

# **An Overview of Philippine Agriculture during the Transition Phase to the New Normal**

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## **A. Introduction**

The coronavirus 2019 or COVID-19 is considered as one of the worst pandemic in modern history, having infected and killed approximately 16.5 million, and 657,0200 persons around the world, respectively. COVID-19 belongs to the Coronaviridae family in the Nidovirales order, the same family of the respiratory diseases SARS and MERS-COV. Although there were speculations that the COVID-19 was genetically-engineered and was intended to be used as a biological weapon, it was eventually disproved by group of scientists who traced the virus from bats, and passed to humans through the Hunan seafood market of Wuhan, Hubei province, China last December 2019 (Andersen, Rambaut, Lipkin, Holmes, & Garry, 2020; Finaud, 2020; Wu et al., 2020; Zhou et al., 2020). Symptomatic patients of this disease often show common symptoms like fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, congestion or runny nose, loss of taste or smell, sore throat, nausea or vomiting, and diarrhea, which manifest around 2 to 14 days after the exposure

(CDC, 2020a; Sanyaolu et al., 2020). Meanwhile, 70% of all people infected with the disease are asymptomatic, which means that they show no signs of the disease (Marco Cascella, Michael Rajnik, Arturo Cuomo, Scott Dulebohn, & Napoli, 2020). In severe cases, COVID-19-infected patients have difficulty in breathing or shortness of breath, chest pain, and loss of speech and movement. Usually, in severe cases, the patients also acquire pneumonia, requiring intensive care.

Because of this, the virus can be easily transmitted from one person to another person without having any awareness of it, unless the symptoms are slowly appearing. A person can be a carrier of the virus and infect the entire community without knowing that s/he has it. According to the WHO (WHO, 2020a), coughing, and sneezing within 1m distance can spread the virus. WHO also emphasized that direct, and indirect contact with the COVID-19 patient can be source of the infection. All people, especially persons with comorbidity like cancer, type 2 diabetes mellitus, hypertension, chronic kidney disease, chronic obstructive pulmonary disease, immune compromised condition, obesity, sickle cell disease, and serious heart conditions, have higher chance to have the disease (CDC, 2020b; Guan et al., 2020; Sanyaolu et al., 2020). Recently, WHO confirmed that the virus can be transferred through air also (WHO, 2020b). The use of proper Personal Protective Equipment (PPE) e.g. N95 mask, surgical mask, face shield etc. are highly recommended to minimize prevalence of the disease. Moreover, the trial for vaccine is currently ongoing and the first vaccine for this virus is expected to be released of this year.

Meanwhile in the Philippines, the lockdown or stay-at-home policy in the Philippines or commonly known as Enhanced Community Quarantine (ECQ) period was

imposed on March 17, 2020. This is to restrict the movement of people from some major cities and highly populated areas to another places or localities. As of July 30, 2020, the Philippines has 89,374 confirmed cases, with 65,064 recovered patients and a 2.22% mortality rate. Due to the increasing number of cases, the quarantine period was modified, and extended in the whole country. As a result, only the people belonging to the skeletal workforce in response to the aforementioned illness, are allowed to move around and work in their respective barangays or municipalities. Working more than 50% of the manpower is discouraged, and two to three times of working is implemented to avoid contact of the employees. These people are from, but not limited to, the job related to medical health practice, and maintenance of community's peace and order. Thus, most of the establishments, markets, and businesses are closed for several months. These resulted to bankruptcy, job termination, and lack of manpower. This also happened in the agriculture sector.

Agriculture can be defined as the science and art of cultivating plants and animals as a source of food or to be sold for a particular value. This field of science is always associated with farming and raising livestock for food security. Together with medicine, a good source of high-quality food as proper nourishment for the body is a must during the pandemic. Like the previous pandemic, the agriculture is once again directly affected. The COVID-19 pandemic has greatly disrupted the demand and supply in the whole world (FAO, 2020). The territorial borders of every country or even in national level are shut down, affecting the importation and exportation of the agricultural products. The simultaneous lockdown in different parts of the world also caused panic in the procurement and consumption of basic needs for

individual or familial survival. In Southeast Asian (SEA) countries, the agriculture has been the main source of the income of the people. Due to the pandemic, a total of 100.77 million individuals from the agricultural sector of the SEA region has been affected, losing USD 3.76 billion (Gross Domestic Product) GDP in the first quarter of the year 2020 (Gregorio & Ancog, 2020). The Philippines is not safe from this loses. However, the Filipinos are known for their characteristic of being resilient.

This chapter will tackle the general situation of the Philippine Agriculture before and during the obligatory ECQ period for COVID-19, and how the Filipinos adapted to the challenge to sustain the Philippine Agriculture while in the transition phase to the so-called “New Normal” time.

## **B. Discussion**

### **1. Impact of COVID-19 Pandemic in Agriculture Sector**

The first quarter of the year 2020 has been very challenging for Filipino agriculturists. The year started with the volcanic eruption of Taal Volcano, which spewed heavily volcanic ashes and devastated 15,790 hectares of agricultural lands, 1,923 animal heads, fish pens, and other agricultural properties, mainly located in Batangas, Cavite, and Laguna. These provinces are responsible for the crops like coffee, cacao, pineapple assorted fruits and vegetables, rice, coconut, etc. According to a Department of Agriculture (DA) report, the agricultural sector had a Php 3.06 billion worth of damage and losses after this volcanic eruption, PhP 1.6 billion of which are due to damages in fish pens in Taal Lake (DA, 2020).

A few weeks after the volcanic eruption, the National Food Authority’s (NFA) buying price for palay dropped to

Php 7.00 per kilo, an effect of the enactment of Republic Act (RA) no. 11203 or the Rice Tarrification Law. Rice farmers lost a projected income worth Php 68 billion. On the third month of the year, the ECQ due to local transmission of the COVID-19 was enforced.

In the latest report from the Philippine Statistics Authority (PSA, 2020), the Philippines lost about 1.2% (Php 441.2 billion) value of production in agriculture from January to March of this year, compared to the performance during the first quarter of 2018. Production for crops and fisheries, meanwhile, decreased by 2.1%, and 5.2%, respectively. The loss is attributed mainly from crops such as palay, corn, calamansi, eggplant, abaca, coconut, banana, tomato, mango, tobacco and ampalaya; other crops – particularly cacao, onion, and sugarcane – had better production for the first quarter of 2020.

In terms of fisheries output, tiger prawn, mud crab, slip mouth, fimbriated sardines, Bali Sardinella, and blue crab had increased its production, while the tilapia, big-eyed scad, Indian mackerel, yellowfin tuna, seaweed, bigeye tuna, skipjack, frigate tuna, grouper, cavalla and roundscad decreased. On the other hand, the poultry industry's and livestock's productivity increased by 3.9% and 0.5% respectively, mainly attributed to hog, goat, dairy products, chicken, duck, and chicken's and duck's eggs.

Despite the unavailability of the report for the agricultural performance for the second quarter of the year in PSA, the quarantine period's effect is undeniably felt by workers in the agricultural sector. This resulted to difficulties in the production and selling of Filipino commodities. Agricultural goods or products - including vegetables, fruits, meats, dairies, and other farm-grown food - are not delivered in a timely manner (or in some cases, not

delivered at all) due to the lack of transportation, or long lines at ECQ checkpoints, causing the goods to rot and perish. There were also reports of the Philippines' over-production of some products.

Meanwhile, prices of food products and other basic commodities continue to increase. Despite this, many of those in the agricultural sector do not experience the same spike in income. For example, in the Cordillera Administrative Region (CAR), farmers were forced to lower the price of their products in order to save these from spoilage because of the difficulties they had in transporting the goods due to the lockdown (CAR-RAFIS, 2020; Casilao, 2020; Soriano, 2020). Nevertheless, tons of harvested vegetables were disposed of because of the lack of buyers. Based on the National Economic and Development Authority's (NEDA) report, and Social Weather Station's survey, this is equivalent to an approximate income loss (for farmers and fishermen) of around USD 3.6 million, causing a three-month involuntary hunger for 4.2 million families whose main source of income is in agriculture (Fernandez, 2020).

As the country continues to be under community quarantine, the assurance of a stable supply of food will be a big challenge to all Filipinos, in particular to those in the agriculture sector. A whole-of-nation approach - led by the Philippine government, with the participation of all Filipinos - is needed to come up with a strategy that will lead the country in recovering the losses incurred by the agriculture sector, and so avoid the looming food shortage and unlock the potential for the sector in this new normal.

## **2. Agricultural Extension and Program for Food Security**

### **a. Agriculture Professional's Program**

Due to the losses in the agriculture sector, the threat in the food security of the country continues to loom. In an effort to resolve this problem, the DA launched the program “Plant, Plant, Plan, Program” (Agri 4Ps), also known as “Ahon Lahat, Pagkaing Sapat Laban sa Covid-19” (ALPAS COVID-19), which aims to intensify the agricultural production (e.g. rice, food crops, livestock, poultry and fish production), to ensure a stable supply of food in the country, and to come up with effective ways of processing, advertising, delivering, and selling these commodities in markets and local governments. (DA-AFID, 2020; Rodriguez, 2020). With the program, workers in the agriculture industry and in food production are considered as frontliners, just like the medical and LGU frontliners.

Meanwhile, the Department of Trade and Industry (DTI) launched the “Buy Lokal, Go Lokal” campaign, which aims to promote patronizing of local agricultural products from local farmers and agricultural workers. In the same way, the campaign strongly discourages importation of food products such as meat, rice, dairy products, and the like, as an effort to uplift the morale of the farmers and people who lost their jobs due to pandemic.

In relation to the effort of the government in resolving the problem of transporting harvests from farms to markets, LGUs from Bocaue, Bulacan initiated an agreement with the farmers from CAR to supply their municipality with the harvest coming from CAR. On the other hand, LGUs from Iriga City, Makati City, Baguio City, and Catbalogan City introduced the program “Vegetables on Wheels” in the early days of the lockdown. These two programs were

adapted by the other municipalities and cities to ensure food security, and as a way to help Filipino farmers. Aside from government-led initiatives, NGOs, entrepreneurs, and local companies (e.g. Agrea, Costales Farm, and San Miguel Corporation) have also taken actions to ensure that the farmers' produce reaches the consumers in good quality (Fernandez, 2020). At the same time, LGUs and agriculture-related groups distributed free seeds and seedlings to intensify the campaign for subsistence food.

Finally, in order to give the public equitable access to essential commodities (including food), DA, DTI, Department of Health (DOH), Department of Justice (DOJ), and the Bureau of Customs (BOC) issued Joint Memorandum Circular (JMC) No. 01 Series of 2020, which provided for the temporary freezing of prices and ensuring availability of essential products at a reasonable price during the period of declarations of states of emergency, such as the pandemic period.

#### **b. Filipino Youth in Action**

As the whole world moves into the so-called "New Normal," the digital sector will play a primary and crucial role. In the Philippine setting, the Filipino youth (i.e., those between 18 to 35 years old) will continue to lead efforts in integrating agricultural practices to online platforms. Aside from the seminars and webinars conducted by the agricultural agencies and academic organizations, individual vlogging or video blogging becomes the main platform for Do-It-Yourself (DIY) in agriculture. Each vlogger has his or her own unique way of conducting seminars, webinars or intellectual discussion about agricultural issues, practices, and news. Vloggers act as a mediator or moderator between the experts and all types of audiences, giving them a chance for a more comfortable interaction with each other. In the



Philippines, a few of the more popular vlog sites which focus on agriculture include *Millennial Bukid Girl*, *The Agrillennial* (Reden Costales), *IamHampaslupa Inc.*, *Young Professionals for Agricultural Development* (YPARD), and *Dream Agritech Consultancy*.

Access, on the other hand, is a key issue in this digital shift. Despite the fact that the internet is a good venue of information, unfortunately, not everybody can afford it. The cost for internet subscription or mobile phone credits, not to mention the cost of the gadget itself, can be burdensome for those belonging to the lower income classes, especially if we take into consideration that many of them have lost their jobs because of the pandemic and generally would have no savings at all. Thus, we note that in general, the typical audiences for these internet-based programs would belong to the middle and upper income classes.

At the same time, the Filipino youth is also active in their participation in farming-related local community projects. For example, young agriculturists have joined the urban agriculture project called *GREENvasion* in Pacita, San Pedro City (Figure 1A). In addition to this, an unnamed community in Novaliches, Quezon City, through the leadership of Atty. JC Tejano, transformed a long idle lot into an urban garden (Figure 1B and 1C). Also, some students stranded in their universities [such as the University of the Philippines Los Baños (UPLB)], turned to backyard farming near their respective dormitories to while the time during the community quarantine (Gonzales, 2020). We see, then, that these youth-led efforts eventually contributed additional food sources for themselves and their community.



**Figure 1. Filipino Youth Involvement in the Promotion of Urban Agriculture Project during the COVID-19 Pandemic.** (A) *Young Agriculturists setting-up hydroponics as part of the GREENvasion Project in San Pedro City, Laguna.* (B) *Idle land transformed into an urban garden by a neighborhood in Novaliches, Quezon City.* (C) *The urban garden with vegetables for a community in Novaliches Quezon City.*

### **3. Agricultural Practice for Food Sustainability**

During the pandemic period, Some Filipinos are anxious of dying due to starvation. The implementation of the quarantine period that prevents people to work brings the unfathomable fright for hunger. People started to roam around the streets and markets after a few weeks of being lockdown, in search for food for themselves and their families. Although the government and other NGOs were providing assistance (including the provision of food products), oftentimes these are not enough, particularly for those who have bigger family sizes. Some Filipinos turned again to local farming as a solution. This is also a good pandemic-mitigation strategy to avoid the spread of the virus, as well as a good activity to enjoy the extra time available due to the community quarantine.

Local farming is defined as performing agricultural practices within or nearby one's accommodation for the community's or subsistent consumption. This practice is being promoted and supported by institutions like DA, Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA), Coalition for Agriculture Modernization of the Philippines (CAMP), National Academy of Science and Technology (NAST), NGOs, the academe, Church-based organizations, and other private groups and individuals (Ancog et al., 2020; CAMP, 2020; De Guzman, 2017; Purwanto, 2009). In local farming, CAMP emphasizes the involvement of barangays for the requisition or renting of vacant lots and farms, putting-up deep wells or other source of irrigation, establishment of nurseries for plants, animals, fish, and the erecting biofertilizer, and biopesticide production facilities. In addition to this, local farming also aims to minimize the wastes by recycling bottles, cans, and other things that can be utilized for planting. In terms of planting materials, annual or biennial crops - like tomato, onion, eggplant, pechay, mung bean, sitao, and other leafy vegetables, and legumes - can be normally seen planted in the developed area. Herbs, spices, and medicinal plants can also be included in the farming site. Aside from its function as food source, it can also be a source of supplementary income for the community. The produce can be sold or given free to the people depending on the rules and regulations of the community. The location of where the agricultural farming can be established is crucial in determining the type of the local farming needed.

#### **a. Backyard Farming**

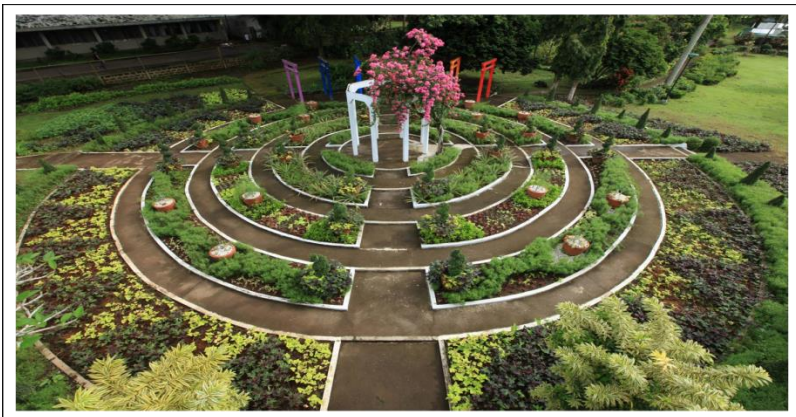
Backyard farming can be promoted in places where: (a) demography is low, and (b) there is a vast space for planting. This is the common agricultural practice of cultivating crops and raising livestock within the

perimeter of the house for personal or family consumption. This type of farming can be found mostly in rural areas, but is also present in some suburban areas where there is an ample space for plots of soil, trellis for vines, and small pots of vegetables. This type of farming is different from local farmers, who farm in bigger properties of land for commodity crops.

### **b. Urban Agriculture**

In highly populated area like cities and town centers where free land and space are very limited and narrow for farming, urban agriculture or urban farming is promoted. This term refers to the application of agricultural practices such as in the field of horticulture, animal husbandry, and aquaculture, in order to produce fresh food or other agricultural products for the consumption of the consumers or citizen within the local unit ("Chapter 3 - PFAL Business and R&D in the World: Current Status and Perspectives," 2016; USDA, 2016). Although this is not new to the Philippines, most of the practices were previously done as a form of recreation and not for food security purpose. The site for the urban agriculture can be designated by LGUs or neighborhood/homeowners' associations in order to develop an agricultural set-up for adequate food supply of a family or the whole community or neighborhood. Places like idle lands, roof top, vacant or small spaces outside the house can be a good location for starting vertical farming, roof top farming, ground-level farming, hydroponics, greenhouses, and other new emerging technologies ("Chapter 3 - PFAL Business and R&D in the World: Current Status and Perspectives," 2016). In the Philippines, there are very few people who do aquaculture, a technique used in raising crops and fishes simultaneously, because it is costly, and is high-maintenance.

While urban agriculture is practiced in the Philippines since the 1970s (De Guzman, 2017), Purwanto (2009) reported that the policies for it are still insufficient. The most recent move to strengthen its campaign is the filing of different bills like: (1) Senate Bill (SB) no. 257, or the proposed “Urban Agriculture and Vertical Farming Act,” which also aims to address urban environment management supporting the urban agriculture; and, (2) House Bill no. 284, or the proposed Integrated Urban Agriculture Act; and, (3) House Bill no. 2119, or the Urban Farming Act. The SEARCA also presented a policy emphasizing the active leadership of the Philippine LGUs (Ancog et al., 2020): there are urban agriculture projects from 1998 to 2009 in places like Bulacan, Laguna, Cavite, Rizal, Pasig, Mandaluyong, Marikina, Valenzuela, San Juan, Parañaque, Pateros, Navotas, Las Piñas, Manila, Muntinlupa, Malabon, Caloocan City, and Quezon City (Purwanto, 2009). Before the onset of the COVID-19 pandemic, urban agriculture became popular again after Brgy. East Rembo, Makati City, led by Mr. Earwin Belen, was featured for its successful urban agriculture development (Casal, 2019).



**Figure 2. Drone shot of the Edible Landscaping Set-up at UPLB.**

On the other hand, the UPLB is pushing for ‘edible landscaping’ or the planting of crops with aesthetic, medicinal, and nutritious value, as part of the Urban Agriculture advocacy. In addition to this, low-cost technologies like the Simple Nutrient Addition Program (SNAP) hydroponics of Prof. Primitivo Jose A. Santos and Dr. Eureka Teresa Ocampo, and the Enriched Potting Preparation with nutrient rich Composite Soil Extract (EPP-CSE) or “Super Paso” of Dr. Eduardo Paningbatan Jr., are being promoted as part of Urban Farming (Bo, 2018; Lacson, 2020). These technologies are relatively simple, as they do not require neither electricity nor too much soil and space for the set-up. The technologies also use recyclable materials and liquid solutions containing nutrients for the plants.



**Figure 3. UPLB Professors with their Respective Invention for Urban Agriculture.** (A) *Photo of Dr. Eureka Teresa Ocampo holding the styrofoam cups for the SNAP Hydroponics; and (B) Photo of Dr. Eduardo Paningbatan Jr. and his “Super paso”* (Retrieved from [https://www.agriculture.com.ph/2020/03/22/a-soil-concoction-that-works-wonders-for-urban-gardeners/#:~:text=Progress\)%2C%20Dr.-,Paningbatan%20Jr.,compost%20soil%20extract%20\(CSE\).](https://www.agriculture.com.ph/2020/03/22/a-soil-concoction-that-works-wonders-for-urban-gardeners/#:~:text=Progress)%2C%20Dr.-,Paningbatan%20Jr.,compost%20soil%20extract%20(CSE).)

*&text=This%20gardening%20technology%20uses%20watering,he%20calls%20%E2%80%9CSuper%20Paso.%E2%80%9D. Copyright 2020 by Agriculture Magazine.).*

#### **4. Agricultural Research against COVID**

Agricultural researches are also being intensified to combat COVID-19, as scientists in different parts of the world are in a race to find the cure for COVID-19. In the latest researches, plants are among the strongest candidate source of drugs for COVID-2019 since they contain different compounds that have high pharmaceutical application like antiviral or can be engineered to produce a vaccine (Capell et al., 2020; Jahan & Onay, 2020).

Currently, there are two leading researches in the country as potential treatment for COVID-19: the use of virgin coconut oil (VCO), and lagundi (Dayrit & Newport, 2020; Lim, 2020; Nazario, 2020).

The VCO contains antiviral compounds like lauric acid and monolaurin, which is safe for consumption of both humans and animals. The compounds can cause disintegration of the virus envelope that will result to the inhibition of maturation of the virus. The binding of the viral proteins to the host cell membrane will also prevented. This was shown in the experiment conducted by Prof. Fabian Dayrit and Dr. Jose Rey Mondejar at the Sitio Zapatera, Barangay Luz in Cebu City (Jazul, 2020). Negative results in the Reverse transcription-polymerase chain reaction (RT-PCR) tests were observed from 45 out of 69 COVID-19 patients treated with VCO.

On the other hand, lagundi, which is commercially sold as tablet and syrup, will be used as an adjuvant therapy for

COVID-19. The plant contains pharmacological properties such as antipyretic analgesic anti-inflammatory, and anti-viral activities, which makes it a strong candidate for COVID-19 treatment.

### **C. Conclusion**

The outbreak of COVID-19 pandemic is truly a terrifying event that has halted the busy world from its normal routine. It caused a heavy damage to almost all nations' economy, but this serves also as a wake-up call to everyone. In this time, people everywhere has begun to appreciate once again the beauty of agriculture, as they relearn how agriculture can be a tool for survival of human race.

The poor performance of Philippine agriculture this year can be attributed to the variables such as natural disaster, policy implementation, and the pandemic itself. However, through the leadership of local governments and NGOs, the agriculture is slowly regaining from its loss, supplemented by the encouragement and the “*bayanihan*” spirit of the Filipinos that has boosted the morale of the farmers. Programs like establishing linkages between the farmers and consumers, the provision of free farming inputs (seeds and the like) and education about urban farming, and the imposition of a price change moratorium during the pendency of the state of emergency in the country, all helped in creating an atmosphere for equitable access to food supply for all Filipinos. It was also shown that the social media is a good platform for sharing knowledge about agriculture, especially when led by the youth, who play a vital part in connecting the experts and the people, not only online, but also in community-based set-up for urban farming.



Agriculture research is also being empowered to fight the COVID-19. The recent results of tests conducted with VCO are very promising in helping patients recover from the said disease and from arresting the increasing mortality rate. On the other hand, studies on lagundi, which is already used as adjuvant therapy, is another on-going research that have to watch out for. Moreover, there are many endemic plants that can be found in the Philippines, studies on which can possibly be enhanced to discover its potential for pharmaceutical purposes.

Up to this time, the end of the pandemic is still unpredictable. As COVID-19 cases continue to surge day by day, the pressure to provide food security for the country also escalates. Agriculture has proven again its importance during this period of pandemic. The country's survival lies on both the strong leadership of the government, and the full and active cooperation of the citizenry.

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