



When Coronavirus (COVID-19) Hits Agriculture Grounds-A Short Review

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Abstract

The present pandemic with the novel corona virus (CoVID-19) has played havoc with global economy. No country is spared to suffer the next step of the disease and that is a bad recession in virtually every nation. One of the worst hit sector of the economy is the agricultural output from many developed nations as well as in certain developing nations. This is because not only the prolonged lock-down enforced to contain the disease but many farmers and cultivators who either has succumbed to the disease or is still in hospital and hence cannot go to the farm.

Keywords: Coronavirus; H1N1 Virus; Swine Flu Virus (H1N2)

Introduction

At the very onset it is very essential to understand the chronology of pandemics of different viral respiratory diseases in humans and their most probable origins its impact on different aspects of economy. If one examines the history of certain recent respiratory viral diseases on humans, then one needs to recollect some of the pandemics of influenza diseases. It was first discovered that in 1918 the Spanish flu caused by H1N1 virus was sweeping the world [1]. Around the same time a swine flu virus (H1N2) was seen to be infecting human beings in US [2]. Later on in 1957 the Asian flu caused by H2N2 virus was taking its toll [3]. In 1968 the Hongkong flu caused by H3N2 was killing many people especially in China [4]. In 1998 a variant of H1N1 virus was found in United States among the Pigs reared for meat [5]. Soon this spread to humans but this time it was not the Spanish flu but the Swine flu [5]. There was noted antigenic shift in this virus from the ones that caused Spanish flu. The authorities in US then started slaughtering pigs after compensating the farmers who had to bear the brunt of the outbreaks. Of course it did contain the epidemic then. Time went by till 1996 when the bird flu virus appeared among the goose population in China caused by H5N1 virus [6] and soon the first human infection was observed in 1997 in Hongkong. The HPAI strain was causing widespread outbreak in the poultry in Hongkong. There was widespread killing of chicken and other poultry birds there which helped to contain the outbreak by 2009 [6]. The H5N1 strain infecting the humans was an antigenic variant of the bird strain HPAI due to antigenic drift. The outbreak was traced in the migratory birds and was also found in other parts of world like Africa, Asia, Europe and the Middle East [6].

During this time (i.e. around 2003) another pandemic of viral respiratory diseases in humans had started and that was SARS (Severe Acute Respiratory Syndrome) caused by an unknown virus [7]. Only thing known about this disease was that the causative agent came from wild birds and civets to humans due to antigenic drift. It was in 2005 that one of the causative agents (most probably) was established as coronavirus (COVID-2) and it was found also in civets in China [8]. In order to contain the disease there was widespread killing of poultry mostly broilers and roasters in US and Canada along with in China.

In February 2013, another bird influenza virus H7N9 was transmitted from chickens, at a wet poultry market, to humans in China [9]. There were in all 87 infected people of which 17 had succumbed to the infection [9]. As a precautionary measure, large scale elimination of chickens again was carried out, from different wet markets in China to contain the disease.

In 1921 Montgomery for the first time reported a viral infection amongst pigs from Kenya. It was called as the African swine fever [10] and it took heavy toll amongst the imported domesticated pigs in Europe. It remained a deadly killer in the sub-Saharan countries for several decades. In 1957 Portugal reported 100% mortality amongst reared pigs near Lisbon. In 1960 Spain too saw a similar outbreak in their country [11]. However, with tremendous human efforts the disease was eradicated from Portugal in 1994 and from Spain in 1995. In the mean time several European countries and in America, there were sporadic out breaks due to movement of contaminated meat. Again with strict quarantine measures the dis-

ease was controlled in many places. However, it is still of sporadic occurrence in the island of Sardinia since 1978 [11].

It was in 2014, that the disease was detected amongst wild boar population in Estonia. There was a total 26 outbreaks of the disease among the herds of domestic pigs in Estonia during 2015 to 2017 [11]. However, it was significant in farms having 1 to 10 pigs and not so significant in large farms where there was more than 1000 pigs. Similar outbreaks were observed in Russia [11]. The outbreaks were mostly during the warm months of May to June. However, the good news as of today is that the virus has not been found to infect humans as of date, unlike many of the influenza viruses. This may be due to the fact that the virus has a large nucleocapsid with dsDNA.

During the same time another epidemic was sweeping the African continent and that was by the EBOLA virus. It had infected more than 28000 people but killed slightly over 11000 people [12].

Till recently in December 31, 2019, a cluster of cases of respiratory diseases caused by coronavirus (COVID-2019), was reported by WHO [13]. It was first reported in Wuhan province in China. The virus spread from poultry birds to humans (mostly chickens). The worst affected countries are China and Italy. These countries along with other countries reporting such outbreaks are taking the first control measure of mass slaughtering of poultry birds.

The uniqueness about this pandemic is that COVID-19 has spread its pandemic net in nearly 190 countries with more than 350,000 (2,072,000) infections and in the first five (few) months it has killed little over 16000 (137,000) people (and the figure is rising). This is unlike what EBOLA did in the African countries about three years back or SARS by COVID-2 pandemic.

Effect of the recent COVID-19 pandemic on agriculture and food supply

The outbreak is so severe that it may affect the national economy (Stage 3 and 4 of the pandemic) and farming community in large. Its most important effect will be on countries having one staple crop as food like in China where rice is the staple crop virtually all over the nation [14]. It is feared that if this outbreak affects the farming community in large then paddy farming will be hampered so severely, ultimately affecting the availability of paddy crops. So is the case in South Korea and may be in a large portion of South East Asian countries if not the entire region. These countries are not great exporters of agricultural produce globally.

Crops	From previous forecast	From previous season
Wheat	Easing	Easing
Maize	Easing	Tightening
Rice	Easing	Tightening
Soybean	Tightening	Tightening

Table 1: Market at a glance (Ref: FAO-AMIS Market Monitor No. 76-2020) [15].

The market monitor of FAO does indicate that the economies of several nations will be hit so hard that there will be a short fall in Maize, Rice and Soybean production as compared to the respective previous season. It will not affect the wheat production. Apart from more people and more countries involved in the COVID-19 outbreak in 2020 as compared to SARS in 2003 to 2005, China is the most affected nation. SARS was contained with six months but it is not so with this pandemic of COVID-19. Not only today China controls 16 percent of the global gross domestic products [16] which is four times that during 2003. Usually there is a dip in the soybean crushing in china for two weeks after the spring festival, but this year the dip is more than 1 million tones after 3 weeks of the epidemics [17].

It must be remembered that in case of slower economic growth with respect to agriculture, the market demand becomes more and more prominent especially with respect to bread and rice which constitute the basic food components. This will be significant in the coming days.

The simultaneous outbreak of African swine fever has already declined the grain demand pattern as people are switching over to chicken over pork. This too has played crucial role in the global economy with respect to grain exports by many developing nations.

Meanwhile exporters like Brazilian Ranchers and Chilean Wine makers are already feeling the pinch in the Chinese markets which is the major importers of their products [17]. It is said that inside China the decline in the national economy is beyond the manufacturing sectors (so much so that even the media companies are laying off 500 workers on an average due to the epidemic, fearing that they might have to pull the shutters otherwise).

Startups in India is requesting the Government of India to go for lockdown now instead of 30 days later to flatten the COVID-19 curve and thus save epidemic to reach level 3 and/or 4 which will be catastrophic for the Indian economy [18]. As of date the Government of India have heeded their advice and now there is not only lockdown but curfew imposed in many parts of country.

Conclusion

The above mentioned summary is just a tip of the ice-berg (so called COVID-19 pandemic). There are and there will be several authors like me who will highlight the various damaging aspects of economic (as seen by the worry of US) resulting from this pandemic in various parts of the world. This is only a snap-shot as what will be in store for the food and agriculture section of the global market. Finally it can be concluded that just like the sun shines after a thunder storm, the nations too will soon recover with new vigor and the catastrophic consequences of COVID-19 pandemic, will be put behind as every nation will progress economically in the field of agriculture.

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