

# PCC Newsletter

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## The Philippine Carabao Center at



# PCC Newsletter



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## Call for Contributions

The PCC Newsletter welcomes industry-related articles not exceeding 800 words, with photos and corresponding caption.

Success stories of farmers, cooperatives, and other beneficiaries and stakeholders of the Carabao Development Program are preferred.

PCC encourages reproduction of articles from this publication with proper acknowledgment.

Topic suggestions and comments are also welcome.

Please send your articles and comments to email address [pccnewsletteric@gmail.com](mailto:pccnewsletteric@gmail.com) or mail them to

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## About the Cover

Simply put, PCC is now 18 years old. Its theme for the celebration: "Harnessing Science in Rural Enterprise Development" is captured in the number 18, with "1" connoting its being the lead agency for livestock biotechnology R&D and "8" signifying infinite possibilities of bringing development to the clientele--the smallhold farmers. The photo below is the new Central Milk Collecting and Processing Facility and Products Outlet.

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The PCC administration building in 1998.

The present PCC building complex that houses the National Impact Zone office, Office of the Executive Director, administrative offices, the laboratories, conference hall, function rooms, auditorium and the hostel.

# The Philippine Carabao Center at 18

By ANSELMO S. ROQUE

If it were a human being, and a female at that, the Philippine Carabao Center (PCC) is a debutante having reached its 18th birth date and must be having a pomp debut party.

A debutante, as everyone knows, is a young woman making her first appearance in upper-class society and the debut party is where her first public appearance in society is made.

No party is being held and no grand appearance in public is being made on PCC's founding anniversary. For the PCC, since its creation, has already made known to the public its presence and has touched many lives.

What PCC is celebrating are achievements in many aspects with the help of the men and women of this agency and their partners in achieving many good things in accordance with its legal mandate.

On this day, many people will come forward and say their piece about PCC.

Others, silently, will do the same wherever they are. They will attest their blessings, most of which were beyond their wildest dreams, occasioned by the technical guidance and assistance provided to them by this agency.

### Recollection

Before 1992, the attention given to the carabao was at best through a project which operated for 11 years. Before that, there were research and development efforts addressing the welfare of the carabao which was already observed to be decreasing in size and weight.

A law, the Philippine Carabao Act of 1992 or Republic Act 7307, was passed by Congress. It is titled "An Act Creating the Philippine Carabao Center to Propagate and Promote the Philippine Carabao and for other Purposes". Its principal sponsor was then Sen. Joseph Estrada.

Then Speaker of the House of Representatives Ramon Mitra and President of the Senate Neptali Gonzales signed the consolidated bill while then President Corazon Aquino signed it into law on March 27, 1992.

In its declaration of policy, Republic Act 7307, stated, among others, that "the state shall establish various programs to

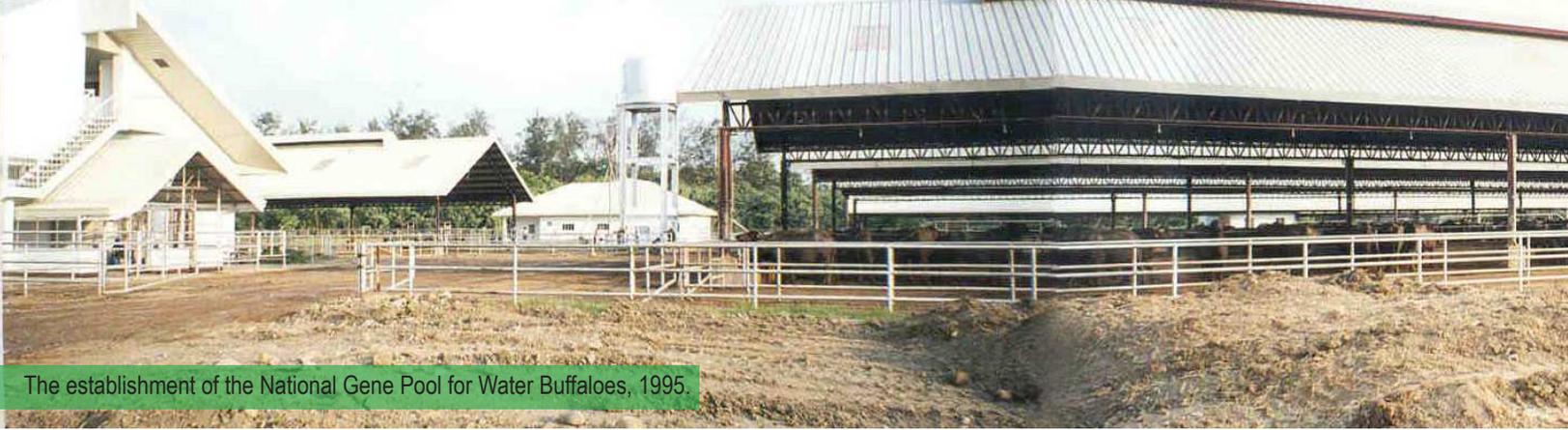
conserve, propagate and promote the Philippine Carabao as a source of draft animal power, meat, milk, and hide".

Section 4 of the law provides: "There is hereby created a Philippine Carabao Center, hereinafter referred to as the PCC, which shall be under the supervision and control of the Department of Agriculture".

The big responsibility placed by the government on PCC, and the extent to which the Philippine carabao must be attended to for its sake and the sake of the intended beneficiaries, can be viewed in the context of the powers and functions bestowed by law on this agency. They are as follows:

- a. conserve, propagate and promote the Philippine carabao as a source of draft animal power, meat, milk, and hide;
- b. enable the farmers, particularly smallholder-farmers and CARP (Comprehensive Agrarian Reform Program) beneficiaries, to avail themselves of good quality carabao stocks at all times and at reasonable prices through an organized program of production, breeding, training and dispersal;
- c. undertake training programs for

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The establishment of the National Gene Pool for Water Buffaloes, 1995.

- farmers, particularly smallholder-farmers and CARP beneficiaries, designed to transfer technology on the proper care and reproduction of the carabao and the processing of its meat and milk;
- d. encourage backyard dairy development in rural areas by raising carabaos so as to meet the nutritional needs of the smallholder-farmers and their families and reduce dependence on imported milk by-products;
- e. undertake research activities in all disciplines that lead to the improvement of the over-all productivity of the Philippine carabao;
- f. the existing annual population growth of the Philippine carabao to keep pace with human population growth; and
- g. enter into memoranda of agreement and receive donations through the Department of Agriculture from local and foreign sources. Upon the recommendation of the PCC Advisory Board, the individual carabao centers may enter into agreements directly with funding agencies through their respective board of regents or head of agency.

The law also mandated the PCC to give priorities to the following activities:

- a. increase carabao population and productivity,
- b. development of feeding systems for backyard and semi-commercial production, improving reproductive efficiency, physiology and schemes to reduce losses caused by parasites and diseases;
- c. reproduction, breeding, nutrition and animal health;
- d. socio-economic researches to ensure

- economic viability and acceptance of technology by farmers, and
- e. development of appropriate technologies that are cost-effective, simple and practical.

### PCC milestones

Production of frozen semen of buffalo bulls of known pedigree was intensified during the early years of the establishment of the PCC. It was meant to reach as many breedable native carabaos to be given artificial insemination with the end in view of producing crossbred animals.

PCC established the national bull farm in Barangay Joson, Carranglan, Nueva Ecija. It is in this farm where a semen processing laboratory was established. The laboratory processes the bull's semen placed in French plastic straws and stored in liquid nitrogen tanks for distribution to various parts of the country for use in the AI services.

Close to a million cryo-preserved doses of frozen semen have since been produced and distributed by the PCC to various PCC centers, to local government units, other research agencies, and to other parties involved in the Unified National Artificial Insemination Program (UNAIP).

Thousands of crossbred carabaos have since been produced, with a big number of them already attaining 87.5:12.5 purity in breed. They are now used by the farmers for their own advantages in life.

The coming in of quality young bulls and heifers were made possible with the importation of Bulgarian, American, and Brazilian murrh buffaloes in batches starting in 1995.

All told, the imported buffaloes totaled to a little more than 4,100. Most of the

male buffaloes were distributed under the Bull Loan Program of PCC to qualified beneficiaries while the female to dairy cooperatives under the 25-cow module project.

Nueva Ecija, which has 36 cooperatives that grouped together under the Nueva Ecija Federation of Dairy Carabao Cooperatives, was designated as the National Impact Zone for dairying. The other PCC centers identified their own regional impact zones.

The PCC National Water Buffalo Gene Pool is maintaining a herd of 500 elite riverine buffaloes for their genetic potential for milk production. Herds of Philippine carabao are kept in two PCC regional centers and one community in the north for conservation and improvement.

Knowing that the carabao has a sluggish reproductive ability, PCC embarked on research and development on reproductive biotechnologies. Its successful bio-techniques now being used are Multiple Ovulation and Embryo Transfer (MOET), In Vitro Embryo Production (IVEP), Vitrification, and Ovum Pick-up (OPU). The other technologies developed are cryopreservation to protect animal genetic diversity and semen sexing for the production of sex-sorted embryo in vitro.

In 2005, PCC scored its world breakthrough with the birth of a calf named "Glory" out of the technique called "Embryo In Vitro Production-Vitrification-Transfer Technique". Since then, many more calves were produced under this technique that included those carried out in the villages.

In 2008, the PCC was named by the Department of Agriculture as the



lead agency to hasten the Genetic Improvement Program in ruminants using reproductive and gene-based techniques.

## The future

More achievements are expected from PCC as the years will roll by as more projects are being put in place.

In terms of products development, expect a heightened interest in this aspect. Very soon PCC will open a Central Milk Processing Plant and Products Outlet.

This facility is expected to boost further carabao dairying and product development as well as set a model for entrepreneurs or big businesses to follow.

Also, in terms of research and development, PCC is set to put up on its compound a Livestock Biotechnology Center. It will house laboratories for reproductive biotechnology, genomics and bioinformatics, product biotechnology, nutritional biotechnology, biosafety and environment technology.

A roadmap for the infusion of more dairy water buffaloes, as well as the production of more crossbreds, and the expected production of milk and meat have been spelled out.

In the Ruminant Animal Industry Roadmap, 2010-2034", which was developed by the stakeholders in the ruminants' industries, a total of 5,000 more pregnant Murrah water buffalo heifers, in addition to the 2,000 that came in 2010, will be imported. In addition to this, 1,000 first offspring in the crossbreeding program will be procured to become surrogate mother dams for the embryo transfer technology.

The total milk production, which is

For national coverage, and in order to serve and reach as many beneficiaries in the three Philippine major islands of Luzon, Visayas and Mindanao, thirteen carabao centers, aside from the national center or headquarters, were ordered established by the Philippine Carabao Act of 1992.

These centers were directed to be located at the University of the Philippines at Los Baños (UPLB) in Los Baños, Laguna; Central Luzon State University (CLSU) in the Science City of Muñoz, Nueva Ecija; Cagayan State University (CSU) in Piat, Cagayan; Don Mariano Marcos Memorial State University (DMMMSU) in Rosario, La Union; La Carlota Stock Farm in La Granja, La Carlota City, Negros Occidental; Ubay Stock Farm in Ubay, Bohol; Visayas State College of Agriculture (now Visayas State University) in Baybay, Leyte; West Visayas State University (WVSU) in Calinog, Iloilo; Central Mindanao University (CMU) in Musuan, Bukidnon; University of Southern Mindanao (USM) in Kabacan, North Cotabato; Mindanao State University (MSU) in Marawi City, Lanao del Sur; and Mindanao Livestock Production Complex in Kalawit, Labason, Zamboanga del Norte.

Section 7 of the Philippine Carabao Act of 1992, provided for the constitution of a PCC advisory board. It is composed of the following:

- a) Secretary of the Department of Agriculture or his/her representative, as Chairman;
- b) Undersecretary for Regional Operations, Department of Agriculture, as Vice Chairman; and
- c) Executive Director, Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD);
- d) Chancellor of UPLB and presidents of CLSU, CMU, CSU, DMMMSU, VSU, WVSU, USM, and the president of the state college or university where a carabao center may be established pursuant to the Act;
- e) Director of the Bureau of Animal Industry;
- f) Executive Director of PCC; and
- g) Farmers' representative to be appointed by the board, as members.

The advisory board performs the following functions:

1. formulate policies, programs and projects for the development of the Philippine carabao,
2. review and recommend the annual budget of PCC,
3. evaluate the implementation, efficiency and effectiveness of the programs and projects of the PCC, and
4. recommend the establishment or abolition of carabao centers as may be deemed necessary.

Appointed executive director of PCC on April 1, 1993 was Dr. Libertado C. Cruz. He has since held the position to this date.

From its small office first at the Department of Agriculture building in Quezon City and later at the Bureau of Animal Industry at the DA compound, the PCC later transferred to its permanent headquarters in a 40-hectare area inside the compound of the Central Luzon State University.



# Treading the winding road of GIP and enjoying the trip with benefits

By ROWENA G. BUMANLAG

**F**or a cooperative aiming for a sustained crossbreeding program and maintaining a progeny-tested herd, the straying in of a “salibadyok” in its territory is an utter taboo.

To the officers of the Pulong Buli Primary Multi-purpose Cooperative, Inc. (PMPCI) in Sto. Domingo, Nueva Ecija, a “salibadyok” is a native carabao raised elsewhere.

The “salibadyok”, according to chairman Primo Natividad, can impede the cooperative’s goal of continuing the implementation of the Genetic Improvement Program (GIP).

The GIP is a breeding and selection system where a performance or progeny-testing scheme is implemented. This program, a component of the national Carabao Development Program (CDP), aims to select the best dairy animals for breeding or propagation and cull those that are no longer fit for breeding.

In the action plan for the establishment of village-based dairy buffalo herd improvement program, pedigree and performance recording of dairy cows can benefit farmers in terms of selecting the best animals in the herd for breeding and for other herd management decisions. The program was prepared by the GIP Unit of PCC.

Pulong Buli PMPCI started to adopt the GIP in its herd of riverine-type purebred buffaloes and crossbreds in September 2010. It was the first cooperative in the National Impact Zone (NIZ) enrolled in the PCC dairy buffalo GIP. It proved to be the cooperative’s serious effort in becoming

the best in implementing an organized breeding system that will redound to the fulfillment of its mission to improve the lives of its members.

Natividad emphasized that the cooperative strictly implements a “no native” policy.

“*Bawal na bawal ang native na kalabaw sa amin. Lahat ng miyembro namin ay purebred o mestiso na ang mga alagang kalabaw* [Native carabaos are prohibited here. All our members tend only purebred buffaloes or crossbreds],” he said.

“*Kaya gusto namin ang GIP para wala nang mga mahihinang gumatas na kalabaw. Dapat talaga ingat kami para hindi na dumami ang lahing mahihina* [We like the GIP so that there will be no more animals that are sluggish in milk production. We should really take due care so that unproductive breeds will no longer multiply],” Pulong Buli PMPCI manager Robert Natividad said.

## Recording system

In its GIP implementation, Pulong Buli PMPCI carries out systematic recording where all the basic information about the individual animals are kept in details.

Among the information included in the meticulous recording system are data on calving, milking, natural mating and artificial insemination, animal health, forage production and maintenance, among others.

*agad ang mga problema at nagagawan agad ng solusyon* [We make sure that every member adheres to the rules that we set and is really keeping records. We also conduct monthly meeting so that we can discuss about our problems and immediately plan for their solutions],” chairman Natividad said.

Members of the Pulong Buli PMPCI hold their meeting every third week of the month.

collected by the members is done by officers of the coop.

*“Sa pamamagitan ng simpleng pagsusuri sa gatas, tulad ng alcohol precipitation test, nalalaman namin kung de-kalidad ‘yung gatas o hindi* [Through our simple testing procedure, such as alcohol precipitation test, we are able to determine if the milk being submitted to us is of quality or not],” chairman Natividad said.



Members of the Pulong Buli PMPCI strictly maintain an updated record of their animal herd. It is an effort that entails cooperation from each of the members.

*“Lahat ng record tungkol sa bawa’t isang kalabaw ay kinukuha namin at iniingatan. Naka-encode ang lahat ng ito sa computer para madali lang ipunin at kunin kahit kailan* [We record all the information about each of the carabaos and we keep these records. All these information are encoded in the computer for easy consolidation and accessibility anytime],” manager Natividad said.

As a participant of the GIP, the cooperative regularly submits the reproduction and production records of the herd in electronic copy to PCC. It does it on a monthly basis.

Chairman Natividad said that they conduct monthly monitoring of the animals in the herd. In fact, they also do random or surprise visits to the farmer-members to see if they are indeed complying with the regulations of the cooperative.

*“Sinisigurado namin na lahat ay tumutupad sa aming mga patakaran at talagang nagre-record. May buwanang meeting din kami para napag-uusapan*

## Safeguarding quality

One of the benefits of performance recording is knowing which of the dams in the herd have good genetic merits, such as production of sufficient milk.

Milk production in the Pulong Buli PMPCI justifies the coop members’ dedication and commitment in implementing the GIP for dairy buffaloes.

As a primary commodity and source of income for its members, the cooperative makes sure that it implements the strictest monitoring and evaluation system to ensure quality of milk before it is ferried to the Nueva Ecija Federation of Dairy Carabao Cooperatives (NEFEDCCO) in Talavera town for processing. This is why they have a central milk collecting scheme implemented at the cooperative’s office.

*“Talagang istrikto kami pagdating sa tamang pangangasiwa sa gatas* [We are very strict in implementing proper milk handling],” chairman Natividad said.

Random testing of milk samples

Performing another test using the lactometer, the tested sample that showed it has been added with water is disposed off right away.

*“Hindi makalalampas sa amin ang may halong gatas at hindi rin pupuwede sa amin ang mga nanloloko* [We do not condone samples that have been tampered with water, neither do we condone cheaters],” Natividad stressed.

Milk samples are also brought to the PCC milk testing laboratory for analyzing milk components such as fat, protein, solid non-fat, and somatic cell count (SCC). These tests are capable of analyzing the quality of milk harvest and the possible diseases carried by the lactating cow such as mastitis.

He said that members are required to submit to the coop a monthly report on milk production. Members who are not able to submit on time are fined with Php100 and an additional Php10 for each of the succeeding days of non-submission of report.

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# Harnessing S&T-based technologies Engineer exemplifies qualities of a model dairy farmer

BY JOAHNA G. GOYAGOY

PHOTOS JAIME GIANCARLO RAMOS



Engr. Jaime Ramos of Talavera, Nueva Ecija and part of his herd of dairy buffaloes.

Jaime Ramos is a role model. He is not only a successful entrepreneur but also a multi-faceted individual who has many interesting things on his plate. He is an engineer, head minister, a responsible father and husband, farmer, and above all, a full-time carabao raiser. To top it all, he currently holds the distinction of having the most number of purebred buffaloes in Nueva Ecija.

Asked about his success, he simply mused, “Sipag, tiyaga at teknolohiya ang naging susi ko (hard work, patience and technology are my keys to success).”

“But while hard work and patience are key tools for one to be successful, these should still be coupled with technologies to assure sustainability of the business,” he said.

For over a decade now, countless success stories were published about this

engineer-turned-model carabao raiser. These stories, according to many farmers, inspired them to regard the lowly carabao as an object which makes beautiful changes in their lives.

Engr. Ramos freely unveils his “secrets” to his success in carabao raising and dairying.

He started out with only two purebred Murrah buffaloes in 1999 as a recipient of the 25-dairy buffalo module of the Philippine Carabao Center (PCC). He was then a member of the Premium Dairy Buffalo Producers Cooperative. From two, the number grew to more than a hundred carabaos. He currently maintains, 80 purebred, three crossbred, and one bull. He said he sold over a hundred of calves to other farmers who also wish to have a superior breed of carabao.

As of press time, he has 29 milking

cows.

From each of his milking cows, he collects an average of 8-10 liters a day. What is more interesting about his milking animal is that he has a superior carabao which produces an average of 15-17 liters of milk every day.

Based on his records, his milk collection reached a peak of 180 kilograms per day in 2005 from 20 milking cows alone.

A visit to his dairy farm can make one grow with awe and wonder with how he come to manage his ertswhile foul-smelling carabao manures.

Unusual to a typical barn, Engr. Ramos set-up a man-made pool where his carabaos can wallow during dry-hot days. Since his carabaos are constantly growing in number, he is planning to add one more hectare of land to his 6,000 square-meter

area for Napier growing.

About how he manages to keep a healthy and growing herd, Engr. Ramos said that he has been a regular patron of the technologies introduced by PCC such as the use of “flushing”, “milk replacer”, communal cooling facility, and “milking machines”. In fact, in November 2009, his farm was used as a model farm for the demonstration of these technologies by PCC and Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD).

Through “flushing”, the mother carabao and its developing fetus are provided with better nutrition, the calving interval by the dam is shortened and its milk production is increased. Briefly, the method is done by giving the pregnant buffalo three to four kilograms of concentrates daily during the last months of pregnancy up to two months after giving birth.

“Flushing” assures the farmer-owners of three calving seasons in four years for their dam thus giving them a bonus of additional calf produced from shortened calving interval. It can provide an extra income of at least Php40,000 from the sale of calf and additional milk produced in 120 days that “flushing” is employed.

“Even before flushing was introduced to me by PCC, I was already practicing the proper nurturing of carabaos which I learned through words of mouth,” Engr. Ramos related.

“The technical help given by PCC through demonstrations and trainings, made me further improve my flushing practices,” he added.

Engr. Ramos assures that he provides his carabaos with proper nutrition and care. For his pregnant carabaos, a month-and-a-half before it gives birth, he feeds them with 2 to 3 kilos of feed concentrates every day. After which, he supplies them with vitamins A, D, and E once a day and after giving birth, vitamins are regularly supplied to them twice a day.

As regards the use of a milk replacer, Engr. Ramos has proven that when he used milk replacer, his calves gained more weight, became healthier and he was able to collect more milk from his milking cows.

The technology involves feeding the

calf with diluted powdered milk as a substitute to the dam’s milk. It helps the calf gain weight comparable with what the dam’s milk could provide without harming its health.

“When I used milk replacer, I was able to collect more milk which of course contributed to more income that I gained,” he said.

Milk replacer is a guaranteed profitable method ensuring the farmer of lesser expenses in feeding and management of newly born calf, experts said.

The diluted powdered milk is given immediately after the calf has consumed the colostrum (first milk in a milking period) during the first five days after birth.

The calf that feeds from the mother carabao can consume four liters of milk everyday. At Php32 per liter, these total to Php 128 compared to the expense of only Php100 per calf per day when using the “milk replacer”.

In three months of calf rearing, the farmer can earn an additional income of Php2,520 per calf.

As his carabaos are constantly growing in number, Engr. Ramos decided to turn to milking machines. He took advantage of the technology advanced by PCARRD and PCC.

In November 2009, he was a recipient of a portable milking machine given by

PCC and four cluster milking machines from PCARRD.

Hand milking entails a long process but with the use of milking machine, he said, it saves more time and labor. In fact, one person can only milk 10 carabaos in a day whereas with the use of milking machine, one person can milk twice as many animals.

The use of milking machines, he added, assures lesser contamination of the milk. In addition, it makes milk collection easier, faster and more reliable.

Engr. Ramos said that when it comes to proper milk collection and storage, the use of “portable milking machine” and “communal freezer” is very helpful. The use of these technologies allows him to collect milk twice-a-day without much labor compared to the traditional way of milking once a day.

The portable milking machine is a double bucket type of unit that can serve two animals at the same time and is an effective facility in collecting buffalo’s milk. It eliminates the possibility of contaminating the milk during milking process.

As of press time, Engr. Ramos has four milking machines stationed at his milking parlors.

On the other hand, the “communal freezer” assures farmer of extended buffalo milk’s shelf-life and freshness. By

**CONTINUED ON PAGE 18**



# DAIRY FARMER

## models exemplary

# FORAGE PRODUCTION

By ROWENA G. BUMANLAG



Marcelino Mislant of San Jose City, Nueva Ecija is shown here in his forage production area.

His day started then with cutting grasses on the sides of the farm-to-market road by an irrigation canal. Working until high noon, the bundles of grasses he cut and collected were for the feed requirements of his growing herd of dairy buffaloes.

For the rest of the day, he spent his time tending his dairy animals. It was a daily grind which he endured for the love of his self-induced profession – raising dairy buffaloes and dairying.

Marcelino Mislant of San Jose City was prepared to endure that kind of activity for the feeding of his animal for as long as he can. But then, it changed when he shifted his means of getting feed provision for his animals. Today, he models an exemplary forage production system that is worth emulating by other dairy buffalo farmers.

Ka Marcing, as Mislant is popularly called, is currently raising 17 dairy buffaloes in his farm. He recently dedicated portions of his two-hectare rainfed farmland, which is near his dairy barn, for the raising of improved forage. Seven thousand sq m of the area has been planted to Napier grass (*Pennisetum purpureum*), guinea grass (*Panicum maximum*), and rensonii (*Desmodium rensonii*), divided it into five paddocks of either 1,000 sq m or 1,500 sq m each.

The complementary combination of grass and legume in Ka Marcing's forage area is seen by experts as a good cultural management practice. Improved grasses, which are known to be high-yielding or producing more dry matter, and legumes have high nutrient content such as energy, protein and minerals.

Ka Marcing planted Napier and Guinea to provide his herd with high level of energy and less than 16 percent crude protein. Rensonii, on the other hand, provides his buffaloes their nutritional requirement for protein.

According to Ka Marcing, Napier is a

staple feedstuff for his buffaloes, which is why he makes sure that a bountiful supply of it is provided year-round to his animals.

Rensonii, on the other hand, has higher protein content compared to grasses. Protein is one of the critical nutrients that should be partaken by dairy buffaloes. Composed of amino acids, protein is needed for the animal's regulatory mechanism and growth.

Ka Marcing started to establish his pasture in 500 sq m with only one paddock utilized for Napier production.

His planting material, he said, are

ago and still harvesting its tops. He does the cutting, normally, every after 45 days.

Ka Marcing ensiles (makes silage out of) Napier grass when it becomes mature or when there is an oversupply of the feedstuff.

*"Kalimitan akong nagbuburo pagkaraan ng anihan dahil iyon ang magandang panahon kung kailan ko puwedeng isuga ang aking mga kalabaw dahil marami silang makakain sa bukid [I usually make silage after harvesting season because that is a good time when I can graze the buffaloes since they have*

recognition of his contribution in promoting dairying in the province.

*"Dahil sa naipon kong pera mula sa mga premyo ko, nakabili ako ng chopper [Because of the money that I had collected out of the cash prizes, I was able to buy a forage chopper]," he said. He bought the machine at Php35,000.*

When Ka Marcing received two additional purebred dairy buffaloes in 2002 from the PCC's dairy buffalo module, he planted other grasses such as Guinea.

*"Nakita ko lang 'yung Guinea grass*



cuttings of 2 to 3 year-old Napier grass. These cuttings are planted in well-cultivated soil in 50 cm to 50 cm planting distance between furrows and hills. Usually, the first cutting can be done 3 months after planting.

*"Ang kainaman ng Napier grass ay tumutubo siyang kusa. 'Yung ibang magsasakang tulad ko ay nanghihinayang na tamnan ng damo ang lupang taniman ng palay. Pero ako, tinitingnan ko ito bilang paraan para mapadali ang trabaho ko bilang magsasaka at talaga namang lalo kong gustong pagbutihin ang aking pagkakalabaw dahil sa mga benepisyo [The advantage with Napier grass is that it propagates easily. Some buffalo farmers like me hesitate using their rice production area for grass production. But I see it as a means of making my job as a dairy farmer easier and the benefits are indeed motivating me to do even better in dairy farming]," Ka Marcing said.*

He planted his Napier grass two years

sufficient feedstuff in harvest leftovers]," he said.

When making silage, Ka Marcing uses his forage chopper to cut the stalks into bits. It was really a sacrifice to be making silage then, he recalled.

*"Dati manu-mano lang. Lahat kami nagtatadtad, pati si Misis [Before, everything was manual. Everybody does the chopping, even my wife]," he said.*

He added that when the feedstuff is chopped, the buffaloes can consume 90 percent of the serving, which means there is very minimal wastage.

Ka Marcing's dedication to dairy farming brought him a gush of luck in 2006. He was a recipient of PCC's award for "Outstanding Farmer" and one of his cows won "Best Dairy Cow", with cash prizes worth Php15,000 and Php7,000, respectively.

Then Nueva Ecija governor Tomas Joson III doubled the cash prize in

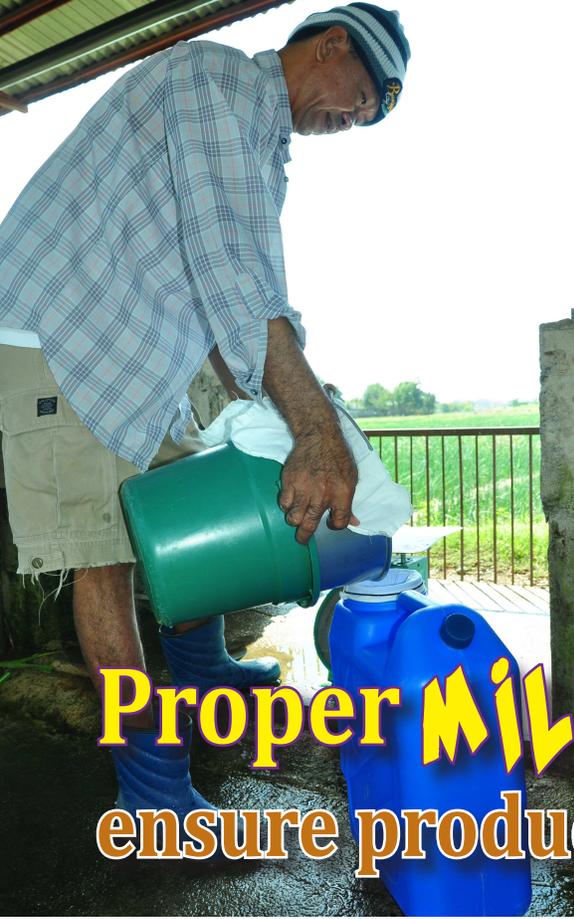
kung saan at sinubukan ko na ipatikim sa mga kalabaw ko. Gustung-gusto naman nila. Pero hindi ko pa noon alam kung ano'ng pangalan n'yon [I only saw Guinea grass somewhere and I tried it as feed for my buffaloes. They really liked it. I didn't even know then the name of that grass]," Ka Marcing recalled.

He later learned, in a PCC-UPLB-sponsored field tour, that the feedstuff is called Guinea grass.

*"May mga Japanese experts na bumisita dati dito sa barn ko noon at nakita na may tanim akong Guinea grass. Inirekomenda nila ang pagpapakain ng Guinea sa mga bulo [Some Japanese experts visited my barn then and they saw that I planted Guinea grass in my pasture area. They recommended that I should feed grass to the calves]," he said.*

Heeding the experts' recommendation, Ka Marcing feeds his calves that are just

**CONTINUED ON PAGE 19**



# Proper MILKING PRACTICES ensure production of QUALITY MILK

By JOAHNA G. GOYAGOY

**F**or a dairy farmer, quality milk production is a very important consideration. He or she is aware that to gain more profit, the quality of milk must be ensured as it commands higher price in the market.

In Nueva Ecija, two model farmers talked about how their lives have been refashioned through the adoption of right practices in dairying.

In Barangay Sibut, San Jose City, Carlito Alfonso, 44, relates his dairy practices.

Alfonso presently has 13 purebred buffaloes, nine of which are females. His animals started with one dairy buffalo which he received, being one of the original members of the Eastern Primary Multi-Purpose Cooperative (EPMPC), under the 25-dairy buffalo module program of PCC.

He was a successful rice and onion farmer. In 2009, however, when the onion production became unfavorable, he shifted to dairy production. From his savings, he decided to buy four additional female Bulgarian buffaloes from his co-members in November 2009 and June 2010.

As an inherently hardworking and determined man, he makes sure that he strictly conforms to the right procedures and practices in maintaining the wellness of his animals.

One of the premium challenges in dairying, he said, is how to ensure that the milk collected is clean and with market quality. Since he only has two milking cows, he employs hand-milking. He said that he only milks his carabaos once a day.

“Even though I only have two milking carabaos, I make sure that I get the best quality and maximum benefit out of it by implementing proper milking,” he said.

While such procedures are mostly common sense, Alfonso said that it should be constantly practiced.

First, Alfonso makes sure that

the housing condition of his herd is environmentally safe and clean. In his barn, he has a constant supply of clean water. He also maintains a sanitized milking parlor.

Since the time he engaged in dairying, milking his carabaos early in the morning has become his routine. Every day, before he goes to his milking parlor, he meticulously prepares the usual materials used for milking such as stainless pail, clean towels, strainers, and containers.

At his milking parlor, before he subjects his carabaos to milking, he properly employs sanitation not only to his animals but to himself as a milker.

As a proof of his utter care to his animals, he continuously monitors their wellness as he provides a constant supply of medicine, feeds, and forage.

He said that he encountered mastitis (udder inflammation) in his carabao in November 2010 but it was immediately resolved when he called for assistance from PCC.

“When I observe anything unusual in my animals, I immediately seek the help

CONTINUED ON PAGE 19

beginning to eat dry matter with Guinea grass and intersperse this with tender Napier grass when they reach 1 month.

During milking time, he also feeds Guinea grass to the dams.

The grass, Ka Marcing said, can be harvested after only one month because of its short harvest interval.

Both Napier and Guinea are treated as “rice” for the buffaloes while Rensonii, a legume, is a special addition to the menu as this is served as a “viand”.

“*Kapag tag-ulan nabubulok na ‘yung stem ng Rensonii dahil nabababad sa tubig. Ang ginawa ko, nilagyan ko ng Guinea sa mga pagitan* [During rainy season, the stem of the Rensonii would rot because it is submerged in water. What I did was to intersperse the plants with Guinea],” Ka Marcing said, adding that this practice made sure that the area is productive for feedstuff.

Rensonii contains approximately 20 to 22 percent crude protein and a good source of biomass.

For fertilization, Ka Marcing applies Urea (46-0-0) 10 days after cutting followed by top dressing two weeks after.

“*Ginagawa ko ito para makuha ko ‘yung gusto kong taas at bulas ng halaman* [I do this to achieve my desired height and robustness of the feedstuff],” he said.

Aside from using the mainstays in his pasture as food for his buffaloes, Ka Marcing also uses Para grass (*Brachiana mutica*) and sweet potato tops as feedstuff.

“*Kapag may siguradong pakain, maganda talaga ang pag-aalaga ng kalabaw* [When there is sure feedstuff, tending carabaos is really rewarding],” he said.

With the benefits that he has reaped from raising dairy buffaloes, Ka Marcing has indeed proved that using his land for forage has given him enumerable rewards.

“*Kung ihahambing sa palay o sibuyas, mas maganda pa rin na tinamnan ko ng pakain sa mga kalabaw ang bukid ko* [Compared to palay and onion crops, I found it more advantageous in using my farmland for the production of feedstuff for my buffaloes],” he said.

He also shared a remedy on how the

10 percent leftover from chopped forage will be totally consumed by his buffaloes.

“*Kung gusto mo talagang kainin nila [kalabaw] lahat, wisikan mo ng tubig na may nilusaw na asin at darak ‘yung dayami at siguradong ubos ‘yung pakain mo* [If you really like your buffaloes to completely consume a serving of forage, sprinkle the hay with a solution of water, salt and rice bran],” Ka Marcing said.

Having found the profession that gives him not only benefits in terms of income but also the most-deserved accolades from his fellow dairy farmers and other key industry players, Ka Marcing said that he now dedicates his entire life to dairy buffalo raising.

“*Hanggang tumanda ako, dito na ako sa pagkakalabaw. Tinatanaw-tanaw ko sa hinaharap na nakaupo na lang at nagmamando habang nakapagbibigay naman ng trabaho sa ibang tao* [Until I grow old, I will stay with dairy farming. I envision myself to be in the situation that I am sitting comfortably while giving instructions to my caretakers while providing jobs for others],” Ka Marcing said. 



As an exemplary forage producer and dairy farmer, Ka Marcing intends to become a role model to other dairy farmers. Shown here is his regular practice of feeding his animals with Napier grass as their staple food.



# DAIRY FARMER turns carabao manure to GOLD

By ROWENA G. BUMANLAG

**P**ulong Buli Primary Multi-purpose Cooperative, Inc. (PMPCI) must have cascaded well to its members its attitude of always working for excellence as some of its members are now exhibiting the skill of turning available resources into a “pot of gold”.

Take the case of dairy buffalo farmer Vicente Natividad of Sto. Domingo town in Nueva Ecija. Ka Entong found his luck not only in dairy farming but more in “businessing” carabaos’ dung by converting it into organic fertilizer. Cash flows to him easily because of his new-found business.

Twice a week, with two helpers doing the hauling, Ka Entong collects the wastes of the carabaos, cattle and pigs in the neighborhood. Most of his materials, though, come from Barangay Comitang in the same town. Before he started collecting manure from the town, animal owners used to

dispose the waste to the nearby river.

He collects about 200 sacks of manure and ferries them to his backyard in Barangay Pulong Buli and prepares them for conversion to fertilizer.

*“Bago ilagay sa sako ‘yun mga dumi, sasalandrahin muna bago dalhin sa bakuran ko [Before the manure are placed in sacks, it will be first sieved using a strainer then brought here in the backyard],”* Ka Entong said.

The manure is then spread and leveled on the mixture bed and left untouched for some time. It will be then covered with chopped leaves of ipil-ipil, madre kakaw, and dried banana leaves. These are free resources available elsewhere, he said, but he pays for the laborers.

Ka Entong’s laborers total to seven persons. He said that making an organic fertilizer is labor-intensive but the profit makes up for the investment.

The leaves that he uses, Ka Entong said, have high nutritive components that are best in making organic fertilizer.

The process is followed by mixing them with effective microorganism or EM (a proprietary blend of mostly lactic acid bacteria), molasses and hugas-bigas (water obtained from washing rice before cooking) in equal proportion.

Hugas-bigas (gray water) is also used to water plants for growth improvement as it contains phosphorous, potassium, and has a high nitrogen concentration.

*“Dapat maihalong mabuti ang pulot sa dumi at dapat tigmak ng pulot. ‘Yung hugas-bigas naman ay gagamiting pandilig [The molasses should be mixed well with the manure and it should be covered well with molasses. The hugas-bigas, on the other hand, is used to water the mixture],”* Ka Entong explained.

The last materials for covering, he said, is carbonized rice hull (CRH). This is used in the making of some organic fertilizers as a source of carbon utilized by microorganisms to balance the manure’s high nitrogen content. CRH also contains the nutrients potassium, calcium, magnesium, and other microelements.

The bed will be left for about one month before harvesting. Ka Entong said he makes about 500 to 600 sacks of organic fertilizer in a month as long as there are sufficient materials available. Each sack of 53 kilograms is sold at Php170 to Php200. Delivery is free of charge when the order is in bulk. Other manufacturers sell a 25 kg-bag of organic fertilizer for Php350.

Ka Entong is now one of the biggest organic fertilizer suppliers of Gratia Plena, a social action center that sells organic plant foods. He also supplies his fertilizer to rice and vegetable farmers in the nearby barangays of Guimba, Licab and other places.

Ka Entong said that his product can be a very good organic fertilizer for rice production. Also a rice farmer, he applies 20 to 30 bags per hectare of his organic fertilizer during last harrowing of his land being readied for transplanting. He attested that it really boosts the growth of palay and is contributory to good crop standing.

Ka Entong learned about the technology during a seminar conducted by the Provincial Agriculture Office of Nueva Ecija.



KA ENTONG AND HIS MOUNDS AND BAGS OF COMPOST. Ka Entong shares that he is able to gain more income, aside from dairying, through his newfound business which is composting.

*“Pagkaturo nila sa amin, ginawa ko na kaagad sa bahay hanggang sa matutunan ko na ‘yung ibang paraan para mas maging maganda ang produkto ko. Nakikita ko na mas maganda ito kaysa sa pagtanim ng palay kung kaya’t pinag-iigi ko talaga [After they taught us the technology, I immediately tried the process when I got home until I have discovered other means of making my product even better. I saw that this business is better than rice production, which is why I really make it good],”* he said.

Ka Entong currently has eight purebred dairy buffaloes which he uses for dairying. The manufacturing of organic fertilizer, he said, is just another source of additional income.

He also generously shares his

knowledge to those who are interested with the technology.

*“Ibinabahagi ko din sa iba ang alam ko dahil naramdaman ko na ang benepisyo mula sa negosyo ko. Maganda ang kita at natutulungan ko ang mga anak ko. Kundi ka talaga maghihirap at magtitiyaga, walang bunga [I also share to others what I know because I already felt the benefits from this business. The profit is good and I am able to help my children. If you really won’t sacrifice and exert effort, there’s no gain],”* Ka Entong said.

Finally, he said: *“Dati kahit anong kahig, wala talaga. Ngayon, maalwan na ang buhay kahit paano at hindi na nangu-utang [No matter how I grope then, it was still difficult. Now, at least I have a better life and I am no longer in debt].”*

# Adopters of AI technology: 'We gain **BIG BENEFITS** from it'

By KHRIZIE EVERT MARCELO

By making use of artificial insemination (AI) in four of his native carabaos to produce dairy animals, Andy Garcia of Magalang Pampanga, now boasts of the benefits he reaped from adopting this technology.

His story:

When he established his backyard farm in 2000, he realized, in due time that by utilizing the AI technique, he can easily own quality water buffaloes.

With the help of Apo Mitring Parungao, a certified AI technician, he had his four carabaos artificially inseminated. All four animals got pregnant and produced four female calves. He was charged P100 per service. The semen used was from Bulgarian Murrah bulls from the Philippine Carabao Center (PCC). The calves produced by his native carabaos, which were inseminated, were crossbreds.

Ka Andy was told that for many years, the PCC introduced the use of AI as part of its crossbreeding program. The aim is to improve the milk and meat yield while maintaining the draft traits of the Philippine native carabao and assure the carabao raisers more benefits from their animals.

Natural service, no doubt, may be the most effective method of breeding the native carabaos. Artificial insemination,

however, makes possible a widescale and faster propagation of outstanding breeds of buffaloes and improvement in the genetics of a carabao herd and its progeny. Superior bulls may not be around the area when the female carabaos are ready for breeding thus making a big constraint for an animal raiser like Ka Andy.

Artificial insemination involves a series of activities that includes semen collection, processing, freezing in Liquid Nitrogen (LN2) tank, then mechanical injection into the reproductive tract of the female recipient using appropriate instrument.

After some years, Ka Andy's crossbreds got pregnant after having been artificially inseminated. Soon, the animals delivered calves then started producing milk. He was able to collect 20-22 gin bottles of

milk from the four lactating crossbred carabaos.

His wife sold the milk and the proceeds made them both very happy.

"The crossbreds are really big and they give more milk compared to the native carabaos. The milk yield of one crossbred is equivalent to the milk yield of three



Andy Garcia and his crossbred carabao.

Leoncio Callo stands tall with his dairy-type buffaloes that bring manifold changes in his life. His current herd is 17 head purebred buffaloes, 11 of them are products of artificial insemination service.



native carabaos,” Ka Andy said.

With the technology, plus the good production practices, Ka Andy said he has ensured the success of his dairy farm business and the economic well-being of his farm household. Ka Andy said he is one who will continuously adopt the AI technique because he knows this will yield the greatest net benefits for his dairy carabao herd.

So far, he has not regretted the decision he made. He believed that dairy farming is a “good employer” that offers him and his family “safety and security.”

The highest milk yield Ka Andy got was in 2008-2009 when he had seven lactating carabaos from which he collected 33 liters of fresh milk and were sold at P25 per bottle (three bottles are equivalent to one liter). His daily income then for months was P2, 500.

His small dairy enterprise also benefited two other people who helped him in tending his animals.

Ka Andy claimed that with the use of AI and the guidance of PCC, his upgraded breed of carabaos will give him and his family big benefits for a long time.

Currently, Ka Andy maintains a bull which was loaned out to him by the PCC. He alternately uses the AI service and

natural mating in breeding his carabaos.

He now serves as a successful model of smallhold dairy farmer and his story is used by the local government unit as a true-to-life success story to motivate the prospective smallholder dairy farmers in the area.

Leoncio Callo, 50 years old has also a good story to tell about the AI technology.

Mang Leoncio, as he is called, was a member of the Catalanacan Multi-Purpose Cooperative in the Science City of Muñoz, when he became a recipient of a dairy carabao under the 25-dairy cow module of PCC.

It was in 2006 that he started using AI in his herd with Danny Sumatra of Labney, Science City of Muñoz, as his AI technician. He has 17 head of purebred animals now. He used to have 23 head, 11 of which were produced from AI service.

“My AI technician is just a text away,” Mang Leoncio said.

He said his technician is always on time in answering calls for an AI service.

Mang Leoncio makes it a point to record the breeding or AI activities of his buffaloes so he can track the status of the AI services performed.

He also maintains a bull in his farm

which was loaned out to him by the PCC. Based on his experience, when a bull is not able to impregnate the female for the second time, artificial insemination can be used.

“With AI, after 21 days, you will know the result,” Mang Leoncio said.

Mang Leoncio is certain that his technician will go back after 18-21 days to check if the animal has become pregnant. He gives advice on how to properly care for the newly inseminated buffaloes.

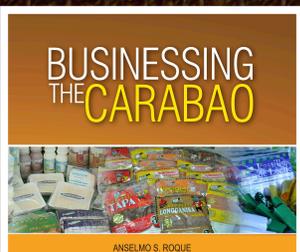
The technician is given P500 as a service fee for a successful work.

With five new Brazilian Murrah buffaloes entrusted to him, PCC continues to monitor and provide him additional knowledge for the proper care and management of his animals.

“PCC’s drive for “changing lives” is true. I was able to send my four kids to school and provide the needs of my family because of it,” Leoncio said.

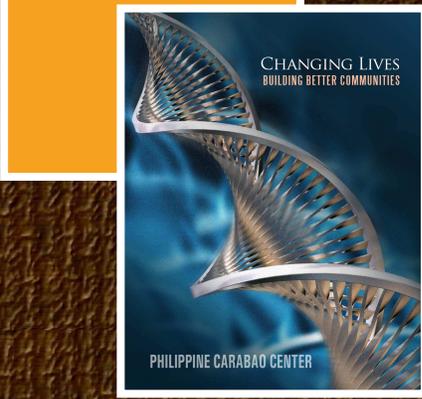
“I was so fortunate to become one of the farmer-trustees of these buffaloes. Running the farm has its challenges, though, but with PCC staff guiding me in managing my herd and gaining benefits from reproductive techniques such as AI, my goal for a better life will be easier to achieve,” he added. 

# new publications



## BUSINESSING THE CARABAO

This book showcases how the carabao has been highly “businessized” in the country from dairy to hide. It also highlights the efforts of PCC in transforming the swamp buffalo into dairy type through the crossbreeding program.



## PCC CORPORATE BROCHURE and PRIMER

Get to know the Philippine Carabao Center, its mandate and program, in a nutshell.



## SERVICE GUIDE/GABAY SA MGA SERBISYO

Get acquainted with the services of PCC and how you can benefit from them.

## WATER BUFFALO SIRE DIRECTORY 2011

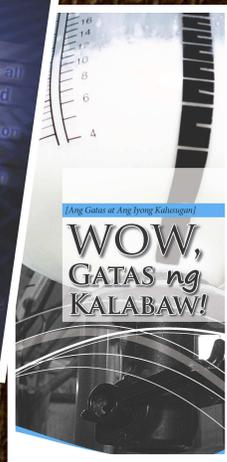
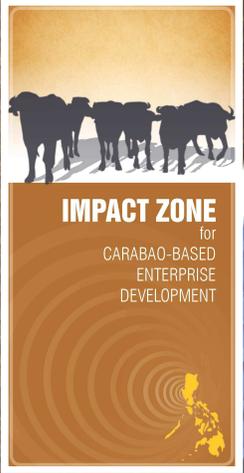
An updated directory of Philippine dairy and swamp buffalo sires used as donor bulls for artificial insemination.



## PCC INFO-COMICS:

Pagpapahiram ng Bulugang Kalabaw/ Mapa-WOW! sa Kabuhayang Mula sa Kalabaw

These are information materials for easy reading and appreciation of the benefits of the PCC programs on Bull Loan and Carabao-based Enterprise Development.



## IMPACT ZONE FOR CBED, IBKRS, and WOW, GATAS NG KALABAW! Brochures

These handy materials showcase the other services of PCC and tidbits of digestible information for the general public.

## COVER STORY... (from page 5)

expected to be increasing by leaps and bounds every year, is calculated to have a peak of 851.7 million liters by 2034. It is estimated that the milk contribution of the carabaos will be about 60 percent out of the total milk production in the country whose other sources are cattle and goats.

In meat production, the contribution of the carabao will be 191,100 metric tons in 2016, 228,500 mt in 2022, 273,200 mt in 2028, and 345,100 mt or a total of 5,903,500.

More rural farming families as well as the unemployed will benefit from this charted road to attain more success in carabao development in the country, the stakeholders averred.

## ENGINEER EXEMPLIFIES.. (from page 9)

using this equipment, the twice-a-day milking becomes a lot easier.

He currently has four communal freezers in his farm from which 30 more farmers are also benefitting. Each freezer can store 600kg of milk.

With this technology, he said, they can store more liters of milk without the worry of being spoiled before delivering it to its consumers and buyers. In fact, the technology improves the quality of milk because it lessens the risks of contamination. In effect, it increases the milk price at Php2 per liter.

Likewise, the extra return in using this machine is the additional 150 liters of milk a month that the farmers get. Thus, for every lactation period of 10 months, the farmer gets extra income of Php48,000 per animal.

Engr. Ramos used to perform all the works in his farm. With the help of technology, he can now spend more time with his family and his self.

“Before my adoption of these technologies, both my muscles and mind were always overworked. Now, I am able to rest my muscles and I don’t tax my brain from too much thinking about the works to do anymore,” Engr. Ramos concluded.

## PROPER MILKING... (from page 12)

of PCC experts and they come right away to help me,” he said.

Meanwhile, as the chairman of the Eastern PMPCI, he also makes sure that his co-members comply with the rules and requirements on proper milking practices.

He relates, “I always tell my co-dairy farmers to make sure they deliver quality milk because it’s the quality that counts.”

Before the milk reaches the processing plant, every milk delivered to the cooperative undergoes CMT (California Mastitis Test). This test helps determine somatic cell counts (SCC) of the milk which eventually ensures quality control of the milk produced by the members of the cooperative.

Meanwhile, a female dairy farmer also shared her milking practices. She is Cora de Guzman, 41, of Barangay Calabalabaan in the Science City of Muñoz, who is a member of the Angat Buhay Producers Cooperative, an all-female dairy cooperative, which is a “Hall of Fame” awardee for “Best Dairy Cooperative” in Nueva Ecija.

Presently, de Guzman has 11 female purebred buffaloes. Like Alfonso, she also started with one dairy buffalo which came from her aunt who was the recipient of the 25-dairy buffalo module. Confronted with difficulties in life, she invested big hope in her animal. She demonstrated her passion toward carabao dairying and a year later, she started milking her carabao

which meant daily cash flow.

De Guzman said that she and her family rely on the milk produce of their animals as a source of income that is why she gives regular proper care and nutrition to them. She collects eight to 10 liters of milk daily from her carabaos.

Every morning, at four o’clock, she starts milking. Before milking the animals, she makes sure that the milking parlor is clean as well as the carabaos. As taught by PCC, she, with the help of her husband, ensures that the teats of the animals are delicately clean.

De Guzman also uses disinfectants and sterilized clothes to guarantee bacteria-free milk collection.

Like that of the Eastern PMPCI, regular milk testing using lactometer is done by the Angat-Buhay Producers Cooperative. Aside from this, the coop maintains a communal cooling facility for the storage of the milk collected.

The coop members produce approximately 1,200 liters of milk from the 200 dairy carabaos of its members. As a competent cooperative, it was given two portable milking machines by the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD).

De Guzman said that the portable milking machines are kept in the houses of two of the members and the other members go there to use the machines. The machines have been purposively kept in the house of certain members

on agreement that she will maintain its cleanliness and functionality.

She said that the milking machines have been a very big help to them since it made their milking routines a lot easier. With the volume of milk the members of the cooperative collect everyday, the machines have ensured them lesser manpower inputs and better quality milk produce.

Today, however, Cora said she resorts to hand-milking especially during dry seasons where only one to two of her carabaos are being milked.

Like Alfonso, de Guzman also utilizes proper milking practices by observing sanitation of the handler, the milking parlor, and the machines that she uses. She also submits the milk for CMT and milk quality control.

“It is very important that we constantly monitor the over-all health of the animals and ourselves, the handlers, as it will greatly contribute to the quality of milk the animals will produce,” she said.

She added, “As we depend on dairying, our premium concerns are sustained health of the animals, the maintenance of the machines that we use, the protocols in proper milking, and the cooperation of every member in strictly following the rules.”

Although the actual milking procedure is a critical aspect in maintaining quality of milk produce, they also follow established working routine that is fairly simple to execute and based on common sense. 

## TREADING THE WINDING.. (from page 7)

These rules, he added, are based on the premise that they would be able to sell their milk produce at a higher price and avoid rejection.

### Imposing to be the best

Currently, Pulong Buli PMPCI has 80 active members and has the most number of dairy buffaloes among the cooperatives in the NIZ.

With this profile and consistent attitude toward excellence, the cooperative is brimming with potential in

successfully implementing the GIP for its dairy herd.

“*Kaya kami matatag bilang koop ay dahil sa mahigpit na pagbabantay* [We are strong as a cooperative because we do strict monitoring],” Natividad said.

Members of the cooperative who are delinquent in paying loans, not attending meetings, and doing actions against the rules of the cooperative are stripped of their benefits and are demoted to inactive status.

“*Ang mga miyembro ng koop ay nagiging disiplinado at responsable habang gumaganda ang buhay* [The

members of the coop become disciplined and responsible while having a progressive life],” he said.

He added, “*Mapagbigay din naman ang koop sa mga miyembro nito kung nakikiusap talaga at nagbibigay ng mga pagpipilian* [The coop is also lenient to its members, allowing them to bargain and giving them options].”

“Most Promising Cooperative”, as it was dubbed 10 years ago among the cooperatives in the NIZ, Pulong Buli PMPCI now demonstrates to the other primary cooperatives in the NIZ how it is to be indeed “promising”. 

*"This is a beautiful, booming industry."*

Speaking before dairy farmers and some government officials, Agriculture Secretary Proceso J. Alcala declared.

He was referring to the carabao-based dairy industry in the country. The Secretary visited the Philippine Carabao Center National Headquarters and Gene Pool in the Science City of Muñoz, Nueva Ecija and then motored to San Jose City last February 17.

He awarded dairy buffalo modules to selected farmers' cooperatives in the National Impact Zone (NIZ) in a turn-over ceremony held in Barangay Tayabo, that City.

"We do not end here but this is just a beautiful beginning of our collective efforts to prepare for the brighter future of our children," Secretary Alcala said. "The Department of Agriculture will always be here to make the dream of a very succesful industry come true and to provide you sustained assistance. It is in empowering our smallholder farmers and fishers that we see a more progressive economy," he added.

Ten qualified cooperatives received their "*Katibayan ng Pagkakahirang*" (Certificate of Entrustment). This translates to a total of 204 farmer-trustees who directly benefited from the turn-over of the animals.

Recipients of the dairy buffalo modules were from the towns of Talavera, General Natividad, Aliaga, Llanera, Lupao, and Rizal and from San Jose City.

The turned-over animals were part of the 2,000 head dairy buffaloes infused in the country early last year as an important component of the overall national genetic improvement program.

PCC officials said infusion of these riverine breed of buffaloes will enable more smallholder farmers to gain additional income and their families greater access to better nutrition.

About 734 purebred buffaloes were already released to selected farmers in Nueva Ecija. Another 740 head are in the waiting line to be entrusted to farmers who are still in the qualifying process that

## DA Secretary Proceso J. Alcala pays visit to PCC

# Aggie chief believes in the promising prospect of the dairy carabao industry



Agriculture Secretary Proceso J. Alcala, with PCC executive director Dr. Libertado Cruz and Nueva Ecija 2nd district Cong. Joseph Violago, awards here the dairy buffalo modules to selected farmers' cooperatives in the National Impact Zone (NIZ) in a turn-over ceremony held in Barangay Tayabo, San Jose City, February 17, 2011.

is rigorously being implemented by PCC.

Before gracing the turn-over ceremony, Secretary Alcala toured the PCC facilities including the National Gene Pool for riverine buffaloes.

PCC officials, led by executive director Dr. Libertado Cruz, ushered him to the actual demonstration of machine-milking of buffaloes, artificial insemination (AI), ovum pick-up (OPU) and operation of the rice straw baler machines which are for distribution to some cooperatives.

On his way to the turn-over ceremony in San Jose City, Secretary Alcala rode with the champion farmers of the NIZ and had a brief but meaningful "on-board" forum on some of their pressing concerns.

One of the concerns aired was on strengthening the marketing aspect of the milk production chain.

Secretary Alcala responded by saying that he would be on top of encouraging the congressional district representatives

of Nueva Ecija to fund milk feeding projects and other postharvest mechanisms so that dairy farmers in the province are provided with a sure market.

It will be recalled that Secretary Alcala was a representative of the second district of Quezon province prior to his appointment as cabinet member by President Benigno Aquino III. He thus has close association with the lawmakers in the Lower House.

Among the outstanding dairy farmers who had an opportune chance to air their concerns were Jaime Ramos of Talavera, Marcelino Mislano of San Jose City and Belinda Parugrug of the Science City of Muñoz.

The turn-over ceremony was likewise made livelier by the presence of Nueva Ecija second district representative Joseph Violago, San Jose City mayor Marivic Belena and Llanera mayor Lorna Mae Vero. **[RGBumanlag]**

The Philippine Carabao Center at Mariano Marcos State University (PCC at MMSU) based at Batac City, Ilocos Norte, is now ISO 9001:2008 certified and holds the distinction of being the first regional center of PCC recommended for certification that was confirmed on March 2.

According to Minda R. Diloy, PCC Quality Management Representative, the regional center has “completely conformed to ISO requirements.”

“We have found out only three non-conformance but these are only minor issues,” she said.

The eight quality management principles required for certification includes leadership, involvement of people, factual approach to decision-making, mutually beneficial supplier relationship, process approach, customer focus, continual improvement, and system approach to management which the regional center has conformed to.

## PCC at MMSU gets ISO certification

She added, “We saw how harmonized the relationship between the staff members and the top management of the regional center is which we can attribute to the leadership by their center director Grace Recta.”

The ISO (International Organization for Standardization) is a worldwide federation of national standards bodies. It promotes the adoption of a process approach when developing, implementing and improving the effectiveness of a quality management system and enhancing customer satisfaction by meeting customer requirements.

Further, the certification implies compliance of a certain organization or agency to international standards. It also means having quality services on a par with international agencies.

The award for certification will be given during the celebration of PCC’s 18<sup>th</sup>



anniversary this month.

The ISO team from PCC at MMSU are Cesar Arevalo, lead auditor; Florencio Malicad Jr., QMR; Mari Joan Nefulda, document control officer; Merriam Grace Castillo from SGS (Société Générale de Surveillance); and Minda Diloy, Ma. Wynne Pagaduan and Ma. Victoria Abesamis from PCC. **[JGGoyagoy]**

## Rice straw baler can provide farmers additional income



The Philippine Carabao Center (PCC) recently purchased 11 baler machines from Thailand.

The machines, which are used to compress hay, rice straw, silage and other raked crop into tightly-packed rectangular or cylindrical bales ready for handling, transportation and storage, are scheduled

for distribution to farmers to provide them additional income through the sales of baled straw.

A baler requires five operators in performing works related to feeding of rice straw, arranging the bale and compacting. The user-friendly machine can produce

350 bales per day.

Dr. Daniel Aquino, an animal nutrition expert of PCC, said that these machines are convenient to use, small in size and easy to handle for transportation and distribution to recipients.

For years, farmers are used to burning the rice straw at post harvest as they said it’s easier to dispose of it that way. However, this practice contributes to air pollution, studies show.

Dr. Aquino added that PCC initiated the acquisition of baler machines to somehow help in coming up with mitigating measures to control air pollution and save these farm waste into productive resource.

He said that rice straws can be put into good use as a food supplement for the carabaos.

Selling baled rice straws, he added, can also be a means of income generation for farmers.

The PCC is planning to train soon the farmers on how to operate the machine. **[Mae Ann Cordova]**



The municipality of San Agustin in Isabela is on the verge of achieving its dream to become the “Milk Capital of Isabela” as a dairy processing center in this home of many crossbreeds is about to rise.

## Groundbreaking ceremony held for the first Dairy Processing Center in Isabela

Putting a dairy processing center in San Agustin, Isabela is a big dream in this 4<sup>th</sup> class municipality as it will be a means for alleviating poverty, uplifting the living conditions of smallhold-farmers, and giving them better nutrition and higher income. That dream is now on the verge of realization as the groundbreaking ceremony for its establishment was held last February 18.

Gracing the occasion were Cong. Giorgidi “Gigi” B. Aggabao, Governor Faustino “Bojie” G. Dy, III, Engr. Roldan Paraguison, representing PCC executive director Libertado Cruz, Director Frank Rellin of PCC at Cagayan State University, Piat, Cagayan, and Celso G. Quinet, Project Manager of the Carabao-Based Enterprise Development (CBED) in San Agustin. Also present were Dr. Angelo Naui, representing executive director Andrew B. Villacorta of the DA-RFU 02, Mayor Virgilio A. Padilla, Vice Mayor Cesar Mondala, municipal councilors Rocelyn C. Vargas, Andreлина P. Gerardo, and Raquel P. Abad; municipal planning and development coordinator Robert Gerardo, the ABC President and all the 23 barangay

chairs of San Agustin.

The dairy processing center aims to boost and ensure the development of dairy industry in San Agustin to hasten the achievement of the town’s aspiration to become the “Milk Capital of Isabela”.

The dairy processing center will serve as a conduit for dairy value-adding and marketing, supporting the San Agustin’s dairy associations’ production and collection.

As planned, the dairy associations will deliver their milk collection for processing by the center into dairy products like choco-milk, pastillas de leche, cheese, yogurt and other products. The center will also provide the much needed marketing and promotion.

The dairy processing center will likewise create job opportunities thereby reducing unemployment.

Gov. Dy, who is also a businessman, is confident that this processing center will succeed that is why he supported the establishment of six milk barns to be operated and managed by the dairy associations.

To encourage the dairy associations to provide counterpart in the construction of dairy barns, the governor offered loans worth Php200,000 up to Php300,000 as capital without interest for the milk buying or collection activities of the center. Milk barns will ensure supply of buffaloes’ milk to the processing center.

According to the governor, San Agustin will open a tourism gateway in Isabela for producing white gold or milk because it will be the very first dairy processing center in the province. It will also provide learning opportunities in terms of accepting educational field trips. This will be a very rare experience for children, the governor added.

The governor firmly believes that the dairy industry will boom in this part of Isabela, the said provincial government is willing to pour in investments for the infrastructures that will make Santiago City to Quirino Province via San Agustin a regular public transportation route.

The construction of the processing center is expected to be finished in 90 days. **[Ramil Carbonel]**

San Agustin, Isabela---This municipality which is vying for the title “Milk Capital of Isabela”, takes strides in forming dairy associations with the assistance of the Philippine Carabao Center-San Agustin Team (PCC-SAT).

Working closely with the team are officials of the local government unit of San Agustin and community organizing specialists (COSs). Twelve barangays have already formed dairy associations.

The San Agustin barangays are Dabubu Grande, Mapalad, Masaya Sur, Palacian, Quimalabasa Norte, Salay, San Antonio, Santos, Sinaoangan Norte, Sinaoangan Sur, Sto. Niño, and Virgoneza. They were chosen from among 25 barangays of San Agustin based on their total number of crossbred carabaos.

Currently, some of these identified dairy associations are now producing milk for sale. Their milk produce is priced at Php35 per liter and sold to the PCC-SAT at Php40. The Php5 net from each liter of milk goes to the associations which will be used as additional capital for their operation.

Through the help of COSs, the farmers

## San Agustin strengthens CDP through dairy coops formation



Farmers of San Agustin, Isabela parade their crossbred carabaos during the town's “Nuang Festival”.

are also in the process of registering with the Department of Labor and Employment (DOLE).

As an initial step to dairy association formation, crossbred buffalo owners and farmer-leaders of these identified priority

barangays underwent a Social Preparation Training (SPT) given by PCC-SAT through COSs. The training was aimed at further understanding the Carabao-Based Enterprise Development (CBED) program concept of PCC in San Agustin.

Aside from SPT, the team also conducted two leadership trainings which were designed to harness the leadership and organizational capabilities of the farmers.

On the recently conducted community mobilization training, dairy associations’ officers leveled up as they learned the process and importance of community mobilization concept and the appropriate planning for conducting it.

The PCC team in San Agustin is planning for more trainings for the would-be dairy association members.

It can be recalled that Isabela Gov. Faustino G. Dy contributed Php5 million for the strengthening of the carabao development program (CDP) in San Agustin. The amount is being used in establishing milk barns in 12 barangays of San Agustin. The barns will include milking machine, power supply, potable water system, forage nursery development, maintenance and other infrastructures.

This initiative in San Agustin is packaged in a five-year project of PCC-SAT entitled “Transforming San Agustin as Dairy Community Utilizing Crossbred Buffaloes”. **[RCCarbonel]**

## 7th and 8th “ET” calves born in the Science City of Muñoz, Nueva Ecija



Farmers Romeo Onia (left), 73, and Harif Serra (right), 21, both from Barangay Mapangpang in the Science City of Muñoz in Nueva Ecija, are proud owners of a calf born out of the “Embryo Transfer” (ET) technology”, the seventh and eighth produced out of the field application of the technique. The technique involves collecting immature oocytes or egg cells from the ovaries of the female carabao, maturing and fertilizing them in the laboratory, culturing the fertilized eggs, and transferring the embryo surrogate mother carabao for natural development. The embryo transfer was conducted by the team of Dr. Peregrino Duran, Dr. Danilda Duran and Joselito del Rosario of the Philippine Carabao Center (PCC). **[RGBumanlag and MCCordova]**

Ako po si "CB",  
ang mascot ng  
PCC.



## PCC showcases carabao-based enterprises aided by science, technology

Carabao-based enterprises in rural areas whose developments were based on science will be showcased by the Philippine Carabao Center (PCC) in connection with its 18th anniversary celebration on March 21-25, to be held at its National Headquarters and Gene Pool, Science City of Muñoz, Nueva Ecija.

Dairy farmers, as well as prospective entrepreneurs and other interested parties, have been invited to visit, during a field day, select individuals and cooperatives that have shown considerable success in raising buffaloes and engaging in enterprises that provide them big income.

"There are now many farmers who have imbibed the knowledge on scientific ways of improving the breed of their dairy carabaos and in improving their system of maximizing benefits that their carabaos can provide them," Dr. Libertado Cruz, PCC executive director said.

He added that the farmer-owners are now conversant about crossing and backcrossing of their animals to produce offsprings with improved genetics. They achieved this thru their close association with PCC experts who continuously provide them with the knowledge on how to do it.

Dr. Cruz said the farmers either submit their carabaos to artificial insemination (AI) using semen from quality dairy buffaloes being produced by the PCC's national bull farm or use superior bulls loaned by PCC.

Private village-based AI technicians, trained by PCC, are on hand to help the farmers in their need for the artificial insemination of their breedable carabaos.

"We now have about a thousand village-based AI technicians positioned in many places in the country. They

are known by the acronym VBAIT and the farmers are happy to pay a fee for helping them improve the breed of their carabaos," he added.

Dr. Cruz said at least 2,000 more VBAITs will be trained by PCC to cover various places in the country which are under the charge of PCC's 13 regional centers.

The PCC has been harnessing science and technology in its 18 years of pursuing its mandate to conserve, propagate, and promote the Philippine carabao as a source of draft animal power, meat, milk and hide. Aside from that, the PCC has been utilizing reproductive biotechnologies such as multiple ovulation and embryo transfer, in vitro embryo production, ovum pick-up, semen sexing, and cryopreservation.

Among the technologies employed by many farmers relate to increasing milk harvest, faster and more sanitary ways of milking of the carabaos and storing the milk for marketing. Specific technologies include the use of milk replacer, flushing, use of a portable machine for milking, and use of a communal freezer.

Outstanding dairy farmers and dairy cooperatives, as well as VBAITs and employees of PCC will be honored.

Also, a Central Collecting and Processing Facility and a Product Outlet, meant to boost the production and processing of carabao's milk and entrepreneurship in Central (and Northern) Luzon, will be inaugurated.

The celebration adopts the theme: "18 Years of Service: Harnessing Science in Rural Enterprise Development".

No less than the Agriculture Secretary Proceso Alcala will be the guest of honor. **[RGBumanlag]**

## PCC Mascot, Jingle introduced

The PCC Mascot named "CB", for crossbred carabao, officially takes its bow to the public on March 25. The Mascot was paraded while being accompanied with the PCC Jingle that tells of the newfound importance of the carabao to Filipinos.

### Papugay sa Kalabaw

(Words and Music: Gary Granada;  
Singers: Kiel Granada and Gary Granada)

Mula pa noong malaong panahon  
Kasama ng aming tahanan  
At kaulayaw sa munting sakahan  
Sa tag-ulan at tag-araw, sadyang  
kaagapay

Subalit ngayon ika'y naging tugon  
Sa iba't ibang pangangailangan  
Pangkalusugan, pagkai't kabuhayan  
Kaibigang kalabaw, bayani kang tunay

Pag-unlad ng lahi mo'y isinusulong  
Agham at teknolohiya ang katulong  
Ang masaganang kinabukasan  
Ngayo'y sadya nang abot-tanaw

Ipagbunyi, ipalaganap  
Sa punyagi at pagsisisikap  
Biyayang galing sa mayamang piling ng  
mama at aleng kalabaw

# PCC is set to launch “Businessing the Carabao” book

The Philippine Carabao Center (PCC) will be launching another book about the carabao to recognize its significant role in boosting the Philippine economy. The launching program will be held during the 18th anniversary celebration of the agency on March 25.

Titled “Businessing the Carabao”, the book is written by veteran development journalist and PCC editorial consultant Dr. Anselmo S. Roque. He also authored the book “Appreciating the Carabao” which was launched during the 17th PCC anniversary.

“Businessing the Carabao” focuses on carabao-based enterprises and its viability to generate more jobs both in rural and urban areas. It likewise talks about the components of the Carabao Development Program and the Ruminant Animal Industry Road Map.

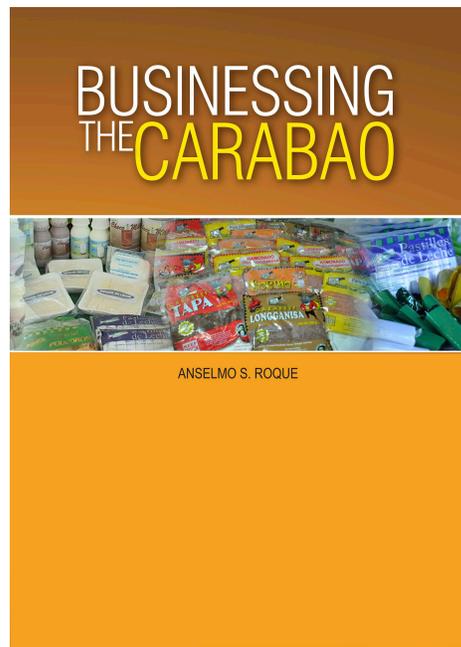
Success stories of carabao raisers and dairy farmers are also highlighted in the book.

The book further aims to promote the carabao not just a source of draft power but also as an important resource for livelihood and jobs generation.

In his foreword, as the PCC celebrates its founding anniversary, Dr. Libertado Cruz, PCC executive director said “We deemed it wise to come out with this book “Businessing the Carabao” to underscore a major pathway toward the achievements of one of the more important goals of the Carabao Development Program.”

“The book, however, is not yet a complete documentation of the successes achieved by the people in carabao based industries but rather a presentation of how a number of people have made good in enterprises involving the carabao with the hope that others can see the light and follow it for their own sake, their families and their communities” he added.

**[MCCordova]**



PCC GREETs DA CHIEF DURING VISIT. Agriculture Secretary Proceso J. Alcala is flanked here by some PCC staff members headed by its executive director Dr. Libertado Cruz (3rd from right) and wife Teresita Cruz (5th from right) during his visit to PCC last February 17. Also in this photo are: Nueva Ecija 2nd district Cong. Joseph Violago and other officials from the Department of Agriculture. (PHOTO JGGoyagoy)



**CENTRAL PROCESSING PLANT AND PRODUCTS OUTLET.** This facility is included in the queue of facilities to be launched in time for the PCC's 18th anniversary. It is built in the PCC compound, along the Maharlika Highway, with a 2,363-square meter floor area. The main objective of the set-up is to serve as venue to assist in post-production concerns of the many dairy producers cooperative north of Manila. The facility features the processing, packaging, micro-laboratories, cold storage, ripening room, and equipment areas and some offices. (PHOTO JGGoyagoy)

## PCC staff members compete for camaraderie

One night is set for a friendly competition on March 24, 2011 at the grand lobby of PCC Headquarters. It is one part of the celebration of the 18<sup>th</sup> year anniversary Philippine Carabao Center (PCC).

This is a cultural show that will showcase the talents of the staff of PCC from Luzon, Visayas, and Mindanao.

The group presenters are divided to clusters and these groups are Mindanao group, Visayas group, Luzon group, PCC at Central Luzon State University, PCC at University of the Philippines-Los Baños, and PCC-Office of the Executive Director.

In addition, each group is required to have 7 to 10 pairs of participants.

Employees are challenged to prepare a ballroom dance number that will be performed on that night. A maximum of 10 minutes will be given

to the participants to present their performances.

*"Ginagawa itong cultural show na ito kasi ito yung panahon na nandito lahat ng staff ng PCC so naisipan na mag-organize ng competition para magkaroon ng camaraderie sa mga staff atsaka magseserve na din na team building at General Assembly (This cultural show was organized because it is a time where all the staff members are gathered in one place so we planned to have a competition to build camaraderie among employees and at the same time serve as a team building and general assembly)." said Ms. Cecile Abo, one of the chairpersons of the event.*

The judges will be composed of the advisory board of PCC. Winners will receive cash and certificates. [MCCordova]

## Employees' and awards night to cap "PCC at 18"

A time for the Philippine Carabao Center's (PCC) employees, across the PCC regional network, to get together and socialize will be conducted during an Employees' and Awards Night on March 25, 2011, the 5<sup>th</sup> day of the week-long anniversary celebration at the National Headquarters.

This is also a time to recognize the employees who did outstanding performances and excellence in their respective works.

To be awarded are the "Best Center Director", "Best Supervisor", "Best Development Officer", "Best Support Staff", and "Executive Director's Award".

In addition to this, the awards to be given to the employees include loyalty awards for permanent and contractual employees who have continuously served the agency for 10, 15 and 18 years; among other special awards. All awardees will receive cash and certificate.

Another highlight of the night will be the showcase of PCC employees' talents in cotillion and rigodon dance numbers.

The masters of the ceremony are Mr. Ariel Abaquita and Ms. Lerma Ocampo. [MCCordova]

# PCC taps TAP for technology commercialization

The Philippine Carabao Center's Technology Board summoned the urgency for the application of Technology Assessment Protocol (TAP) toward further technology promotion and commercialization.

As a concrete step for its realization, the board headed by Dr. Eric P. Palacpac, along with selected staff members of PCC, participated in a four-day training on the use of TAP in evaluating different technologies implemented and promoted by the agency.

The selected staff included technology promotion specialists, economists, sociologists, technically competent experts, and communication experts. These were selected based on PCARRD-Technology Outreach and Promotion Division's (PCARRD-TOPD) requirements.

The TAP training course, developed by (PCARRD-TOPD), embodies the most recent innovations in technology assessment procedures and processes utilizing the STEEP criteria such as social acceptability, technical feasibility, financial / economic viability, environmental soundness, and political acceptability. It is focused on techniques to determine the necessary and timely interventions for packaging existing technologies to potentially commercializable products/ services.

The protocol was also designed to zero in on the reasons why farmers or intended clientele do not use particular matured technologies to improve carabao and cattle production such as Urea-Molasses-Mineral Block (UMMB) and milk replacer, understand the status of the technologies generated, and identify the necessary actions and interventions for technology packaging, promotion and commercialization.

"We should establish confidence on particular technologies such as artificial insemination so that this kind of



Mr. Eduardo Magboo (formerly of PCARRD-Livestock Research Division) talks on the importance of teamwork, creativity, and commitment among the participants during the training on the use of Technology Assessment Protocol (TAP) held at the Philippine Carabao Center National Headquarters office from February 28 to March 3, 2011.

matured technology will be reached and understood by its intended clientele," said Dr. Liza G. Battad, Planning and Special Projects Division Chief of PCC.

She added, "We should also have quantitative indicators for R&D efforts on how it has been implemented at least at the farmers' level."

The four-day training enabled the participants to assess indigenous and new technologies for promotion and commercialization. Principles, concepts and tools of technology assessment protocol, and guides on the formation of a cohesive core team that will conduct technology assessment using the tools of TAP were discussed during the training.

Technologies or innovations using TAP have been categorized into product, process, service and information.

Included in the list of the technologies developed and improved by PCC are Artificial Insemination, Estrus Synchronization, Day Zero Calf Weaning with Milk Replacer, Legume-Grass Pasture

for Grazing, UMMB, Urea Treatment of Rice Straw with Molasses, Silage Making, Flushing, Fattening of Water Buffalo for Good Quality Meat, Animal Record-Keeping, Portable Milking Machine and Communal Freezer, Ricotta Cheese, Direct Acidification Method for Mozzarella Cheese, Simplified Production of Yogurt, Probiotic White Cheese, Lacto Juice, and Pastillas de Leche.

Flushing and AI were the technologies assessed during the training.

Dr. Arturo Argañosa, chief of PCARRD-TOPD, headed the team of the facilitators which included Ms. Lucy Lastimososa, Diana Rose Cabello (PCARRD-TOPD) and Mr. Eduardo Magboo (formerly of PCARRD-Livestock Research Division).

With the help of TAP, the technology board is optimistic that the technologies will gain further acceptance among its clientele.

The training on TAP was held at the PCC National Headquarters Office from February 28-March 3, 2011. **[JGGoyagoy]**

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SCIENCE**  
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