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P600M eyed to improve carabaos

BY EIREENE JAIREE GOMEZ

THE Philippine Carabao Center (PCC), an attached agency of the Department of Agriculture (DA), is proposing a budget of P600 million in 2019 to invest in advanced technologies that will upgrade the agency's process of breeding carabaos, in a bid to boost the country's dairy and livestock industry.

PCC Executive Director Arnel Del Barrio told *The Manila Times* the agency's budget this year is P499 million, of which the bulk is for artificial insemination services.

Del Barrio, an expert in animal science, said the proposed budget will primarily be allotted in purchasing "easy-sight" machines used by animal breeders to determine the semen's motility and fertility of swamp-thriving water buffaloes, locally known as "*kalabaw*."

Each machine, he said, is worth P10 to P15 million that will be purchased immediately once the budget proposal is approved by the DA.

"The machine is important in screening our carabao's semen. With our massive AI [artificial insemination] program, we are able to determine the integrity of the DNA. But our only current basis is the motility. If we have such machine that could immediately determine the genetic material of the semen, then we can already project the carabao's fertility. Thus, lowering the breeding cost," he explained.

PCC targets 100,000 successful carabao insemination every year, Del Barrio said. In 2017, the agency was able to achieve 70,000, which can be attributed to a large number of insemination failures as well as insufficient budget.

Sperm motility refers to the movement of sperm. If a carabao has poor sperm motility, it means that the sperm do not swim properly, which can lead to male infertility.

"If we could only increase the motility or fertility of our carabaos' sperm cells around 5 to 10 percent, then there will be more Philippine dairy carabaos to be produced in a year," Del Barrio said.

Data from 2017 Carabao Situation Report by Philippine Statistics Authority showed total carabao inventory in the country was at 2.88 million heads. The Bicol, Cagayan Valley, and Eastern Visayas are among the top three regions with the highest number of carabaos, contributing 26.65 percent to the country's total carabao inventory.

The Manila Times

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Digital agriculture

WAYS OF THE OASIS
DR. WILLIAM DAR

WE are now in the Fourth Industrial Revolution or what we call Industry 4.0, where the boundaries between the biological, physical, and digital spheres are blurring, bringing about huge potential for industry and businesses.

And in the field of agriculture, I have witnessed how digitization is raising farm productivity, connecting producers to the markets, and allowing them to learn the latest on market and technology trends.

But in the Philippines, the farming sector is still stuck in the First Industrial Revolution, with millions of smallholder farmers still relying on human and animal power, and simple farm implements like the plow for on-field farm production. Level of farm mechanization in the Philippines is thus very low. Lacking access to the latest technologies in food processing, smallholder farmers are also constrained to go into value adding, denying them access to the export market. And smallholder farmers will remain trapped in poverty unless they become part of Industry 4.0.

Involving smallholder farmers in Industry 4.0 is critical, because according to the Food and Agricultural Organization (FAO), the world will need to feed 9 billion people by 2050, requiring a 70-percent production increase in food from current levels.

And with farmland supply dwindling from factors like land degradation, extreme weather conditions, rapid urbanization, and not putting in place good agricultural practices in the farms, the only solution left to increase crop production is through adoption of new technologies.

Let me add that a third of the worlds farmlands are considered underutilized as farmers lack access on information on what to produce and technologies to increase production. Smallholder farmers also have to hurdle social and economic barriers that deny them access to buyers and end-users.

So what promise does digital agriculture hold for smallholder farmers?

Applying ICT

It is easy to become over enthusiastic or over eager in the application of information and communications technology (ICT) in agriculture, so the first step is to develop a strategic guideline for ICT or digitization to support agriculture.

This will require understanding the bigger picture instead of micromanaging, looking at challenges and opportunities, setting priorities and identifying policies that can support ICT application in farming, and identifying the target audience and market potential.

Looking at the bigger picture, ICT can be leveraged across the agricultural value chain covering research and development (R&D), access to inputs, production, marketing, wholesale/distribution, retail, and product traceability.

So assessment of the bigger picture for the Philippine agriculture sector through SWOT (strengths, weaknesses, external opportunities and threats) analysis should first be undertaken before applying widely ICT or digitization in the country's agriculture sector.

Importance of partnerships

Among the keys to making ICT or digitization take root in the agriculture sector is to strengthen partnerships between start-ups and existing financial and/or government institutions, as pioneering ICT applications for farming, fishery, and forestry requires a high level of capital and expertise.

So incubators and an innovation fund will play a critical role in accelerating ICT-enabled agripreneurship in the country.

But before digitizing or applying ICT in agriculture, reforms within institutions should be implemented with the most important being increasing their receptiveness to digital agriculture. This will also require a change in the mindset of actors and stakeholders in Philippine agriculture, or to reorient them toward Industry 4.0.

With government, private, and academic institutions becoming more receptive to digitizing agriculture or making agripreneurship more ICT-oriented, aspiring or young innovators and entrepreneurs can be provided a platform with a variety of support services to help them develop, launch, and scale up their products and services.

Phases for development

In the field of agribusiness, those engaged in value adding are increasingly using the internet to market farm and food products. Usually, small- and medium-scale agribusiness firms go through three phases in tapping the internet: Using websites to advertise their products, using the internet to create orders for their products (pre-commerce), and tapping e-commerce for moving goods.

The first step is very simple and can be done immediately at a reasonable cost by agribusiness companies, including cooperatives that have ventured into value adding.

However, a site that provides only information may not be enough. This means agribusiness websites that advertise their products must also employ mechanisms to generate customer feedback and information requests.

For sites with pre-commerce features, agribusiness firms can use the internet to generate orders online also from abroad.

The third stage, which I believe should be aspired by agripreneurs, is to tap e-commerce or using the internet to generate sales and accept payments.

The benefits of online marketing are numerous as it is inexpensive, operates 24/7, provides a more customized or targeted approach for advertising, takes advantage of social media, and helps build ties with the target market.

There are many examples of digital apps for agriculture and agribusiness where farmers can display and market their products.

The way forward

Looking at the Internet of Things (IoT), there is no way the agriculture sector can ignore the potential of ICT-enabled or digitized agriculture.

For institutions involved in R&D, ICT can help generate feedback from recipients of research efforts, particularly smallholder farmers and industry players.

For producers, a stronger interconnection can be made to the markets and vice versa, enabling smallholder farmers to determine what crops they should cultivate. Farmers connected to the IoT can also find buyers who can offer better prices for their produce, and even enter into mutually-beneficial arrangements with the established big players in the agribusiness industry.

And looking at available ICT or digital tools, there is no need to reinvent existing ones or develop new ones. So that means contemporary tools and platforms are all over the place to make the country's agriculture sector ICT-enabled or digitized.

Among the tools available are websites, e-commerce, smartphones, and tablets, among others.

Even technology business incubation for agribusiness can provide the environment to adopt ICT or digitized solutions for farming. This way we can encourage more of the youth of today to become agripreneurs.

So like what I have said about farm mechanization, there is no need to reinvent the wheel when it comes to digitizing agriculture or introducing ICT solutions to smallholder farmers.

So Industry 4.0 need not be intimidating to smallholder farmers and agripreneurs, after all. In the first place, technology is already part of our daily lives.