

# Bubalus



Quarterly Newsletter of the Philippine Carabao Center

Vol. 2 No. 1 • 2019



## FEATURES

*In the heels of rice tariffication*

PCC exec's  
advice to  
rice farmers:  
Integrate  
carabao  
dairying

By Anselmo Roque

SCIENCE CITY OF MUÑOZ –  
Farmers who are worrying about  
possible lowering of their income

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## Upcoming PCC 26th Anniversary celebration program to underscore successes in 'carapreneurship'

By Charlene Joanino

More than 300 attendees are expected to join the five-day anniversary festivities of the Philippine Carabao Center (PCC) on March 25 to 29. The theme of the celebration is "Empowering 'Carapreneurs': Our Purpose in Focus".

All the activities related to the

celebration which marks the 26th founding anniversary of the agency will be held at the PCC National Headquarters and Gene Pool in the Science City of Muñoz, Nueva Ecija.

The term "carapreneurs" refers to carabao raisers turned carabao

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# Editor's Word



A warm greeting to everyone, as we share with you interesting articles for the first quarter issue of Bubalus for 2019!

The first quarter that passed has been very rewarding for PCC, as it garnered numerous awards and accolades. Foremost is the prestigious "2018 Outstanding Institution" (Cluster IV) award given by the National Research Council of the Philippines (NRCP)-Department of Science and Technology (DOST). The agency was also recognized as Top 3 among DA attached agencies in terms of 2018 Budget Utilization Rate (a measure of planning efficiency). Likewise, the agency has successfully renewed its certification for ISO Integrated Management System (IMS) after passing through a surveillance audit. PCC's former executive director, now PCC technical consultant, Dr. Libertado C. Cruz, was also recognized as one of the "Filipino Faces of Biotechnology" (Animal Biotechnology category). Finally, this very publication was adjudged as 2018 PAJ-SMC Binhi Awards "Best Agricultural Newsletter of the Year".

Such distinctions are manifestations of PCC's excellence and competence in implementing its mandate and in providing services to its clientele amidst various challenges besetting the local carabao industry and the Philippine agriculture in general.

In particular, we feature an article articulating on the proven benefits of rice-carabao integration vis-à-vis the challenges and implications of RA 11203 or rice trade liberalization. We also feature the good news that RA 11307 (National School Feeding Program) brings not only for the nutritional benefits of the school children but also for the welfare of local dairy producers.

As in the previous issues of Bubalus, we likewise share stories on current technologies and best practices on dairy buffalo production. Take for example the recently launched genetically superior and homegrown Philippine Buffalo bulls (semen donors for artificial insemination), the "Triple E strategy" in reproductive management, the use of nanotechnology in livestock disease detection, and some unique and effective practices of local dairy buffalo farmers.

These stories are appropriate preludes to the PCC's 26th Anniversary on March 27, 2019, carrying the theme "Empowering Carapreneurs: Our Purpose in Focus". We enjoin everyone to celebrate the event with us!

*Eric P. Palacpac*  
**Dr. Eric P. Palacpac**

## About the cover

In line with the possible effects of the Rice Trade Liberalization Law, rice farmers may integrate carabao dairying as a complementary enterprise. Moises Alfonso of San Jose City, Nueva Ecija models this integrated farming practice.



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PCC officials with the auditors from the TUV SUD PSB Phils during the Surveillance Audit on PCC's Integrated Management Systems

## PCC National Headquarters and Gene Pool passes IMS surveillance audit

By Minda Diloy

The Philippine Carabao Center National Headquarters and Gene Pool (PCCNHGP) has once again validated its commitment to continual improvement by successfully passing the Surveillance Audit on its Integrated Management Systems (ISO 9001:2015; ISO 14001:2015; OHSAS 18001:2007).

TUV SUD PSB Phils did the audit on February 18 and 19, 2019 confirming the agency's compliance to customer requirements as well as legal and other requirements (LOR) in accordance with the three

management system standards (MSS).

PCCNHGP has been certified to ISO 9001 since 2003. Certification to two more MSS (ISO 14001 and OHSAS 18001) happened in 2012 to demonstrate its commitment to protect the environment as well as health and safety of its employees while creating quality products and rendering quality services.

Meanwhile, five regional centers: PCC at Mariano Marcos State University (MMSU); PCC at Cagayan State University (CSU); PCC at University of the Philippines at Los Baños (UPLB); PCC at Ubay Stock Farm (USF); and PCC at University of Southern Mindanao (USM) also got certified to ISO 9001 in 2011 and 2012.

The Management Systems Audit Team at the PCCNHGP is now working in close collaboration with three more regional centers: PCC at Central Luzon State University (CLSU); PCC at Central Mindanao University (CMU) and PCC at La Carlota Stock Farm (LCSF) for their certification within the year. The rest will follow in 2020.



## LBC spearheads training on 'Gold Colorimetric Sensing Technology'

By Jeffrey Laurence Antolin



Dr. Joram Gautane (left) supervises the researchers on how to perform DNA conjugation with gold nanoparticles.

With the objective of utilizing nanotechnology in applied biotechnology research, the Livestock Biotechnology Center (LBC), headed by Dr. Claro N. Mingala, conducted the training entitled "Gold Colorimetric Nanosensor Technology" last February 21-23, 2019 at the Livestock Innovations and Biotechnology (LIB) Complex, Philippine Carabao Center (PCC), National Headquarters and Gene Pool.

Dr. Annabelle S. Sarabia, chief of the Research and Development Division (RDD), welcomed the 23 participants that took part in the said training. She emphasized the importance of the utilization of new technologies such as nanotechnology not only in future researches, but in real life application as well. Furthermore, it

is imperative that such innovations be maximized to the fullest in order to fulfill the mandate of PCC: to conserve, propagate and promote the carabao as a source of milk, meat, draft power and hide to benefit the rural farmers.

Joram J. Gautane, DVM, focal person of the three-day event, introduced the benefits of nanotechnology, especially combined with the usage of the metal gold, which is said to be biocompatible, or in other words, not harmful to living things if properly used. Some of its benefits include the early detection of diseases such as the Caprine Arthritis Encephalitis Virus (CAEV) in goats, with the test kits changing color depending on the absence or presence of the target DNA related to the disease, without the need

of analysis equipment. These gold nanoparticles also possess the ability to facilitate the absorption of drugs into the body in order to target infected cells. However, the current challenge lies in converting such technology from its limitation to laboratory use to ready-to-use form. Added to that is the high cost of raw materials, with ¼ of a gram of the said material priced at Php10,000-Php15,000.

Nanotechnology has been identified to be one of the major areas of development in the scientific disciplines as convened by the Department of Science and Technology in 2008. Participants learned to synthesize gold nanoparticles at the LIB Complex laboratories, with the main focus on its usage in the diagnosis of animal diseases.

## PCC ensures carapreneurs' engagement in RA 11037 implementation

By Ma. Theresa Sawit

"In every challenge comes great opportunity" is a saying that holds true even in the country's problem on malnutrition. To help alleviate undernutrition among daycare and elementary school children, the country is needing about 605,000 liters of milk a day. This was based on the series of consultation with the agencies involved in the crafting of RA 11037 Implementing Rules and Regulation.

RA 11037, otherwise known as "Masustansiyang Pagkain para sa Batang Pilipino Act", was signed by President Duterte on June 20, 2018 to establish a National Feeding Program by the Department of Social Welfare and Development (DSWD) and the Department of Education (DepEd) in coordination with various agencies including the Philippine Carabao Center (PCC), National Dairy Authority (NDA), and Cooperative Development Authority (CDA).

The Milk Feeding Program component, in particular, promotes the utilization of locally-produced fresh milk and fresh milk-based products in addition to the fortified meals that will be provided to



children for at least 120 days. Thus, the implementation of RA 11037 not only serves as a solution to address undernutrition but as a livelihood opportunity for "carapreneurs" (carabao entrepreneurs) as well.

Carapreneurs, however, need to produce more and to comply with certain standards so they can qualify as suppliers of fresh milk and fresh milk-based products for the program. The PCC recognizes these concerns, and, therefore, continuously designs activities to prepare stakeholders in their engagement in the program implementation. The first set of activities was conducted on February 17-22, 2019 at the PCC National Headquarters, Science City of Muñoz, Nueva Ecija,

which was participated in by milk processors and PCC frontliners - the CBED (carabao-based enterprise development) Coordinators.

Representatives from 10 dairy cooperatives/associations and a partner-university actively attended the orientation and workshop on electronic license to operate (eLTO) application, as spearheaded by Ms. Mina Abella, head of Carabao Enterprise Development Section, in partnership with the Food and Drug Administration- Region 3.

During the workshop, the participants learned the actual process of requesting for eLTO user account and password, and of preparing the required documents for electronic submission to FDA.



Some of the PCC's frontliners across its network who participated in the orientation and workshop on Electronic License to Operate (eLTO) Application, Farm Business Performance Updates and Sharing and CBED Database Standardization.

The activity output was very promising: Bantog Samahang Nasyon Multi-Purpose Cooperative was able to prepare the required documents for application; Lamac Multi-Purpose Cooperative was able to upload the required documents; Eastern Primary Multi-Purpose Cooperative, Rosario Dairy Cooperative, Magdalena Agriculture Cooperative and Mindoro Dairy Cooperative had already requested for their user account; Mapiña Farmer Irrigators Association and Leon Confed Farmers Cooperative was in the process of preparing their documents; Catalanacan Multi-Purpose Cooperative was advised to follow-up the results of their first audit with FDA; San Agustin Dairy Cooperative was in the process of preparing for the final inspection; and the Cebu Technological University was in the process of preparing the required documents and in requesting for their user account. Once these organized farmers' groups have secured their license from FDA, the NDA can accredit them as suppliers of milk for the Milk Feeding Program.

The CBED Coordinators, on the other hand, attended the "Farm Business Performance Updates and Sharing" session facilitated by the PCC's Business Development and Commercialization Unit to share their experiences in collecting and managing their carapreneurs' enterprise data using the intensified research-based enterprise build-up (iREB) Client Dashboard. The activity also aimed to capacitate the coordinators in delivering the necessary assistance that will help improve the carapreneurs' business performance every year. A sustained positive return on investment (ROI) in particular is a good indication that the carapreneur is indeed earning from the carabao-based business and is effective in marketing their produce such as milk and meat. A positive ROI will also help boost the carapreneurs' confidence in expanding their dairy business or in motivating other farmers to engage in dairy business which will eventually lead to more milk production.

Enhancement of CBED Database was also introduced among the

coordinators to ensure that the reproductive performance of carabaos owned by the carapreneurs are monitored and analyzed. There would be no milk output unless the female carabaos would get pregnant and produce calves. It is, therefore, necessary to have an updated data on breeding as a basis in making effective and timely decision to maintain productive animals, cull unproductive animals, and to provide appropriate production support services. The enhanced database, when updated and monitored regularly, can help reduce the calving interval and would result in increased calf and milk production.

The PCC's activities and strategies will continually focus on improving and sustaining the business of carapreneurs so they can actively participate in development programs like the National Feeding Program. The LTO application and business performance analysis are just part and parcel of many other "big steps" where PCC and carapreneurs can work hand in hand.

## Former PCC Executive Director receives 'Faces of Biotechnology' award

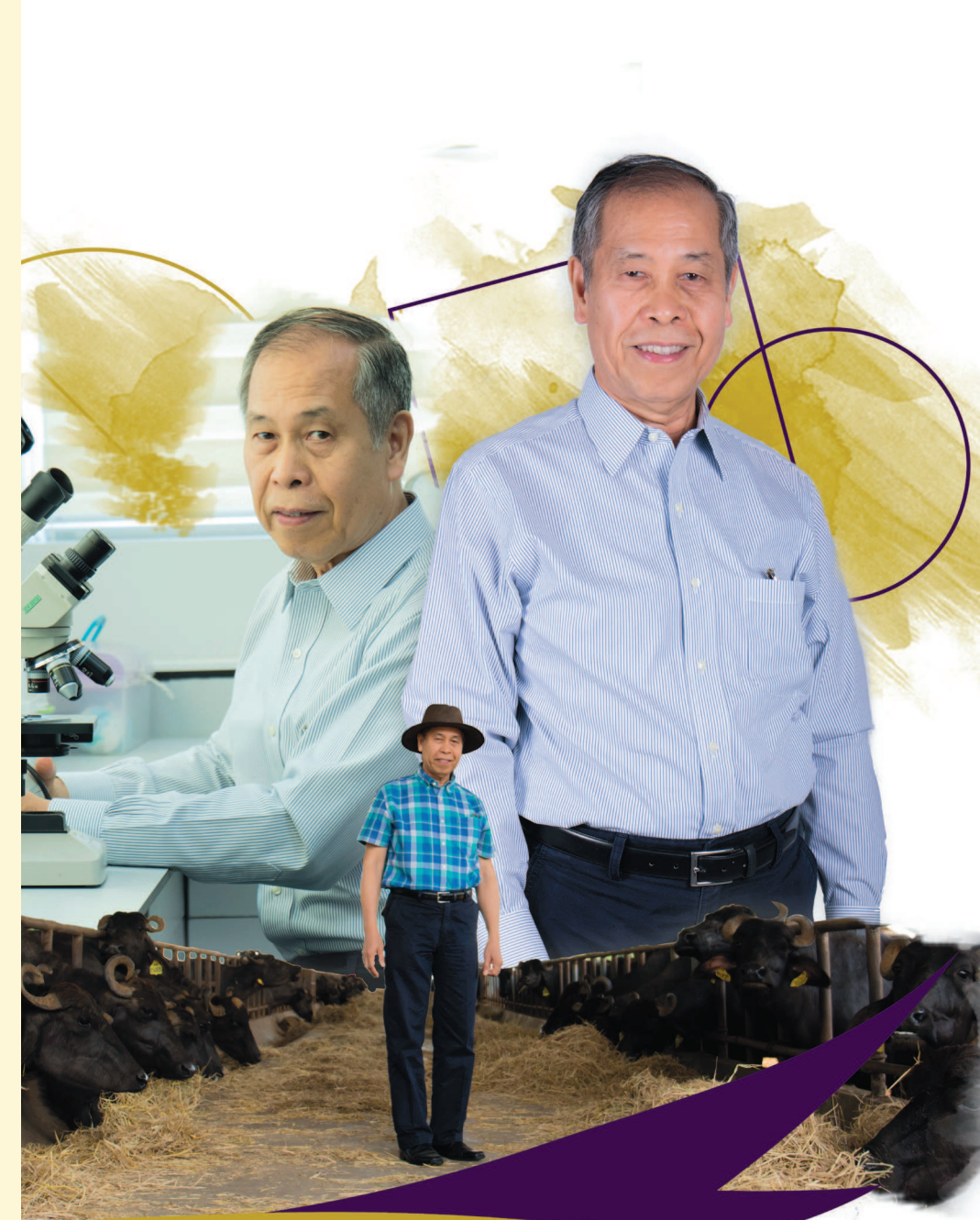
By Ma. Cecilia Irang

Dr. Libertado C. Cruz, former Executive Director of the Philippine Carabao Center (PCC), was among the 2018 Filipino Faces of Biotechnology awardees.

Dr. Cruz served as PCC's head for over 20 years. He received the "Outstanding Leader on Animal Biotechnology" award in recognition of his "distinguished leadership and heart in the field of animal biotechnology that continuously upholds the livelihood of small-scale Filipino farmers through his pioneering works and research for the development in the Philippine agriculture."

The said recognition was given by the Department of Agriculture (DA) Biotechnology Program during the awarding ceremonies in Alabang, Muntinlupa, held last December 13. Alongside Dr. Cruz, eight other scientists, academicians and advocates were also recognized for their unwavering commitment and untiring work in the field of biotechnology.

Photo source: DA-Biotech Program



**DR. LIBERTADO C. CRUZ**

Outstanding Leader on Animal Biotechnology

“The power of biotechnology is immense and its development in livestock is very fast. It is therefore important that the Philippines must harness all these developments to be able to improve our livestock sector.”

3rd  
Filipino Faces  
of Biotechnology

# Upcoming PCC...



## EMPOWERING 'CARAPRENEURS': OUR PURPOSE IN FOCUS

26TH ANNIVERSARY  
25-29 MARCH 2019

entrepreneurs.

"PCC is now focused on empowering our farmers in carabao-based communities through continuous development and assistance to related enterprises. Our purpose is not just to usher our clients to succeed in their business but to help them carry on what they have so far established as their own," said Rowena Bumanlag, anniversary overall chair and the head of the Applied Communication Section of the Knowledge Management Division.

Bumanlag added that the PCC's Carabao Development Program (CDP) implementation is ardent toward a sustainable carabao-based livelihood that aims to gradually empower farmers.

Among the PCC's clients, 25 faces of success in carapreneurship were chosen to be featured in a video presentation and coffee table book. These include farmers, cooperatives and other past awardees of PCC

who either exemplified remarkable entrepreneurial spirit or can demonstrate the tangible benefits of being participants in the national CDP.

During a program on March 27, outstanding farmers and employees of PCC will also be recognized.

The following awards will be given to : "Outstanding Dairy Buffalo Farmer", "Outstanding Juana sa Pagkabalabawan", "Outstanding Kabataan sa Pagkabalabawan", "Gintong Kalabaw Cup", "Outstanding Dairy Buffalo Cooperative", and a special award for private individual farmer.

To highlight this year's anniversary celebration, a keynote address shall be delivered by Dr. Segfredo Serrano, Department of Agriculture's Undersecretary for Policy and Planning.

Serrano, a staunch advocate of the PCC, is an outstanding extensionist who is credited for the establishment of the Task Force on

World Trade Organization (WTO) Agreement on Agriculture (Re) negotiations (TF-WAR), a multi-sectoral group. The initiative is meant to better the negotiation between agriculture stakeholders in the government and private sectors.

Another highlight of the weeklong celebration is the "Farmer's Field Day cum Technology Showcase" that will exhibit a complete industry value-chain of technologies and best practices for the appreciation of the public and farmer-clients.

Other activities lined up for the upcoming anniversary are the Pre-Inhouse R&D review, Knowledge Café, PCC Employees Association General Assembly and Election of New Officers, Carabao Value Chain Analysis Players Consultation Workshop, Employees' Night, "Karwanan", Training-Workshop for PCC Regional Information Officers (RIOs): Strengthening Reportage of Regional CDP Highlights, HR Transformational Seminar, and Sports Day.

## PCC bags NRCP 'Outstanding Institution Award'

By Ma. Cecilia Irang

The Philippine Carabao Center (PCC) was bestowed the "2018 Outstanding Institution Award" under Cluster IV (Divisions of Biological Sciences, Agriculture and Forestry, and Veterinary Medicine) by the National Research Council of the Philippines (NRCP) during its Annual Scientific Conference and 86th General Membership Assembly on March 11, 2019 at the Philippine International Convention Center, Pasay City.

The award is given annually by the NRCP to institutions that have supported and contributed to the growth and development of basic sciences, humanities, and arts in the Philippines.

A body of scientists and researchers under the Department of Science and Technology (DOST), the NRCP is mandated to promote and support fundamental research for continuing improvement of research capability of individual or group scientists; foster linkages with local and international scientific organizations for enhanced cooperation in the development and sharing of scientific information; provide advice on problems and issues of national interest; and promotion of scientific and technological culture to all sectors of society.

The PCC received the "Outstanding Institution Award" in recognition of its significant institutional accomplishments in science, research capacity-building, contributions to the nation and groundbreaking researches consistently developed for the benefit of the carabao industry's and value-chain stakeholders, foremost of which are the smallholder farmers



through noteworthy contributions to improved milk and meat production, livelihoods, income, and nutrition.

Among the notable accomplishments of PCC include the establishment of gene pools that serve as sustainable source of genetically superior animals or germplasm for its breeding program, and the state-of-the-art biotechnology research facilities managed by highly trained researchers.

The PCC was evaluated based on various criteria such as Scientific and Technical Publications or Inventions (i.e. refereed journal articles, scientific books, manuals, monographs and handbooks and/or patents/utility models/industrial

designs/copyrights/certificate of registration); External Linkages and Extension Services, including Support to Policy Formulation; Research/Service Awards and Recognitions Received; and Number of students (undergraduate and/or graduate) graduated/trained or number of Fellows mentored and persons trained.

The PCC, an attached agency of the Department of Agriculture, was created by virtue of Republic Act 7307 in 1992 and became operational in 1993. As the leading livestock R&D institution in the country, PCC is mandated to conserve, propagate, and promote the carabao as a source of milk, meat, draft power and hide to benefit the rural farmers.



Dr. Daniel Aquino, center director of PCC@CLSU, gives an overview of the "1st Talakayan sa KalabaJuan".

## Select 'carapreneurs' and VBAITs participate in 'KalabaJuan'

By Charlene Joanino

Improved practices in carabao raising and prospects in carabao-based livelihoods are to benefit about 120 farmers who attended the "1st Talakayan sa KalabaJuan" held last January 12 at the municipal gymnasium in Sta. Maria, Bulacan.

According to Dr. Daniel Aquino, PCC at Central Luzon State University (CLSU) center director, the forum, with the theme "Maunlad, masaya at malusog na pamayanan sa paggagatasan at pagkakalaba-Juan", aims to reach out to more carabao owners to actively engage in the Carabao Development Program. This, he said, will be initiated through identification of farmers' firsthand encounters on carabao-related issues.

"We hope to find possible solutions to these concerns and to share best practices that we have recorded so far to help our dairy-entrepreneurs or dairypreneurs," Dr. Arnel Del Barrio, PCC executive director, said. The forum focused on topics in breeding, specifically on increasing the chance of a carabao to give birth

to a female calf by 60%.

Dr. Del Barrio expounded on this saying that the best time for mating the carabaos is between 5 to 7 in the morning, with a specific and very simple instruction to "Do It Before Breakfast". He encouraged the farmers in attendance to try this technique and PCC, he committed, is willing to provide technical expertise.

"The Talakayan was inspired by the Buffalo Raisers Philippines Facebook page that provides a platform for knowledge-sharing among its more than 4,000 page members and growing," Dr. Aquino said. Among those who were present in the event are farmers from Nueva Ecija, Bulacan, Bataan, Pampanga, Rizal, and Zambales.

The CDP is PCC's banner program that fosters the general wellbeing of its clients in the carabao sector through its three-pronged program: Genetic Improvement, Enterprise Development, and Research for Development.

## PCC ranks 3rd among Department of Agriculture-Attached Agencies for FY 2018 fund utilization

By Jeffrey Laurence Antolin



PCC Executive Director Dr. Arnel Del Barrio (2nd from right) receives a plaque and certificate of recognition from DA Secretary Emmanuel Piñol and other DA officials for being the third top agency performer among the DA's seven attached agencies in terms of budget utilization rate.

With a budget utilization rate (BUR) of 99.93%, the Philippine Carabao Center (PCC) is awarded as the 3rd top performer in terms of obligation among the seven attached agencies of the Department of Agriculture (DA) during the Fourth Quarter Assessment Meeting for Fiscal Year (FY) 2018 Fund Utilization held last February 8 at the Bureau of Soils and Water Management (BSWM) Convention Hall, Diliman, Quezon City.

The financial assessment meeting is held every quarter to evaluate the performance of the DA, its bureaus and attached agencies and corporations, in spending the national budget. This is anchored on the policy "Government Money

Unspent is Service Undelivered". Under Republic Act 10964, also known as the General Appropriations Act FY 2018, PCC received an allotment amounting to Php506,533,000, incurring obligations amounting to Php506,172,000, thus utilizing 99.93% of the given budget.

The performance ranking of the other attached agencies is as follows: 1st: Philippine Council for Agriculture and Fisheries (PCAF) with a BUR of 99.98%, 2nd: Agricultural Credit Policy Council (ACPC) with a BUR of 99.97%, 4th: Philippine Center for Postharvest Development and Mechanization (PHilMech) with a BUR of 99.11%, 5th: National Meat Inspection Service

(NMIS) with a BUR of 93.72%, 6th: Bureau of Fisheries and Aquatic Resources (BFAR) with a BUR of 93.49%, 7th: Philippine Fiber Industry Development Authority (PhilFIDA) with a BUR of 91.85%. The aforementioned award was later presented to the PCC community last February 11 during the weekly Monday meeting.

Dr. Caro B. Salces, PCC Deputy Executive Director, recognized the efforts of everyone, especially the Administrative and Financial Management Division (AFMD), for achieving such a feat. He further mentioned that this was a testament to the steadfast commitment of PCC to one of its core values, excellence.

*All for the love of buffaloes*  
**Unique practices in dairy buffalo production**

By Ma. Cecilia Irang



“I took notice of other farmers who milk their buffaloes in the same place where the animals are confined. If we apply that practice, we cannot be sure of the sanitation due to the buffalo’s manure and urine which, even if we clean it, the bad odor is already stuck in there. Hence, I keep my lactating animals away from the corral when milking them and that’s why I thought of using a mobile milking parlor.”

**Benny Dela Torre**



The couple, Benedicto “Benny” dela Torre, 55, and Evelyn, 38, of barangay Pulong Buhangin, Santa Maria, Bulacan, has peculiar practices in conveying their sincere and profound love for their buffaloes.

This unique show of special concern for their dairy buffaloes, to their estimation, undoubtedly resulted in favorable returns to their lives. As one proof, when one of their buffaloes got sick, Benny immediately headed to the church and prayed profoundly for the welfare of his buffalo. He believed that his prayers and the appropriate medicine he gave to his ill-stricken buffalo made his animal recover from its ailment soon enough.

The breeds of their buffaloes are Bulgarian, Italian, Indian Murrah and crossbred. Although their buffaloes are usually confined, with cut-and-carry feeding system, Benny also tethers them to graze in a pasture area and for them to experience the natural environment. In the corral, he installed a pipeline for the ready supply of drinking water for the animals and for bathing needs. If the animals are tethered, they also provide clean water to each one of them. According to Benny, there was a time when he ran out of water rations for his animal. He instantly went to the nearest store to buy a gallon of mineral water for his grazing buffaloes.

Based on the narration of the couple, from 5:00 in the morning up to 8:00

in the evening, their attention is focused on rearing their buffaloes. They regularly provide them with vitamins and proper check-up. “When they are tethered, we roam around the pasture area to check on them one by one. We also visit them at night, as this is the time we usually notice if the animal is not well. If we notice so, we immediately call a veterinarian to diagnose the ailment and apply the necessary treatment. Although I have basic knowledge on first-aid treatment for buffaloes, I want to make sure that a veterinarian should attend to any of our sick animals,” Benny said. For Evelyn, she considers their buffaloes as true members of their family. She said, it is necessary to have a genuine compassion for animals and that these animals demand time and attention from the

caretakers as well.

Their special love and care for their buffaloes are not in vain. The buffaloes give them in return much milk whose proceeds are used to support the educational needs of their children. The couple also has invested in other businesses such as rice farming and delivery of construction materials. They have also acquired four motorcycles, one owner-type jeep, another house, small pieces of land, and one truck. They have 30 dairy buffaloes.

**Mobile milking parlor**

Another unique practice of the couple is that they use their old jeep as a milking parlor for their buffaloes.

According to Benny, with his “mobile milking parlor” he is more confident about the sanitation of their undertaking as he can situate the vehicle in a place with clean, odorless, and refreshing site for milking.

Benny admitted that at first, he had a hard time coaxing their buffaloes to ride on the jeepney. Thus, he patiently trained each one of them in going up and coming down from the vehicle. He observed that the animals were hesitant to climb up the jeepney as they could sense something may happen to them. As the animals get used to it, it became a habitual practice for them to ride on the mobile milking parlor. Every time they climb over, there are already feeds and drinking water

prepared for them onboard as their rewards.

“I bathe them on the jeepney then gently rub their head to relax them,” Benny said. After milking, the animals are ushered back to the corral. Currently, they have four lactating buffaloes. They only collect four liters of milk daily from each buffalo because they let the calves consume the remaining milk from the udder.

**Empathy for others**

Benny and Evelyn both came from a buffalo farming family. Thus, they consider this venture as something good since they experienced it from



## Genetically superior bulls, ideal to improve the breeds of dairy buffaloes

By Charlene Corpuz



“Before, no one wanted to entrust their buffalo to me because I was poor. So, what we are doing now is the other way around. We help others because we don’t want them to experience the difficulties we went through before.”

**Benny Dela Torre**

### *All for the love of buffaloes...*

From page 13

their respective families. The two underwent difficulties in their lives before. But when the opportunity came, they grabbed it and considered it as a big blessing. The couple bought a crossbred which they named “Kulasa”. In due time, they were able to increase the number of their herd, with the help of their friend, former barangay captain Simplicio “Plecyc” Hermogenes.

They became members of the Sta. Maria Dairy Farmers Multi-Purpose Cooperative where they sell their harvested milk to. In addition, they get assistance from the National

Dairy Authority (NDA). Wanting to share their fortune to other farmers in the neighborhood, they instituted their own “paiwi” system. So far, eight farmers are benefiting from their entrusted animals. “We still want to increase the number of our buffaloes. We want to help other farmers through our ‘paiwi’ system. However, we noticed that artificial insemination is not working well in our place, that’s why we hope to avail of the bull loan program,” Benny said.

Evelyn shared their principle in life that serves as their mantra to always

remain humble and compassionate for the needy.

“Every time I recall how we struggled before, when we used to sleep on mats of carton and starve for food, I cannot help but thank the Lord for the blessings we enjoy now. Buffalo dairying has improved our lives and we want it to share to others by helping them become dairy farmers, too,” Evelyn averred. Benny and Evelyn have some unusual practices and principle in dairy buffalo production. As they continuously apply them, they expect that more blessings will come to their lives.

A single bull provides various benefits such as draft animal power, additional meat, and a source of semen for breeding strategies. Beyond these gains, a bull’s contribution is indispensable in achieving a good and reliable herd of animals.

There are indeed many existing testimonies stating that it is best to use a bull aligned with several existing breeding strategies. The purebred Philippine Buffalo bulls, developed by the Philippine Carabao Center (PCC), are not just active and well-built but also genetically superior as they possess extraordinary quality due to their improved bloodline.

By means of looking into the records of each bull under the care of PCC, those named “Zeus”, “Tomas” and “Dexter” have the highest estimated breeding values (EBVs) and are considered as improved versions of purebred buffalo breed, being products of successive backcrossing.

Currently, “Tomas” and “Dexter” are under the management of PCC national bull farm (NBF) in Caranglan, Nueva Ecija, while “Zeus” is vested in PCC at University of the Philippines-Los Banos (PCC@UPLB). The semen collected from bulls are systematically processed and utilized for artificial insemination (AI) of buffaloes in different areas of the country.

“It is important to maintain quality bulls that provide quality semen allotted for the simultaneous improvement of buffalo breeds in the country,” said Dr. Ester Flores, head of PCC Animal Breeding and Genomics Section.

### **Basis for selection**

As PCC creates its “sire directory”, identification of bulls including its breeds, measurement of traits and, potential for milk production through EBV for each bull became easy and accessible. Looking into the EBV of bulls is very important for it has a huge contribution in multiplying the herd



Zeus is measured with the highest EBV of 599.50. This bull was born at PCC at Central Mindanao University (PCC@CMU) last September 28, 2014 and then transferred to PCC@UPLB last 2015.



### Genetically superior...

From page 15

of high quality dairy buffaloes in the Philippines, which is a priority activity under the PCC's Genetic Improvement Program (GIP).

The GIP activities are also under the supervision of Dr. Flores.

"This program aims to improve the genes of the bull to sustain an effective multiplication of high quality buffaloes beneficial for meat and milk production," Dr. Flores explains.

Aside from EBV, the potential of parents' bull was also considered in identifying these three genetically superior bulls. The factors looked into includes the ability of dam to provide higher milk yield and, for the sire, the number of calves produced.

### Specially-identified bulls

According to Hernando Venturina, farm supervisor of NBF, most bulls

are named after their caretakers; this perhaps is a result of their attachment to their domesticated buffaloes.

He added that each bull receives the same animal health management in the farm. Their farm practices mainly focus on assuring that the herd is within the recommended body condition score (BCS), and administered with regular vaccines and vitamins.

Zeus is measured with the highest EBV of 599.50. This bull was born at PCC at Central Mindanao University (PCC@CMU) last September 28, 2014 and then transferred to PCC@UPLB last 2015.

Based on the data recording of PCC, Zeus' dam is capable of giving 7 liters of milk daily whereas its sire had 9 female buffalo calves.

Subsequently, still based on records, Dexter has an EBV of 565.53. This

bull was born in PCC at Visayas State University (PCC@VSU) last September 23, 2015 then transferred to NBF in 2016.

Dexter's dam is capable of giving 8 liters of milk daily while its sire also had 9 calves.

Furthermore, the third bull, Tomas, which is younger than the two mentioned, has an EBV of 456.23 and is born in PCC Genepool last October 4, 2014.

His dam can give 8 liters of milk daily; Tomas and Dexter's sire refers to the same bull. "The clearest explanation behind these good performances and high EBVs of bulls is because of its good breeds," Dr. Flores said.

### Understanding EBV of bulls

Similar to the potential or ability of the parents of these genetically superior bulls, a high EBV of buffaloes is considered as a major basis. Half of parents' EBV for milking potential is inheritable.

However, as Dr. Flores explained, choosing the right combination of male and female buffaloes during mating has an important role in the breeding process that results in high EBVs among the calves produced. Eventually, the EBV traits of these bulls are mixtures of its sire and dam.

The GIP group comprehensively studies the genetic merits of two buffaloes used during breeding to produce calves with viable EBV causing female buffalo to have high potential for milk, while maintaining a high level of EBV for bulls. To further improve PCC's breeding system, the agency endeavors in related researches, which include the assessment of fertility rate among bulls with high EBV to assure the sustainability of quality semen production for widespread implementation of PCC's AI services in the country.

## Effective breeding, pregnancy detection on dairy buffaloes key to a better gain

By Charlene Joanino

A common challenge faced by dairy farmers is to have their dairy buffaloes pregnant and, after calving, to see them get pregnant again in the shortest time possible. This is because they have no income if their animals are not lactating, which only happens if the animals give birth.

To address this concern, a project of PCC and Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) titled "Development of Reproductive Management Program for Increased Efficiency of Artificial Insemination (AI) in Dairy Buffaloes" was launched. "The project aims to not only increase efficiency in breeding dairy buffaloes but to shorten their calving interval to improve productivity



Dr. Jessica Gay Ortiz, one of Project 2 team members, pipetting blood samples as part of PAG assay.

using the Triple E strategy," said Dr. Edwin Atabay who spearheads the project. Joining him in the project are Dr. Eufrocina Atabay, Dr. Jessica Gay Ortiz, Jhon Paul Apolinario, and Erwin Encarnacion.

The meaning of "Triple E" strategy is "Enhancing Pregnancy Rate", "Effective Rebreeding Program" and "Early Detection of Pregnancy".

The project is anchored on increasing the pregnancy rate among dairy buffaloes using a more effective AI. It also delves on early detection of pregnancy and in increasing the income from dairying by shortening the calving interval.

According to Dr. Edwin Atabay, AI efficiency went up to 35-40%

from 20-25% during the conduct of the project. It is being carried out in Nueva Ecija, the designated "National Impact Zone for Buffalo Dairying" and San Agustin, Isabela.

Dairy buffaloes with body condition scores of 3-4 and have ovary size of about 2 cm containing dominant follicle with more than 7mm diameter were selected for the project.

### Big help to farmers

"Unlike in the past, in which I had to wait for two to three years before my dairy buffaloes become pregnant again, now at least one became pregnant in a relatively shorter

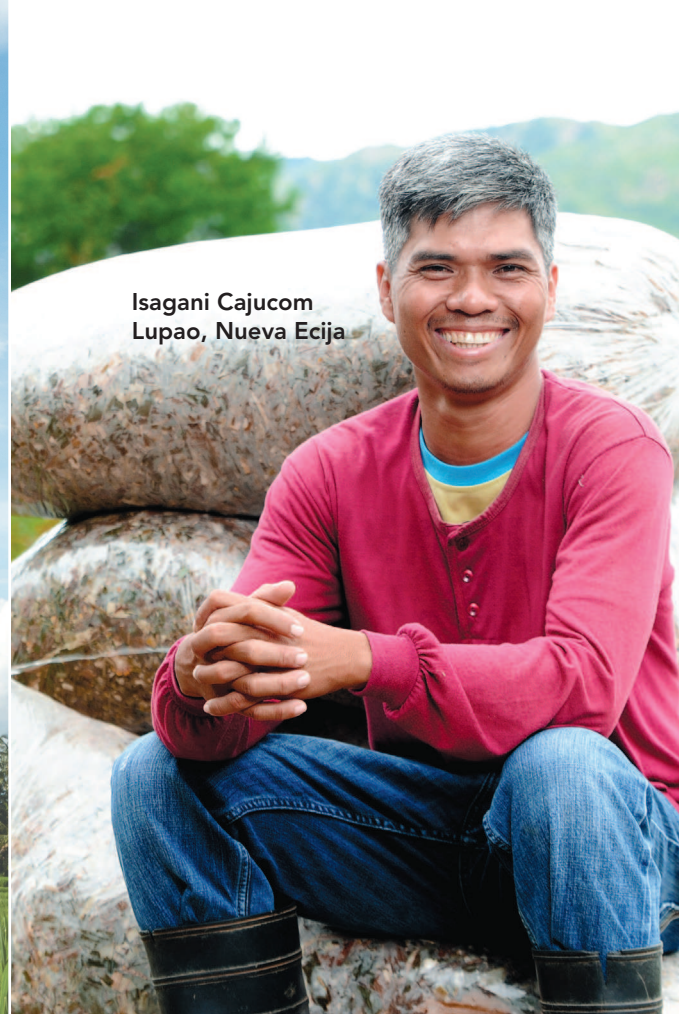
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*In the heels of rice tariffication*

## PCC exec's advice to rice farmers: Integrate carabao dairying



Melchor Correa  
San Jose City, Nueva Ecija



Isagani Cajucom  
Lupao, Nueva Ecija



Moises Alfonso of San Jose City  
feeds his buffaloes with rice straws.

due to the effects of the Republic Act 11203, or the rice trade liberalization law may engage in other income-generating projects right in their own backyard.

One such project is carabao dairying, suggested Dr. Arnel del Barrio, executive director of the Philippine Carabao Center (PCC), here.

“In due time, the tended animals can give daily income because of their milk yield,” Dr. del Barrio said. “As the animals grow in number, the income may be comparable or even better than in rice farming,” he added.

He also said that the farmers may set aside certain areas on their farm to grow corn and sorghum plants for silage-making for carabao feed which is now in great demand.

“We have examples of farmers and entrepreneurs who made good in carabao dairying and rice farming at the same time and in silage-making,” the PCC executive director, who was interviewed at the sideline of the recent consultation here with stakeholders about the formulation of the implementing rules and regulations (IRR) of the new law, said.

The consultation, attended by select stakeholders from the Cordillera Administrative Region (CAR) and from Regions 1, 2 and 3, was organized by the Department of Agriculture, National Economic Development Authority (NEDA) and other agencies.

Citing as an example, Dr. del Barrio said Melchor Correa, 47, of San Jose City who, from subsistence farming, made good in carabao dairying.

Then engaged in rice production during the rainy season and vegetable growing during the dry season, Melchor revealed that his income then could hardly suffice for the needs of his growing family. He said he incurred loans even from loan sharks.

Then he heard about the Carabao Development Program of PCC which entrusts to cooperative purebred dairy buffaloes to serve as modular undertaking for dairying. One of the services of PCC to promote carabao development is the assistance for the development of carabao-based enterprises.

“From one, he built a herd of 30 dairy buffaloes, with some of them lactating,” Dr. del Barrio said. “His buffaloes’ average daily milk yield recorded the other year was 57 liters

which he sold for Php54 each liter or Php3,028,” he added.

The cooperative, which he was then the chair, recorded a milk harvest of 145,099.50 liters valued at Php7,254,982.50. The milk harvest was from 91 carabaos.

Or take this case of a young man, Moises Alfonso, 25, of San Jose City, who is a graduate of Bachelor of Science in Marine Transportation. He discarded his dream of seeing the world as a sailor and boldly took over the carabao dairying and rice farming enterprises of his family. “Moises saw how his late father, Carlito, then a subsistence farmer, engaged in carabao dairying and how he improved their family life through these enterprises,” Dr. del Barrio said. “When his father got sick, this young man did not hesitate to take over in managing their dairy

farm and their rice farm,” he added.

Citing the record of Moises, the PCC executive director said Moises is now tending a herd of 51 and a few hectares of their rice farm.

“From dairying, the income of their family’s enterprise is Php2,000 to Php4,000 a day depending on the number of the lactating animals,” Dr. Del Barrio said.

Moises, he said, set aside a portion of their rice field for the growing of their animals’ feed. As for the marketing of the carabao’s milk, the market for it is growing bigger as many establishments are doing milk-based products.

In addition, there is a new law Republic Act 11037 or the “Masustansyang Pagkain para sa Batang Pilipino Act,” that

institutionalizes a national feeding program for undernourished children in public day care, kindergarten and elementary schools.

The milk for the feeding program will be bought from the farmers’ cooperatives, hence a big demand for locally produced milk. The PCC executive director said that farmers can set aside a portion of their rice field for growing of forages such as improved grasses, corn and sorghum plants for silage-making or carabao feed.

“It’s a very lucrative business enterprise now,” he said.

Isagani Cajucom of Lupao, is a chemical technician who was previously working in a company in Clark Freeport proved that there

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“Farmers who are worrying about possible lowering of their income due to the effects of the rice tariffication law may engage in other income-generating projects right in their own backyard. One such project is carabao dairying.”

Dr. Arnel Del Barrio



“Our government is ready to provide assistance to our farmers.”

Sec. Emmanuel Piñol



Data from Philippine Statistics Authority showed that as of January 1, 2019, there are 2.87 million carabaos in the Philippines and 99.60% of the carabaos are in backyard farm.

*In the heels of rice tariffication...*

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is high demand for silage and the income is very good. He was the “champion farmer” or farmer leader who participated in the project “Commercialization of Grass/Forage Corn Silage for Dairy Buffaloes through Technomart” launched by the Philippine Carabao Center (PCC) and funded by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD), where he saw a big opportunity in the production of quality silage.

“Isagani tried first his silage-making venture by growing corn and napier in his farm. He sold his harvest to PCC and earned Php13,000 for his napier grass silage and Php20,000 for his corn silage,” Dr. del Barrio said.

In his second cycle of planting and ensiling of corn, he harvested 34,000

kg which was sold at Php1.84 per kilogram. That was a cool profit of approximately Php62,000 for his one-hectare farm.

He observed that the appropriate age of forage corn for harvest is between 75 and 80 days or when the corn kernel has about two-thirds milk-line (a distinct horizontal line that appears near the end of the corn kernel).

The chopped corn plants including the ears are stored in a polyethylene sack with a capacity of 20-30 kg, for about three weeks before marketing or feeding to animals.

Today, Isagani is selling on peak season 380 tons of silage and sells it at Php4.00 per kilogram.

The main advantages of corn silage production, he said, are: it is not season-dependent as it can be done any time when there is forage

abundance; it does not require sophisticated equipment, the shelf-life and quality of silage remain stable under longer storage time, and it can be prepared easily under small or commercial scale.

In the consultation about rice tariffication, Agriculture Secretary Emmanuel Piñol said that under the law, anybody who has secured a phytosanitary clearance from the DA and has paid the tariff duties can import rice.

He admitted that this law, officially titled “An act liberalizing the importation, exportation and trading of rice, lifting for the purpose the quantitative import restriction on rice”, can cause a lowering of the buying price of palay in the country. He added that the rice from some exporting countries can sell their produce at a very low price because of their low production cost.

“But our government is ready to provide assistance to our farmers,” Piñol said.

Dr. del Barrio agreed one hundred percent for not abandoning or lessening the intensity of rice production in the country for, as the Secretary Piñol said, this is a move tantamount to a suicide.

“What is needed is for the farmers to be more competitive in so far as rice production in the country is concerned,” Dr. del Barrio said. “In dairy carabao raising, the farmers need not abandon rice production. They will find it as a complementary enterprise,” he added.

He said the waste of the carabaos can be turned into vermicompost or organic fertilizer that can be used to enhance the fertility of the rice land.

On the other hand, he added, the rice straw after harvest can be collected and turned into good carabao feed.

“Just add urea and molasses to the rice straw, and a nutritious feed for the carabao can be produced,” Dr. del Barrio said.

He said the men and women of PCC, including its top scientists, are ready to assist the farmers who would want to engage in carabao dairying as a source of additional income for their rice farming enterprise.

“We are ready to give training in all aspects of carabao dairying. Our technicians, and those from other agencies are ready to give technical assistance right where carabao dairying venture is located,” Dr. del Barrio said.



time and this ensures me of milk production,” Eddie Allado, a dairy farmer from San Agustin, Isabela, said.

He is among the buffalo raisers who were selected to be part of the project.

According to him, in his almost one decade as a dairy farmer, the propagation of his buffaloes from four to sixteen was all through AI and now through Fixed Time AI (FTAI).

“Since the start of the on-site conduct of the project, the number of farmers of San Agustin that choose FTAI gradually increased because they saw that it is effective,” Dr. Atabay said.

Based on the data recorded last year, the project’s team had conducted FTAI to 609 purebred buffaloes in the NIZ and 122 crossbred buffaloes in San Agustin.

“Because my dairy buffaloes propagated, milk production increased and my income in dairy went up,” Allado said. In three dairy buffaloes, he collects 12-13 liters and earns more than Php100,000 in eight months.

Apart from providing the needs of his family, he was also able to slowly improve his house and had bought two motorcycles from the daily income he gets from dairying.

### Progressing the Project

According to Dr. Jessica Gay Ortiz, one of Project 2 team members, the estrous cycle of a dairy buffalo was studied thoroughly to determine and optimize the methods that will be used in breeding as well as in pregnancy detection. The methods were used at the PCC’s Gene Pool before being conducted in their target sites.

“We need to increase the conception rate to utilize the maximum potential of the dairy buffaloes,” Dr. Edwin Atabay said.

To determine pregnancy in the fastest time possible, ultrasonography or ultrasound and protein-associated glycoprotein (PAG) assay were used.

In using the said technologies, the calving interval, which can reach about two years or even more may be reduced by up to six months. Hence, the potential income of the farmer can be nearly Php45,000.

“In ultrasound, it is possible to detect pregnancy within 30 days and in PAG assay, after 28 days compared to rectal palpation, which is usually done within two to three months,” Dr. Ortiz said.

According to Dr. Ortiz, the dairy buffaloes need to be pregnant in the earliest time possible after parturition to avoid losing income since, during this time, the farmer spends money on the needs of the dairy buffaloes and no returns are gained. She added that it is also better to use ultrasound because “early embryonic death” can be determined.

This circumstance, she said, happens when the dairy buffalo experienced abortion. The farmer cannot notice this because there are no signs shown physically. Thus, the farmer once again experiences loss of income.

“Ultrasonography has added benefits such as fetal sexing and the ability to characterize the uterus, fetus, and the ovary,” Dr. Atabay added.

Though nearing the end of the project, the initiatives of the team members are continuously being intensified to meet the project’s objectives.

# 26 YEARS

PHILIPPINE CARABAO CENTER  
OF FAITHFUL STEWARDSHIP OF THE NATIONAL CARABAO DEVELOPMENT PROGRAM



## MARCH 25 MONDAY

7-8:30AM  
Thanksgiving Service  
Flag Ceremony  
Venue: Estrada Hall

8:30-9AM  
Corporate Photoshoot  
Venue: Grand Lobby

9-10AM  
Motorcade  
Venue: Science City of Muñoz

10AM-5PM  
Pre-Inhouse R&D Review  
Venue: Eusebio-Castillo Halls

10AM-onwards  
Sports Day  
Venue: Pavilion

## MARCH 26 TUESDAY

Pre-Inhouse R&D Review  
Venue: Eusebio-Castillo Halls

1-5PM  
Farmers’ Field Day cum Technology Showcase  
Venue: Eusebio-Castillo Halls

8AM-5PM  
Sports Day  
Venue: Pavilion

## MARCH 27 WEDNESDAY

9AM-12NN  
Anniversary Program  
Venue: Estrada Hall

12NN-1PM  
Knowledge Café  
Venue: VIP Dining

1-3PM  
PCCEA General Assembly and Election of New Officers  
Venue: Eusebio-Castillo Halls

6-10PM  
Employees’ Night  
Venue: Grand Lobby

## MARCH 28 THURSDAY

8AM-5PM  
Training-Workshop for PCC Regional Information Officers (RIOs): Strengthening Reportage of Regional CDP Highlights  
Venue: Madamba Hall

8AM-5PM  
Sports Day  
Venue: Pavilion

8AM-2PM  
Carabao VCA Players Consultation Workshop  
Venue: Eusebio-Castillo Halls

6-10PM  
“Karwanan”  
Venue: PCC grounds (beside the Cafeteria)

## MARCH 29 FRIDAY

8AM-12NN  
HR Transformational Seminar  
Venue: Eusebio-Castillo Halls

1-5PM  
Sports Day (Finals and Awarding)  
Venue: Pavilion



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

# PCC NETWORK

**PCC has 12 regional centers strategically located nationwide: five centers in Luzon, four centers in the Visayas and three centers in Mindanao**

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