at Ubay Stock Farm (PCC@USF),



Sen. Cynthia Villar (2nd from left) leads the entrustment of dairy buffaloes to Bohol Dairy Cooperative during the 5th Bohol Milk Festival.

inspired her to work on a project or program that will not only help provide income opportunities for dairy farmers but also address malnutrition incidence among children.

"I am glad that this cooperative in Ubay has milk processing plant and dairy products outlet. The co-op's members know how to play their roles well. They find ways to promote their products by participating in exhibits and trade fairs. You [BoDaCo] are really my inspiration. Every time I go to other places, I always tell them to replicate Ubay's dairy value chain," she said.

She added that the BoDaCo, which is a model for backyard dairy production, also won the Villar Sipag Award in 2018.

Sen. Villar further imparted a brief story to inspire others. She recalled

that when she visited the USF, she had an encounter with a local housewife who tended and milked three carabaos. The housewife sold the harvested milk to the town's dairy products outlet named "Bohol Dairy", a store being managed by PCC where BoDaCo toll processed their products. The milk sales provided them an income of Php600 a day or Php18,000 a month.

The backyard dairy production in Ubay coupled with PCC's concept of the Dairy Box branding has impressed Sen. Villar that she provides budget for this value chain to be replicated in all provinces across the country.

Meanwhile, PCC Executive Director Dr. Arnel del Barrio took cognizance of this challenge and therefore called forth an active participation and cooperation of dairy value chain players.

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From page 3

## Sen. Villar sees 'Bohol Dairy'...

"As we embark on the challenge to increase more our local dairy production, I humbly ask for the help of others and partners as PCC cannot do it alone. We need to level up our production and when we say dairy, we're not only pertaining to carabaos, it also includes other dairy animals like cattle and goat," he stressed.

Dr. William Medrano, Department of Agriculture's (DA) Assistant Secretary for Livestock, mentioned about the DA's goal, which is aligned with the festival's theme: "Dobleng Ani, Dobleng Kita: Sa Panggatasan, Himsog nga Kabataan, Adlaw Adlaw ang Kinitaan".

He said that all the program, projects, and activities of the department are anchored on achieving DA's twin objectives of abundant harvest and higher income

among farmers.

The highlight of the 5th Bohol Milk Festival was the launching of school-based milk feeding program with the Department of Education (DepEd) and Department of Social Welfare and Development (DSWD) as lead agencies. It is in relation to the Republic Act No. 11037 or the "Masustansyang Pagkain Para sa Batang Pilipino Act" that was passed into law last year, which aims to address the problem of undernutrition among Filipino children.

Governor Arthur Yap, on the other hand, said that the government aims to provide milk products to the 20,000 malnourished children in the province.

He added that the DepEd has the budget to purchase the milk supply

but Bohol still needs to increase its production to meet the demand through artificial insemination and breeding of 2,000 carabaos and cattle.

Other activities included were launching of Bohol Integrated Community-based Dairy farming, entrustment of dairy buffaloes and awarding of dairy supplies and equipment to farmers, sharing of farmers' best practices, lecture on Milk Hygiene and Food Safety, and farm tour.

The event was spearheaded by the Provincial Government of Bohol thru the Provincial Veterinary Office headed by Dr. Stella Marie Lapiz and was co-conducted by the PCC, National Dairy Authority, BoDaCo, DA, LGU-Ubay, DSWD, and DepEd.

## PCC strengthens support to dairy farmers thru ALAB Karbawan, FLS-DBP

By Charlene Corpuz

Entrustment of 10 dairy buffaloes took place alongside the launching of Farmer Livestock School on Dairy Buffalo Production (FLS-DBP) last November 22 at Lusong Suyo, Baclig, Cabugao, Ilocos Sur.

The said activity was part of the provincewide development project called "Accelerating Livelihood & Assets Buildup", also known as ALAB Karbawan, of the Philippine Carabao Center (PCC) to support the carabao value chain stakeholders particularly carabao or water buffalo farmers.

Twenty-five farmers of the Northern Ilocos Sur Agriculture Cooperative (NISAC), who are the recipients of dairy buffaloes as well as FLS-DBP participants, were present during the activity. It was spearheaded by the staff members from the PCC national headquarters, PCC at Mariano Marcos State University (PCC@MMSU), and House of Representatives of the 1st district of Ilocos Sur.

PCC@MMSU Center Director Grace Marjorie Recta started off by providing an overview of the ALAB Karbawan project. She mentioned



Twenty-five farmers from Ilocos Sur receive dairy buffaloes from PCC as part of the provincewide development project called "ALAB Karbawan".

that the project's goal is to create livelihood and enterprises anchored on carabao-based products, particularly milk and meat.

Also, she highlighted the project's benefits to dairy cooperatives nationwide as she discussed the income opportunities along the dairy buffalo value chain.

Meanwhile, Florencio Malicad Jr., PCC@MMSU CBED coordinator, presented the farmer-trainees for the 34-week training of FLS-DBP. He mentioned that this capability enhancement strategy of PCC would help the dairy farmers to be skilled enough to handle the dairy buffaloes entrusted to them for they will learn important aspects of dairy buffalo management and production.

On the other hand, Atty. Rex Morales from the Office of the Representatives of the 1st district of Ilocos Sur expressed his full support to the project and gave words of encouragement to the participating farmers.

Dr. Caro Salces, Deputy Executive Director of PCC, also delivered a message addressed to the

dairy farmers, industry partners, and other stakeholders to elicit active cooperation and strong commitment toward achieving a common goal of increased productivity and income especially in the rural communities. He also emphasized the need of the industry to produce higher milk production in relation to the RA 11037 or "Masustansyang Pagkain para sa Batang Pilipino Act". This law requires the consumption of carabao's and cow's milk produced by local dairy farmers to address malnutrition incidence among many Filipino children.

"A huge challenge to local milk production also paves the way for a greater opportunity among dairy farmers and 'carapreneurs,'" Dr. Salces said.

With positive response and commitment, Roderick Balino, chairman of NISAC, expressed gratitude for the opportunity given to their cooperative. In his message, he looks forward to the cooperation of each member of the cooperative as a key contribution to the success of the project in Ilocos Sur.





## PCC@DMMMSU awards dairy buffaloes to association of dairy farmers in Agoo

By Ma. Cecilia Irang

The Philippine Carabao Center at Don Mariano Marcos Memorial State University (PCC@DMMMSU) awarded 12 dairy buffaloes to Agoo Dairy Raisers and Farmers Association (ADRFA) last October 15, as part of its “paiwi” program.

In an awarding ceremony held at the Agoo Civic Center, in Agoo, La Union, the activity was made possible through the partnership of PCC and local government of Agoo and through the initiative of Hon. Sandra Eriguel, congresswoman for the 2nd District of La Union.

According to PCC@DMMMSU Center Director Gloria Dela Cruz, Cong. Eriguel took heed of the potential of the program on carabao dairying, thus, she formally requested PCC for assistance to develop such project in her District for the benefit of her constituents.

As a response, PCC provided a budget of Php1,000,000 for the procurement of dairy buffaloes, which will be awarded to farmers in barangay Nazareno, Agoo, La Union.

Dir. Dela Cruz added that PCC already

awarded five dairy buffaloes to the said association last December 2018. Hence, a total of 17 buffaloes were distributed to farmers.

Through the help of village-based artificial insemination technicians, assisted by PCC@DMMMSU, the PCC was able to select and procure good quality animals owned by farmers – the animals are crossbred buffaloes (75%-85%) with the age ranging from 2 ½ to 4 years old.

Meanwhile, PCC Executive Director Dr. Arnel del Barrio mentioned in his message during the awarding ceremony that the dispersal was in preparation for the national feeding program, which created a higher demand for locally produced milk; and in support of the DA's twin objectives of abundant harvest and higher income among farmers.

Currently, some of the buffaloes distributed to the farmers are already lactating and pregnant, thus, the beneficiaries are expected to milk them to experience the benefits that can be derived from dairy buffaloes.

## Dairy farmers urged to increase milk production in support of National Feeding Program

By Ma. Cecilia Irang

“The new law institutionalizing a national feeding program for undernourished Filipino children in public schools has created a higher demand for locally produced milk, thus, providing livelihood opportunities for dairy farmers and boosting the local dairy industry.”

This was underscored by Philippine Carabao Center's (PCC) Executive Director Dr. Arnel Del Barrio during the celebration of the 13th Gatas ng Kalabaw Festival last October 8 in General M. Natividad, Nueva Ecija, which coincided with the 100th day in service of the town's newly elected Mayor Anita Arocena.

“There is a ready local market for milk, as there is already a budget for that. What we lack is enough supply of milk. We are seeking for your (dairy farmers) help not just to double but to triple your milk production. Help us collect, process, and feed milk to Filipino children,” he added.

President Rodrigo Duterte signed Masustansyang Pagkain para sa Batang Pilipino Act or Republic Act 11037 last June 2018 to address the problem of undernutrition among Filipino children (aged 3-12 years old) in day care centers, kindergarten, and elementary.



Kick off activity of milk feeding program at the General Natividad Central School in Nueva Ecija.

Under the law, the government shall provide a supplemental feeding program for day care children, which will be implemented by the Department of Social Welfare and Development (DSWD) and local government units (LGUs); a school-based feeding program for public school children from kinder to Grade 6, to be implemented by the Department of Education (DepEd); and a milk feeding program, wherein fresh milk is one of the components in the fortified meals and cycle menu. This will include the provision of at least 100ml to 200ml of locally produced fresh milk to undernourished children and will be done in coordination with PCC, National Dairy Authority (NDA), and the Cooperative Development Authority (CDA).

Dr. Del Barrio stressed the need to scale up local milk production, as milk demand rises in line with the national feeding program. He also cited the significant roles and contributions of dairy farmers in meeting this challenge.

“According to DSWD and DepEd, we will be needing at least 600,000 liters of milk daily to support the milk feeding program for undernourished children across the country. The DepEd has Php1 billion budget for the feeding program this

year. They (DSWD and DepEd) will even allocate higher budget for the said program next year. Hence, dairy farmers are urged to gear up for this challenge and opportunity,” he averred.

“Gradually, we, at PCC, NDA, and CDA, together with LGUs, will campaign in all municipalities to convince farmers to increase milk production and encourage more farmers to engage in dairying,” he added.

Dr. Del Barrio also mentioned about the twin goals of the Department of Agriculture: “Masaganang Ani at Mataas na Kita”, which is aligned with the slogan of this year's host of Gatas ng Kalabaw Festival – General M. Natividad: “Angat Nativideño, Isulong Natin ang Tagumpay at Asensong Para sa Lahat”.

The annual Gatas ng Kalabaw Festival, in partnership with the Department of Trade and Industry (DTI), is one way of promoting carabao's milk not only for its economic benefits but also for its health and nutrition of smallholder dairy farmers and their families as well as milk consumers in general.

It is made possible through a technical working group participated

in by DTI, PCC, Department of Agrarian Reform (DAR), DA as well as the provincial and local government units.

The highlight of the celebration was the symbolic “tagay-pugay (toast of salutation)”, a simultaneous milk toasting and drinking featuring day care students and representatives from partner private institutions and government agencies. It accentuated the significance of multi-sectoral efforts in the increased programs of the local dairy industry in Nueva Ecija.

Meanwhile, Mayor Arocena extended her gratitude to the PCC, DTI, DAR and other agencies and government units that are supporting this kind of endeavor to develop and strengthen the local dairy industry for the benefit of local dairy farmers in her town and in the whole province.

The PCC, on the other hand, was recognized by the DTI as its most outstanding partner agency for the “promotion and development of dairy cooperatives and of the whole dairy industry cluster in Nueva Ecija”.

After the program, a kick off activity of milk feeding program was conducted involving 400 elementary students at General Natividad Central School. The milk was provided by the Nueva Ecija Federation of Dairy Carabao Cooperatives (NEFEDCCO).

Other activities included in the celebration were micro, small, medium enterprise (MSME) trade fair, presentation of accomplishments of Mayor Arocena's 1st 100 days in service, raffle draw, intermission numbers performed by high school students in General Natividad and a community dance number with PCC mascots “Kalaboy” and “Kalagirl”.

The event was attended by 800 stakeholders from the private sector, LGUs, government agencies, students, teachers, dairy farmers, and others.



# ‘Carabeef’ takes limelight in Buglasan 2019’s Organic Farm Family Congress and Agri-Fair

By Charlene Joanino



PCC@LCSF Center Director Ariel Abaquita cites the potential of carabeef production as a source of income in Negros in his message during the Buglasan 2019’s Organic Farm Family Congress and Agri-Fair.



For the first time, representative residents from select Negros Oriental municipalities and cities competed in a “Carabeef-Based Cooking Contest” held last October 17 at the PAO compound, Dumaguete City. The term ‘Carabeef’ is a portmanteau of the words carabao and beef.

“We want to promote carabeef as a staple ingredient for dishes that can be served in every household in our province,” Provincial Agriculturist Nestor Villaflores said.

The said cooking contest is part of the Organic Farm Family Congress and Agri-Fair with the theme “Negros Oriental: The Landscape of Organic Opportunities” that happened from October 16-18. It is among the highlights of Buglasan 2019 celebration.

Buglasan is dubbed the “Festival of Festivals” in the Philippines and is annually done in Negros Oriental.

In the cooking contest, Alyssa Marie

Partosa’s Carabeef Carmelized with Pineapple, emerged as the winning dish. Her dish brings a fusion of sweetness and tinges of spicy sensations to the palate.

Partosa represented the town of Zamboaguita. She faced eight other participants from Guihulngan City, Binday, Tayasan, Tanjay City, Sibulan, Basi City, Valencia, and Sta. Catalina.

Some of the dishes showcased using carabeef are steak, burger, caldereta, and veggie rolls. All were evaluated by food gurus Pepita Villacora, Angelina Bondad, and Tessie Lazaro.

Provincial Governor Roel Ragay Degamo led the opening of the Organic Farm Family Congress and Agri Fair.

Guests from the Department of Agriculture, Agricultural Training Institute VII-Central Visayas, and LGU-Negros Oriental staff are also present in the event.

## PCC and LGU-Negros Oriental’s joint endeavor

“This event marks the onset of our initiatives in meat production geared towards its penetration in the province’s market,” said Ariel Abaquita, Center Director of PCC at La Carlota Stock Farm (PCC@LCSF), which covers Negros Oriental.

According to Center Director Abaquita, results of Carabao Value Chain Analysis (VCA) revealed that around 16,000 carabaos are being exported out of the island annually. He noted that this proves the great potential of carabeef production as a good source of income in Negros.

Both him and provincial agriculturist Villaflores knew each other even before the latter assumed his current position. Back then, Villaflores who used to work in the Provincial Veterinary Office worked hand-in-hand with PCC in the upgrading of carabaos through artificial insemination. Thus, when Villaflores was tapped by PCC@

LCSF, he did not hesitate to partner with the center in the promotion of carabeef.

“In the 1990s, people started the practice of mixing cattle’s beef with carabeef. They viewed carabeef as inferior and was sold for a lower price, hence, they would pass it on as beef to earn more,” Villaflores shared.

Meanwhile, apart from the cooking contest, PCC spearheaded a symposium, wherein Victor Geroche of PCC@LCSF presented PCC’s mandate and services.

“As per VCA results, it was reported that PCC@LCSF is a center that can engage with stakeholders for meat, milk, draft, and hide production. As a whole, we aim to promote carabao-based livelihood throughout the province, with the help of the LGU-Negros Oriental,” Center Director Abaquita said.

## Future plans

Villaflores shared that hopefully by next year, the cooking contest will

be an even bigger event. He stated that they plan to amp up the prizes as follow: first prize, a carabao ready for breeding; second prize, a heifer; and third prize, a yearling.

He added that the Provincial Agriculturist Office aims to conduct an information, education, and communication campaign to impart knowledge and entice residents to engage in carabao raising for carabeef production.

Dr. Eric Palacpac, chief of PCC’s Knowledge Management Division, shared that Negros Oriental is among the provinces selected for the Carabao Value Chain Improvement Network (CVIN) project which is supported by the office of Senator Cynthia Villar. He noted that the province through PCC@LCSF is set to receive Php 10,000,000 for the purpose.

Procurement of some 40 head crossbred carabaos for distribution to farmers’ cooperative along with provision of other support services are in the works.







## PCC@CMU trains industry partners on value-adding milk products

By Jeson Candole

Thirty-two participants composed of Barangay Nutrition Scholars (BNS) and Barangay Health Workers (BHW) from Don Carlos, with walk-in partakers from Valencia City and Malaybalay City, all in Bukidnon, successfully completed the three-day training on milk handling, processing and marketing held at the Regional Training Center, Philippine Carabao Center at Central Mindanao University (PCC@CMU), Musuan, Bukidnon last September 17-19.

The training was a collaborative effort of PCC@CMU, Abellanosa's Learning Site, and Agricultural Training Institute (ATI), which aimed at capacitating the participants on the proper milk collection and handling; milk processing procedures for various milk products; and techniques on how to market the products.

According to Dr. Elena Paraguas, PCC@CMUs training specialist

III, the selected participants from different municipalities were trained to prepare themselves for the upcoming school milk feeding program to ensure the quality and safety of the milk to be distributed in the area.

"This training will also serve as a venue for them [participants] to appreciate the value-adding potentials in milk products, which are excellent sources of additional income," Dr. Paraguas added.

Julikah Jan Nortega, Processing and Marketing Outlet's (PMO) quality assurance officer, stressed the importance of food safety and quality of milk from production to marketing during her lecture.

"The main point or importance of this lecture is for you to learn about proper food handling and food sanitation in order to ensure that food delivered to customers are safe

from food borne illnesses. One way to achieve this end is to maintain the cleanliness of the area and food handler," she emphasized.

After a series of lectures on the first day, the participants experienced the kitchen-type processing of milk on the following days. Each group processed choco milk, white cheese and pastillas as their finished products.

Apart from processing, the participants also learned milk quality testing, maintenance of milk quality during milk handling, production, processing and marketing.

"I would like to take this opportunity to say thank you to PCC@CMU and ATI for their efforts to organize this training. For me, this training is the best because it's free and we gained new technologies to explore," Hector Rule, one of the participants, expressed.

## PCC's NIZ Project bags PhilEASNet's special commendation

By Charlene Joanino

In recognition of Philippine Carabao Center's (PCC) extension efforts in the National Impact Zone (NIZ), which is the province of Nueva Ecija, the NIZ Project was given a special plaque of commendation during the Philippine Extension and Advisory Services Network, Inc. (PhilEASNet) Biennial Symposium, held last October 9-10 at the Bohol Tropics Hotel in Tagbilaran City, Bohol.

"We are happy and very blessed that the NIZ project received such accolade. Beyond our work, we hope to inspire others to never give up and to pursue doing things for the greater good," Wilma del Rosario, PCC's NIZ coordinator said.

The PCC's NIZ project started in 1999 as an initiative geared towards the demonstration of the enterprise development component of the PCC's Carabao Development Program. Back then, Nueva Ecija was chosen as the PCC's NIZ while 13 regional impact zones were also identified.

This year's symposium theme is "Facing the Challenges of 4th Industrial Revolution (4IR) Through Extension and Advisory Services".

Bohol Governor Arthur Yap emphasized that the proper delivery of extension work can add 32-35% increase in the production aspect of agriculture.

"The 4th industrial revolution is a fusion of technologies characterized



PCC's NIZ Coordinator Wilma del Rosario (5th from right) receives the special plaque of commendation for the NIZ project.

by physical, digital and biological spheres, which can be disruptive. The challenge now is how to apply 4IR technologies to the farm sector," he added.

The symposium aimed to (1) explain challenges and opportunities on 4IR, (2) share innovations and initiatives of good extension and advisory service practices, and (3) identify measures for capacity development and knowledge management in anticipation of the 4IR challenges and opportunities.

"As extension professionals and practitioners, we have to be prepared and equipped to help ensure that 4IR will not make the rich, richer and the poor, poorer. We need to adapt well to this reality in the name of service especially to those who have less in life," PhilEASNet President Karen Eloisa Barroga stated on the message she wrote for the event.

A total of 45 papers were presented. The said papers delved in various subthemes such as Innovations in Knowledge Management, Novel Capacity Building Initiatives, Trailblazing Extension Interventions, Developing Sustainable Community Livelihoods, Extension and Public Service of HEI, and Extension, and Public Service of HEI.

Conversations on the 4IR applications in the fields of rice, livestock, vegetable, forestry,

and land resources management were also conducted with invited resource speakers.

This year's outstanding extension practitioner is Elmer Sayre, executive director of WAND Foundation. In the extension category, "HILING program: An Extension Innovation of Agricultural Training Institute-Region IV-A" was hailed as this year's outstanding extension project. Meanwhile, under the same category, the outstanding research paper award was won by the paper entitled "Stimulating the Entrepreneurial Prowess of Women Farmers in Macarse, Zaragoza, Nueva Ecija".

Dr. Eric Palacpac, PhilEASNet's vice president for Luzon and PCC's Knowledge Management Division chief, awarded the certificates.

The keynote speakers of the symposium were Dr. Glenn Gregorio, director, Southeast Asian Regional Center for Graduate Study and Research in Agriculture, and Dr. Aniceto Orbeta, Jr., senior research fellow, Philippine Institute for Development Studies.

Also present in the event was Tagbilaran City Mayor John Gessnell Yap who expressed his support on conduct of the symposium.

More than 200 participants from select government agencies, universities, and other institutions engaged in extension work participated in the event.





## PCC among qualifiers in the 31st NRS basic research category

By Charlene Joanino

The Philippine Carabao Center (PCC) bagged an “AFMA R&D Paper Award” during the 31st National Research Symposium (NRS) held last October 16, 2019 at the Sulo Riviera Hotel, Diliman, Quezon City.

The AFMA (Agriculture and Fisheries Modernization Act) research award is given to researchers in recognition of their works that led to “new technologies, information, processes, or systems that are beneficial to the agriculture and fisheries sector.” A total of 188 papers were evaluated and 80 made it through the competition.

The study entitled “Genetic Diversity of the Philippine Carabao Using mtDNA(COI) and Microsatellite Markers (FAO STRs)” was spearheaded by Lilian Villamor, PCC Senior Science Research Specialist, thru a financial grant from the DA Biotech. This was selected as one of the four paper qualifiers in the Basic/Upstream research category.

This year’s symposium theme is “Gearing up the Agriculture Fishery Sectors through Holistic Research and Development towards Regenerative Development.” The Department of Agriculture – Bureau of Agricultural Research (DA-BAR) spearheaded the conduct of the event.

DA Assistant Secretary for Special Affairs and DA-BAR Director Nicomedes Eleazar noted that NRS is a major event where outstanding

researches, researchers, and scientists are given due recognition.

“Our research findings elucidated one of the longest standing questions if there is really genetic diversity among Philippine Carabaos sub-populations. This award re-confirms our worthy contribution in livestock research,” Villamor said.

The PCC’s study was anchored on the determination of the presence of genetic diversity of Philippine Carabao across Luzon, Visayas, and Mindanao. About 941 animals were analyzed as per “molecular and morphological characteristics.”

Two distinct clusters emerged. It was found that “Swamp 1 in Luzon” have bigger neck, head, and horns, heftier, and is bigger compared to “Swamp 2 in Visayas”. This is crucial since genetic diversity should be deemed for strategic conservation and management.

Other authors of the research are Dr. Ester Flores, Aivhie Jhoy Escudro, Alexander Paraguas, and Therese Patricia Cailipan from the PCC’s Research and Development Division.

Annually, the symposium serves as an avenue to showcase noteworthy outputs of local scientist and researchers of DA units and attached agencies, universities, and other government institutions in the field of agriculture and fishery.

From page 1

## 5th NCC highlights significant contributions of carabao...



via its milk, meat, and other by-products such as hide and manure.

He even quoted and attested the article written by the late PCC’s editorial consultant Dr. Anselmo Roque about the carabao dairying being a booming industry. He said the carabao offers a lot of opportunities since myriads of products, such as dairy products and carabeef, can be derived from it, which command high market price and demand due to its nutritional value and good quality.

The confab, hosted by the PCC@CMU under the leadership of Dr. Lowell Paraguas and co-hosted by CMU, revolved around the theme “Masaganang Ani at Mataas na Kita sa Pagkakalabawan”, in support of the Department of Agriculture’s vision of a food-secure country with prosperous farmers and fisherfolks.

It aimed to gather participants, trustees, and all those who are benefitting from the dairy carabao-based industry. It served as a venue for meaningful interaction among the participants and a source of significant information, ideas, and good practices for sharing and disseminating, which is expected to inspire more to participate in the Carabao Development Program (CDP).

PCC Executive Director Dr. Arnel del Barrio gave updates on CDP, its humble beginnings, how it flourished, and how it continues to help uplift the lives of farmers.

“What we want is for farmers to have profitable and viable enterprises to achieve more abundant harvest and higher income. Eventually, these enterprises will bring forth sustainable livelihood to the farmers and Filipinos in general,” he emphasized.

Rowena Bumanlag, PCC’s Applied Communication Section Head and 5th NCC overall chairperson, considered CDP as an integrated and diversified program.

“PCC’s program is no island. It only means that carabao can be integrated in the present farming systems and its contribution is fundamental,” she said.

The participants of this learning event were provided with insights on PCC’s unrelenting efforts and initiatives to promote the carabao industry; PCC’s partnerships with the local government units in CDP implementation; and government-funded activities through the following plenary sessions: Convergence for the Milk Feeding Program, Technology and Innovation

Forum, Scaling up the Carabao-based Enterprise Value Chain, and Strengthening the Provincial Livestock Extension System.

The two-day event, which featured plenary sessions pertaining to the “new thinking” in dairy management and carabao industry in general, aimed at contributing towards more abundant harvest and higher income among farmers.

Specifically, it involved topics and discussions on “Milk Feeding Program” by Ms. Laraine Villaver of the Department of Social Welfare and Development and Myra Yee of the Department of Education Region X; best practices on “Artificial Insemination (AI) and Breeding” by Dr. Edwin Atabay, PCC’s Scientist I; “Forage Production and Animal Feeding” by Dr. Daniel Aquino, PCC@Central Luzon State University’s center director; and “Animal Health and Management” by Dr. Virgilio Lopez, PCC@University of Southern Mindanao’s Farm Superintendent II; “Barangay Livestock Aide” by Dr. Stella Marie Lapiz, Bohol Provincial Veterinarian; and “Farmer Livestock School and School on the Air on Dairy Buffalo Production: Platforms for Increased Technology Adoption” by Dr. Eric Palacpac, PCC’s Knowledge Management Division Chief.

Meanwhile, Elena Limoc, General Manager of Lamac Multipurpose Cooperative; Nida Abellanosa of Don Carlos Bukidnon; and Francisco Alex Dani Pasion of Ilocos Sur shared their exemplary testimonies on how the dairy carabao-based business has empowered them to have a sustainable livelihood through the topics “Leading a Robust Carabao-based Value Chain”, Mainstreaming the Farmers’ Cause”, and “Privatizing Artificial Insemination Service Provision”, respectively.

Apart from the plenary sessions, a convergence meeting of dairy cooperatives was also conducted to strategize the plan on how to meet the anticipated high demand for locally produced milk due to the national feeding program.

“Organization and partnership are two key strategic elements to increase dairy farmers’ income and provide milk for children. To achieve this, we need to build the capacity of the co-ops to manage the dairy value chain. Our goal is to reduce importation of milk by increasing local supply through a cooperative-supported dairy industry,” Cresente Paez, Program Director of the Asian Farmers’ Association Cooperative Development, explained.

The 5th NCC also featured Knowledge Exhibition, technology demonstration, launching of PCC@CMU’s Bull Barn, Semen Processing Laboratory and ‘Bukidnon Dairy’ Processing and Marketing Outlet, ceremonial awarding of dairy buffaloes to conduit cooperatives under the Accelerating Livelihood and Assets Buildup (ALAB) Karbawan project, Knowledge Café, and milk toast with elementary schoolchildren and PCC’s mascots Kalaboy and Kalagirl.

Some 600 carabao keepers, dairy farmers, partners, entrepreneurs, local government officials and representatives from various government agencies and private organizations gathered in the two-day event.



## Sire verification paves way for genetic improvement

By Charlene Joanino



“We want to develop a kit or technology that can be used in both cattle and buffalo industries.”

-Melinda Reyes  
Science Research Specialist II

The genetic merit of a buffalo can be accurately measured given that its parentage is correct. Misidentification of parents may result in inaccurate estimated breeding value of an animal.

A study titled “Microsatellite-Based Parentage Verification of Cattle and Buffalo Breeds in the Philippines” by Melinda Reyes, Noriel Esteban, and Dr. Ester Flores of the Philippine Carabao Center’s (PCC) Molecular Genetics Laboratory, Animal Breeding and Genomics Section, was conducted to “establish a set of microsatellite (MS) markers that can be used for routine parentage verification” on the said animals.

Microsatellite marker is a type of DNA marker used internationally to various livestock species for parentage testing.

Reyes noted that the locally developed parentage verification kit

can be used in both buffaloes and cattle to ascertain the correctness of reported parents.

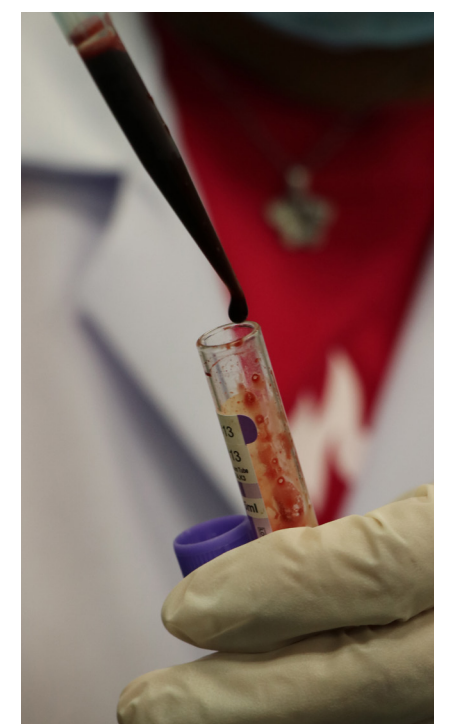
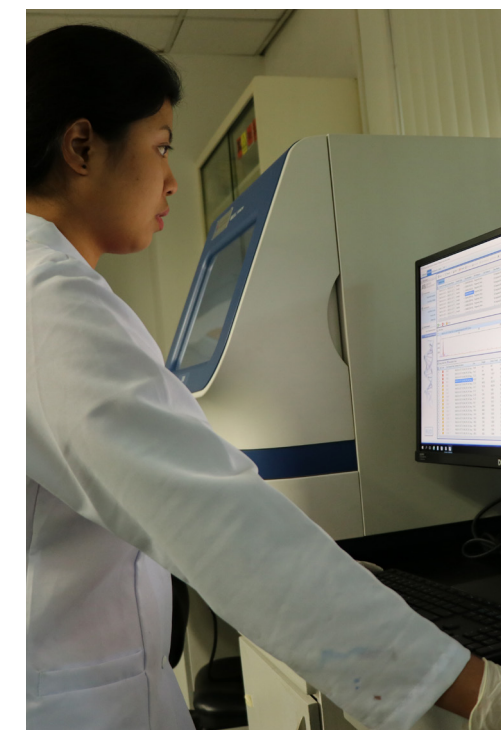
The locally developed parentage kit consists of 15 MS markers to be use in a two-stage process. The first stage used the first 12 markers. If no inconsistency is observed in the result and if correct parentage is assigned in the process, there is no need to go to the second stage. The second stage utilizes the last 3 MS markers to ascertain parentage assignment. In this way, the test also becomes less expensive because the cost of testing increases as the number of MS marker increases.

“We tested known families and those

otherwise to ensure that it works,” Dr. Ester Flores, head of Animal Breeding and Genomics Section, said.

The animals were selected from various PCC institutional herds (involving four buffalo breeds) and from few cattle farms (involving six cattle breeds) .

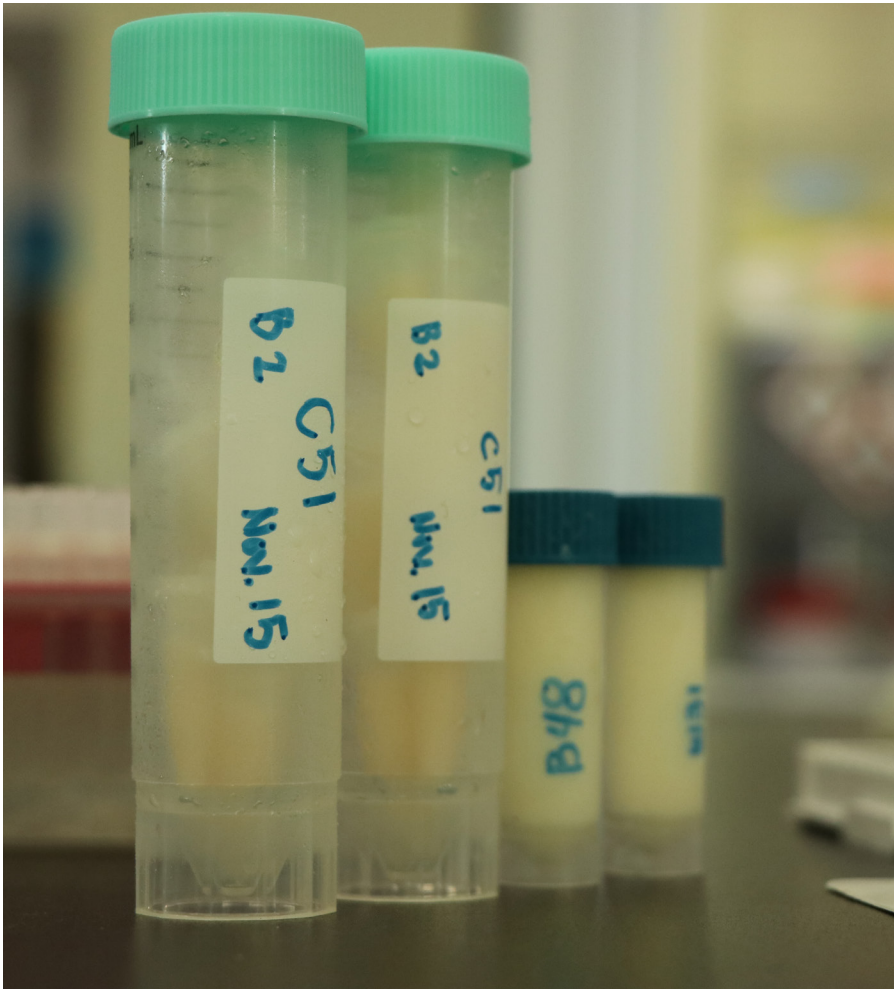
According to Reyes, they hope that in the future they can commercialize the kit as something that can be used in both cattle and buffalo industries. For now, there is a need to further explore its reliability by testing it outside of PCC.





# PAGs in milk, an indicator of early pregnancy

By Charlene Joanino



Less stressful means of detecting early pregnancy in buffaloes is now possible through the determination of Pregnancy-Associated Glycoproteins (PAGs) in milk. PAG is a protein secreted by a buffalo during pregnancy, however, it is often overlooked by the raiser.

This is depicted in the study titled “Early Pregnancy Diagnosis in Buffaloes through Detection of PAGs in Milk Using Enzyme-Linked Immunosorbent Assay” that was conducted by the Philippine Carabao Center’s (PCC) researchers.

“The process is evasive so the animal is less tensed as compared to determining PAGs in blood where you use a needle,” Dr. Edwin Atabay, PCC scientist and one of the researchers said.

The study indicated that there is an increase in the accuracy of determining pregnancy via PAGs in milk than ultrasound at 26 days post-insemination.

More importantly, the calving

interval may be shortened. From the usual conduct of rectal palpation in 3-4 months after breeding, PAGs in milk can be detected in about 26 days after breeding. In this way, the farmer also avoids incurring expenditures without financial gain during the time that a buffalo doesn’t produce milk or isn’t carrying a calf that can be sold later on.

A total of 37 female buffaloes that were being reared at the PCC Gene Pool underwent Fixed Time Artificial Insemination (FTAI). FTAI is a means of breeding wherein the animals are artificially inseminated at a determined time instead of the traditional method of mating using bulls.

Eight of the buffaloes that became pregnant and eight others who aren’t were chosen. About 5 ml of milk was collected as needed from each of the buffaloes. At the same time, blood collection was done.

The milk samples were brought to the laboratory for analysis using the IDEXX Milk Pregnancy Test. The said test uses “monoclonal antibodies” against PAGs and is placed in a microplate where PAGs in milk can be shown.

The researchers also used ultrasound and blood samples analysis to see if the three have relationship with each other.

“There is a certain level of PAGs in milk that needs to be satisfied

before pregnancy can be detected in buffaloes,” Dr. Atabay stated.

During pregnancy, starting at day 26 through 40 the level of PAGs increases gradually every day. However, slightly decrease of PAG was observed at day 60.

According to Dr. Atabay, in the future, they want to develop a kit for buffaloes similar to a person’s pregnancy test kit that is portable and easy to use.

The research was done by Dr. Edwin Atabay, Danica Dematera Matias, Dr. Eufrocina Atabay, Dr. Annabelle Sarabia, Roseline Tadeo, Zeshalyn Fajardo, Jessica Gay Ortiz, and John Paul Apolinario.

“There is a certain level of PAGs in milk that needs to be satisfied before pregnancy can be detected in buffaloes.”

- Dr. Edwin Atabay  
PCC Scientist



# Agri-tourism site in Laguna offers trifold benefit thru carabao farming

By Charlene Corpuz



Photos source: <https://shop.holycarabao.com/>

Health, wellness, and goodness alongside education of the children and advocacy to appreciate the value of nature are the combined essential elements behind the Holy Carabao Farm, established in 2007, located in Sta. Rosa, Laguna.

This holistic farm, which is guided by the principles of organic, biodynamic, and permaculture farming, was founded by Hindy Weber Tantoco. She started an organic gardening in her backyard in Sta. Rosa, Laguna as a quest to provide her family with delicious, healthy and chemical-free foods.

From this simple initiative, she was able to share some of her harvests among friends and neighborhood, and later on the farm produce keeps growing and growing, until her husband decided to make the farming a reasonable business.

As Tantoco started the farming business, she was then joined by a friend and co-worker in Waldorf

School, Melanie Go, in managing the Holy Carabao Farm until they were able to create an online store for pre-ordered products and door-to-door delivery service of organic foods in some parts of Metro Manila. Moreover, they also got an opportunity to sell in S&R and Rustan's, aside from the farm's outlet store in Rockwell located in Makati City.

Go and Tantoco shared a mutual idea that a good life is derived from good and healthy food, which they derive from organic farming and carabao milk produced.

By 2015, the Holy Carabao farm has acquired a lot beside the Waldorf School that paves the way for

discovering more interventions like farm tours and field adventures, which help in sustaining the business.

## Dealing with the three-way benefit

Health, wellness, and goodness. "Food gives life. A healthy source of body's nourishment contributes to a person's great lifestyle, thus, this enables a person to better appreciate life," Tantoco averred.

Education of the children. Experiencing life in the farm through interactive immersion (planting of various fruits and vegetables, gardening, feeding and/or milking of carabaos) is an intrinsic portion

of Waldorf School's farm curriculum, whereas the Holy Carabao Farm in Sta. Rosa branch is involved.

Advocacy for nature. As carabao has always been an indispensable partner in farming, it is also consistently associated with the nature. "The more the children are removed from nature, the less they will care," Go declared. This idea urges them to really create a program for the Waldorf School and make Holy Carabao Farm aligned with the said advocacy.

The animal's dependency on the trees and soil paves way to offering a carabao cart ride adventure in the farm. Moreover, a relaxing therapeutic tour for individuals with

The carabao's ability to produce nutritious milk contributes to the Holy Carabao's aim to make a healthy twist of foodstuffs for the family and consumers. Tantoco and Go were able to come up with delightful beverages, pastries, and salads available at the Farm Shed Cafe, the Holy Carabao's very own coffee shop.

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special assistance is available.

#### Private engagement with PCC farmer cooperative

Since the farm has only two or three native carabaos, the farm owners, Go and Tantoco, require a supply of carabao's milk to sustain their food processing operation. They then partnered with Mr. Richard Cavorsora, a carabao's milk consolidator from Magdalena, Laguna, who has been providing more or less 200 liters of milk monthly to Holy Carabao Farm to promote wellness and goodness for every fresh product.

Mr. Cavorsora delivers the milk to the Holy Carabao Farm's commissary in Cabuyao, Laguna. It is where the products are being made and

eventually brought to Makati for distribution.

Their dairy products include fresh pasteurized milk, which is sold frozen, and various cheeses usually topped on salads.

Aside from the existing products, the gelato will be introduced in the market as a welcoming product for 2020.

#### Naming of Holy Carabao Farm

Go describes the name "Holy Carabao" as 'local yet global' in recognition of the hardworking farmers or field workers who put in efforts for every farm produce. Its concept of "farm to table" to reach the family or consumers, the compassion and reverence, heart and soil, sensitivity to key players,

honest-to-goodness prices of products and wages for its farm workers are the inspirations for "Holy Carabao".

The eagerness of Tantoco to strive for a healthy living encompasses as well a friendly and genuine intention to create a mark of 'more than just a farm'.

Indeed, from a source of nutritious milk up to the children's awareness and education of how a traditional farming is done and the affiliation to nature for its better appreciation is being obtained through a carabao.

These mentioned aspects of equally important contributions to human being are carried through with the existence of a carabao, which immensely contributes to farming even in the face of mechanization.



From page 1

## High yield, income with the use of new technology

From being an "employee" as a "chemist" at Clark Pampanga, he is now the "boss" of his own business venture. In fact, he now has 27 regular farm workers aside from on-call laborers who harvest his grass and corn.

Apart from that, he was able to acquire some assets through his business, e.g., two tractors, one forage chopper, 12 generator sets, second hand truck, car; and land, which he either purchased completely or mortgaged from other farmers.

He also has other business in livestock and poultry production, which include 15-17 hogs for fattening, seven buffaloes for dairying, which he received from the Philippine Carabao Center (PCC), and 200 native chickens for meat.

#### Start off

According to Isagani, it was in May 2013 when he started his corn silage business. This, he said, was after the PCC was able to convince him to try out and adopt its technology on silage production.

Under the "Commercialization of Grass/Forage Corn Silage for Dairy Buffaloes in Lupao, Nueva Ecija" project of the PCC and Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (PCAARRD), Isagani was designated as the "farm leader" or "product champion" of the said project along with 10 farmer associates.

Isagani along with his co-farmers underwent a series of learning events, as facilitated by PCC and

PCAARRD, e.g., proper forage corn production and actual process of making silage, where they were trained on the how-to's of chopping grass using forage chopper, putting the chopped grass inside the plastic or "silo bags", and fermenting it afterwards before product commercialization. After these trainings were finished, they started planting corn in May 2013.

The recommended age of the corn before it could be harvested after planting is 75-80 days, according to the experts of the PCC. Thus, it was after this time when Isagani and his co-farmers started harvesting their corn and processed it as corn silage.

During the first cycle of their silage production, PCC purchased their grass and corn silage at the price of Php3 per kg or Php105 to Php120 per sack, according to Isagani. During this time, too, Isagani earned Php33,000 from his produced silage while he earned Php28,000 during the second cycle.

By this time, Isagani said that he was only using one hectare of land for his silage business. He shared that his one-hectare land gave him at least 23,000 kg to 38,000 kg of corn or grass harvest per cycle.

At present, Isagani earns an average of Php300,000 per cycle in his silage business. He harvests an average of 600,000 kg of corn per cycle from his 2.1-hectare of land; 10.92-hectare land mortgages; and outsourced silages from other farmers in Nueva Ecija.

Based on the recorded cost and return analysis of his business,

it showed that his return on investment significantly increased to 12.88% this year compared to 3.65% last 2013.

#### 'Market'

When Isagani became the project's product champion, PCC and PCAARRD provided all possible assistance for him to establish and expand his market.

Isagani said that even when the project already ended last 2016, his market for silage got bigger through his continuous promotion and "word-of-mouth" by his customers and buyers.

His common customers are the small-scale and large-scale farms that tend cows, carabaos, goats and even rabbits. These farms are located in the provinces of Batangas, Cavite, Bulacan, Pangasinan, Nueva Ecija, Isabela and Baguio.

According to Isagani, his transactions to these markets can be classified as "seasonal", "continuous", or "contractual" depending on the needs of his customers for silage. Ordinarily, he sells his silage at Php4 per kg (pick-up price) and Php4.5 per kg when delivered.

"When I was an employee before, I didn't have any other choice but to work straight starting from 8AM to 5PM. My salary was also "fixed" and I was working far away from my family. But now, through silage production business, I now own my time, be with my family, and earn enough income for my family's needs while helping other farmers in our province when it comes to job provisions and opportunities," Isagani happily shared.



# ALAB KARBAWAN

Accelerating **L**ivelihood & **A**ssets **B**uildup



**ALAB-KARBAWAN** will be spearheaded by the PCC with “push and steer” functions from production to marketing ensuring the sustainable establishment of a Carabao-based Business Improvement Network (CBIN) involving 17 project sites nationwide.

This project will be operationalized in service areas where all the development interventions and support are provided. This project is unique as it emphasizes on the crucial role of a strong cooperative conduit for each project location. The conduit will co-share with PCC in terms of project responsibility and accountability.

Meanwhile, cooperating local government units and other support agencies will ensure that assets will be used to improve the livelihood of the value chain players through herd buildup, organized collection of milk, and processing and marketing of products.



Actively engaged project partners

**17 co-ops**  
**17 LGU**

Involved farm families by 3rd Q of 2020

**at least 340**

Distributed dairy buffaloes

**850 head**

Raw milk produced by 4th Q of 2020

**82,733 kg**

Generated sales

**Php4M (raw milk)**  
**Php12M (value-added)**

Established milk feeding program partners

**17 qualified suppliers**

Actively engaged

**at least 100 women**

in the dairy business



Department of Agriculture  
**PHILIPPINE CARABAO CENTER**  
CERTIFIED: ISO 9001 | ISO 14001 | OHSAS 18001

**W** [www.pcc.gov.ph](http://www.pcc.gov.ph)

**f** Philippine Carabao Center-  
Department of Agriculture





Department of Agriculture

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