



Overview of Turkish Agriculture and Future Prospects in the COVID-19 Pandemic

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ARTICLE INFO	ABSTRACT
<p><i>Review Article</i></p> <p>Received : 28/08/2020 Accepted : 02/11/2020</p> <p>Keywords: COVID-19 Agricultural production Agricultural implementations Agricultural policies Turkey</p>	<p>This study analyses implication of COVID- 19 pandemics in the agricultural sector of Turkey. In the study taken measures in the sector are considered. The focus of the paper is twofold. The first objective is to take a glance at COVID 19, how it started, and how affected sectors or businesses. This aim supported by the literature review which is getting a shape recently, on the grounds founded papers were limited. It can be seen that generally all countries suffered from the same problems apart from the countries sectors have problems in common. Lastly, we tried to focus on the agricultural sector especially in Turkey and we presented precautions taken agricultural sector in Turkey. In addition to this to the objective, we tried to synthesize all our findings and present suggestions in case this process prolonged. The originality of the paper comes from it is the first study that draws a general outline for Turkey's agricultural sector considering the pandemic.</p>

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COVID-19 Pandemi sürecinde Türk Tarımı ve Gelecek Beklentilerine Genel Bakış

MAKALE BİLGİSİ	ÖZ
<p><i>Derleme Makale</i></p> <p>Geliş : 28/08/2020 Kabul : 02/11/2020</p> <p>Anahtar Kelimeler: COVID-19 Tarımsal üretim Tarımsal tedbirler Tarım politikası Türkiye</p>	<p>Bu çalışma, COVID-19 salgınının Türkiye'deki tarım sektöründeki etkilerini ortaya koymayı amaçlamaktadır. Çalışmada sektörde alınan önlemler dikkate alınmıştır. Bu çerçevede incelenen tedbirler, pandeminin başlangıç noktasında alınan tedbirler ve tedbirler sonucunda sektörün nasıl etkilendiğini ortaya koymaktadır. Pandemi ile birlikte etkilerin tam olarak ortaya çıkmaması nedeniyle bazı öngörüler sınırlı düzeyde kalmaktadır. Bu çerçevede salgının etkileri gıda güvenliği, işçi temini, işletmelerin pandemi sürecinde dirençleri ve sürdürülebilirlikleri hususları tarımsal destekleme politikaları ve arazi bankacılığı ve diğer uygulamalar açısından incelenmiştir.</p>

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Introduction

The world at present is facing an unprecedented threat from the COVID-19 pandemic caused by the SARS-CoV-2 virus (mentioned as the COVID-19 virus). All the countries worldwide are following the advice of the World Health Organization (WHO) regarding the introduction of physical distancing measures as one of how transmission of the COVID-19 disease can be reduced to a greater extent. The emergence of novel coronavirus (SARS-CoV-2) in Wuhan China has added a new member to the human coronavirus family. The seafood market in Wuhan has been treated as the epicentre of this fatal disease (Chen et al., 2020).

On 11th March 2020, the rapid increase in COVID-19 cases outside China-led the outbreak could be characterized as a pandemic. More than 118.000 cases had been reported in 114 countries and 4.291 deaths had been recorded. By mid-March of 2020, European Region had become the epicentre of the pandemic were reported over 40 % of globally confirmed cases. As of 28 April, 63% of global mortality from the virus was recorded in the Region (WHO, 2020a).

The first subject of discussion was how COVID – 19 transmitted between people whether food products. Within the scope of the measures taken by countries; discussions on how quarantine practices, closing borders, preventing transportation and even curfews will affect the vital necessity of agriculture and food production and consumption are among the main topics of the agenda.

From past pandemics that the world has experienced, it has been shown that quarantines and panic hurt human activities and economic growth (Arndt and Lewis, 2001; Bermejo, 2004; Sar et al., 2010; Hanashima and Tomobe, 2012; Siche, 2020), but the effect also occurs in agricultural activities. When there is an outbreak of infectious disease, there is also an increase in hunger and malnutrition (Sar et al., 2010; Burgui, 2020; Siche, 2020). Supporting this view, cross-cultural studies have found that societies with a higher prevalence of infectious diseases exhibit a stronger emphasis on norm compliance (Gelfand et al., 2011; Murray et al., 2011, Chan, 2019).

As a result of the pandemic spreads, countries set strict measures. That caused labour shortages for the harvest and transportation problems for the products which should reach to the market immediately. Agriculture is one of the most important sectors in human development and the sector is related to food security (Lopez-Ridaura et al., 2019; Abdelhedi & Zouari, 2020; Kogo et al., 2020; Siche, 2020). There is always a risk of developing a new infectious disease (Burnet & White, 1972) from the Spanish flu of 1918 to AIDS that still has no definitive cure. Therefore, due to the high density of rural populations in undeveloped and developing societies, the high incidence of these infectious diseases will also adversely affect production potential (Table 1).

Social distancing measures used to flatten the curve of COVID-19 pandemic also affected macroeconomic equilibrium for all over the world. Shutting down numerous parts of service, tourism sector manufacturing and most of the retail sector shows how deep the effects of the pandemic.

In living memory, this kind of health tragedy has not been experienced like COVID-19. The measures taken to deal with the COVID-19 pandemic caused huge disruption

to economic activity around the world. That kind of shocks leads the economy to the periods of disequilibrium (Kerr, 2020). This comparison was made with the financial crisis of 2007/2008, the Great Depression of the 1930s, and the Second World War (Kerr, 1993).

The main effects on global trade because of government restrictions on personal and economic activity. There are two major waves of disruption.

- Supply-side which started in China which will spread. Furthermore, export supplies will fall with the decline in production.
- Demand-side that caused by the closing retail outlet's meanwhile incomes are disrupted demand will continue to fall.

If this income disruption continues there could be a shift about food purchases within consumers' shrinking budgets. Of course, on the other side labour will affect by the virus spread and that will be a constraint for the supply chains (Kerr, 2020).

Another study presented the impacts of the pandemic in daily life and concluded that these have far-reaching consequences. Categories such as a) Healthcare b) Economic c) Social (Haleem et al., 2020). The fatal process has been continuing, while the attempts for vaccination and cure have gained attention.

However, considering the endurance of previous epidemics, nobody is sure apparently whether it will be completely controlled soon. Even if the health dimension is controlled soon, it is expected that its economic impacts would be long-lasting in the societies. Therefore, it is important to project the possible economic and leading policy level outcomes of this pandemic. Accordingly, it was considered as contributory to evaluate the effects of previous epidemics with a historical perspective, overview the existing situation on the COVID-19 and provide some policy insights within the scope of this research (Ceylan et al, 2020). Stephens et al. (2020) in their studies listed early and immediate impacts of COVID-19 in agriculture such as food security, labour availability, farm system resilience, and agricultural system connectivity.

Food Security

Food demand and thus food security are greatly affected due to mobility restrictions, reduced purchasing power, and with a greater impact on the most vulnerable population groups. As cases of contagion increase, governments take more drastic measures to stop the spread of the virus, also influencing the global food system (Siche, 2020). The first vulnerable group is defined as "people who experience chronic hunger and do not consume enough caloric energy to live a normal life", which currently reaching out to about 820 million people (FAO, 2020a). A second vulnerable group is defined as "small farmers", who may be prevented from working on their land and accessing markets to sell their products or buy seeds and other essential inputs.

The third vulnerable group is defined as "children from low-income families", who are mainly nourished by food provided by social programs; the suspension of these programs due to the pandemic puts food security and nutrition at risk and as a consequence the existence of children with limited capacity to cope with diseases (FAO, 2020b).

Table 1. Ten Pandemics that affect Human History

Name	Period	Death toll	Reference
Antonine Plague	165–190	5–10 M	Littman & Littman (1973)
Plague of Justinian	541–542	25–100M	Rosen (2007)
Black Death	1346–1353	75–200M	Tuner (1990)
Third cholera pandemic	1846–1860	More than 1M	Hays (2005)
1889–1890 Flu	1889–1890	1M	Parsons (1893)
Spanish Flu	1918–1920	More than 50M	Farmer (2019)
Asian Flu	1957–1958	1–4M	Du et al. (2009)
Hong Kong Flu	1968–1970	0,7-1M	Wang-Shick (2017)
HIV/AIDS	1981–present	32M (est., March 2020)	WHO (2020b)
COVID-19	2019–present	603.691 (as of 20 July 2020)	WHO (2020c)

Food distribution channels of almost all countries across the income spectrum have been highly disrupted, with strong negative consequences for the most vulnerable. There is widespread media coverage of sudden decreases in food security due to (Stephens et al., 2020):

- Decreased purchase food: due to diminishing income of workers who had to leave their work temporarily.
- Home orders and restricted access to food markets as a result of decreasing food-gathering activities.
- Closure of food banks or feeding programs
- Market disruptions and the problem of rapidly restock due to panic food buying
- Transport problems of agricultural products such as fresh vegetables and dairy products.

Labour Availability

Within the scope of the measures taken, there is a loss of workforce because of COVID-19 deaths, and lockdown measures have caused restrictions in every industry.

Using the recommendations of the Ministry of Health and the Coronavirus Scientific Committee, coronavirus measures and seasonal agriculture, dated April 3, 2020, and numbered 89780865-153-E.6202 of the Ministry of the Interior, General Directorate of Provincial Administration, in line with the instructions on workers, it was decided to establish a Seasonal Agricultural Workers Coordination Board under the governorships of the provinces. These boards will be composed of representatives from Provincial Agriculture and Forestry, Provincial Health Director, Provincial AFAD Director, the Provincial Directorate of Migration, law enforcement authorities, local government representatives and the head of the Chamber of Agriculture (Development Workshop, 2020).

Farm System Resilience

There are many questions about the farm system, but these will be answered in the future after the impacts of the pandemic are clear. Generally, small farms are more negatively affected than large farms because of economies of scale. However, after the pandemic, it is unclear whether small farms, which primarily use family labour and are less dependent on externally hired labour, will be more resilient than large farms, which depend on external labour.

In Turkey, people who work in agricultural activities for more than 225 days a year represent 37.4%. Furthermore, 38.5% of them are recorded on small family-owned farms that employ family labour (TURKSTAT, 2016). In Turkey, agricultural lands are small and divided

into many parcels, which can be interpreted to mean that family-based farming is very common.

Agricultural System Connectivity

There is a huge impact on international agricultural connections because of lockdown measures and restrictions. So many countries restricted agri-food business interactions, ports and other points of trade shut down or they prefer to slow down business.

Furthermore, another study showed that food insecurity and food availability found as vital challenges that people had to face. That study also showed that in Canada the loss of income of households and challenges to the food supply chain brought the result of food insecurity. Income shocks associated with pandemic (workers leaving jobs for health concerns) increased “household food insecurity”. Unemployment insurance applies increased sharply (Deaton & Deaton, 2020). International crude oil prices have been an important topic of global economic concern. Moreover, COVID-19 affects commodity markets not only in China but also in other regions of the world. Commodity markets linked with global crude oil demand (Wang et al., 2020). We here mention about crude oil demand to show that it is all linked with agricultural markets.

Such as corn, sorghum, sugar, soybean, soybean oil, etc. Crude oil and futures prices of most agricultural commodities have a strong correlation (Wang et al., 2020).

COVID-19 pandemic will cause farmers to deal with many additional challenges. Issues such as farmers' sickness, farm labour specifically out of country seasonal farmworkers, input transportation, border closures or restrictions, exchange rates and mentioned before the decline in demands. Farmers face input price risk mainly capital, energy (mentioned before about crude oil), feed, and labour. On the other hand, the modern transportation of agricultural products generally by trucking, railways, and shipping. Longer and short hauls used for transportation of agricultural transportation. Especially longer hauls are using for intermodal containerized movement. On the other hand, speaking of short hauls used for farm gate to the processor then food manufacturer then distribution centre and finally to retail point. The consumer picks up or door to the doorway for delivery can be named as the last phase of delivery. To sum up ocean freight, railways, trucking, and home delivery affected because of the pandemic in many ways (Gray, 2020).

Devereux et al. (2020) analysed the fiscal responses to the COVID-19 pandemic and divided the pandemic crisis into three phases.

Phase 1, started with the beginning in March 2020 for European countries-it can be said for Turkey it is also the same. In that phase, severe restrictions and measures are taken to avoid the containment of the virus. Many businesses have faced a severe drop in their revenue and some of them had to close. The second phase is the “initial recovery” phase. In that phase, the severe restrictions due date has not been defined. Moreover, it seems that some of them will be gradual or reintroduced. The second phase will be moved with the businesses which can survive from phase 1. The last phase-phase 3-is called “long term”. Even more in predictable phase is that and numbers showed that levels are very close to the World War 2 levels.

The challenge was known years that human beings should change the global agricultural system to meet various sustainability goals concurrently. 2020 shows that this hard mission is unavoidable. Healthy and nutrient-dense foods, that will serve global food security balance which is concrete. To fulfil this mission farmers should take care of soil and water, diminish greenhouse gas emission, and improve farm labour standards. That also brings vitalization of local economies and rural communities (Meine, 2020).

COVID-19 and agricultural implementations in Turkey

The COVID-19 pandemic in Turkey is part of the ongoing pandemic of COVID-19 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease was confirmed to have reached Turkey on 11th March 2020, after a man who had returned to Turkey from Europe, tested positive. The first death due to COVID-19 in the country occurred on the 15th of March 2020. As of April 1st, it was confirmed that COVID-19 had spread all over Turkey (Wikipedia, 2020).

In recent years, Turkey has been left blank approximately 3,5 million hectares of farmland can be processed. According to the Farmer Registration System, the number of registered farmers decreased from 2,8 million in 2003 to 2,1 million today and nearly 700.000 farmers have abandoned agricultural activities. The agricultural sector is expected to harm the industry with structural problems that have existed for years. In this process, measures were taken by the Ministry of Agriculture and Forestry to protect both producers and consumers. These measures are as follows.

Agricultural Subsidies

Agricultural subsidies emerged as a central issue in the WTO Doha Round of trade negotiations, where reducing rich country subsidies became the key unifying demand of developing countries and helped to transform the WTO into a North-South battleground (Clapp, 2006). During the COVID-19 pandemic, agricultural subsidies in Turkey can be summarized as follows.

- 10.5 billion Turkish Liras (TL) out of the 22 billion TL support planned to be paid effectuated. December 2019 raw milk, buffalo, and young buffalo calf support paid on April 17th, 2020.
- Calf support, herd growth, renewal support, and shepherd employment support payments will be paid until the end of April.

- By December 2019, January, February, and March 2020 raw milk premium support has increased to 0.15 TL.
- The application period for different payments given to producers has extended.
- The marginal payment supports for oilseed crops and grain olives extended to 30th, 2020.
- Grain, legume, and grain corn difference payment supports have extended to May 29th 2020.
- Good agricultural practices (GAP) and organic agriculture supports have extended to April 30th, 2020.
- The Meat and Milk Authority has started to buy milk to prevent milk prices from falling below the reference prices set by the national milk council (reference price: 2.30 TL per liter).
- The process of signing the Grant Contract for the 13th Stage Rural Development Investments Support Program (RDISP) has extended for 1 month due to the COVID-19 epidemic. (23.03.2020 -23.04.2020)
- Loans provided by Ziraat Bank and Agricultural Credit Cooperatives will be subsidized between 25 % and 100 %.

Financial Aids

Low supply and demand elasticities of agricultural products, longer production period compared to non-agricultural products, low capital turnover rate and a dispersed structure of agricultural markets make it obligatory to support agricultural enterprises operating in this sector to realize sustainable agricultural production (Erdal & Erdal, 2008). In this context, agricultural aids provided during the process;

- Regarding the debts of farmers to Agricultural Credit Cooperatives;
- Until 30th April 2020, enforcement and bankruptcy proceedings carried out throughout the country were stopped.
- Flexibility was given between 90-180 days for delays in loan payments to follow.
- Due to the credit debts of the farmers, a “Force Majeure” grade will be provided to the record in the risk centre.
- The principal and interest amount of the loans, which will expire in April and May, will be postponed for 2 months without interest.

Abandoned Agricultural Lands

Agricultural land abandonment substantially affects both environmental and socio-economic processes. For instance, reforestation on abandoned agricultural lands can defragment forests, sequester carbon (Vuichard et al., 2009). The use of abandoned lands not only important for environmental benefits but also food safety. Therefore, Turkey has rapidly taken measures during the pandemic.

- The program for the development of plant production, which covers 21 provinces and has a budget of 20 million TL to increase the yield of strategic products, was launched. Within the scope of the program;
 - Abandoned agricultural lands will be effectively brought into production.
 - 75% of seed support will be provided

- 67000 tons of seeds that will be planted in 36400 hectares.
- Wheat, barley, dry beans, corn, lentils, rice, and sunflower production will be increased
- Vegetable Production Value of 220 million TL is targeted against 80000 tons of harvest. The lease payments of the farmers who rented the agricultural lands of the treasury for April, May, and June were delayed for 6 months.

Land Banking Schemes

Land banking helps to overcome a key constraint on land use, and of agricultural land tenure in particular. Namely, in densely populated rural areas, all farmland is bordered by other people's private land or by little productive land (van Dijk and Kopeva, 2006). In this frame during the pandemic;

- A software portal was created for the lease of abandoned agricultural lands.
- The portal will meet those who want to rent their land and those who want to rent the land.
- 250 TL per hectare will be given to those who rent land from the portal.
- As of 2020, it is aimed to include 50000 hectares of land in the system within the scope of land banking.
- 14 million square meters of treasury land will be available to farmers with land banking in Turkey.

Employees in Agriculture

Turkey is an important agricultural country. Therefore, agricultural labour force employment will reduce the pressure on other sectors. In this context, measures were taken with various regulations during the pandemic process.

- Circular on the improvement of the working and social lives of seasonal mobile workers is published (Anonymous, 2020a).
- Seasonal agricultural workers made it easier to obtain travel permits.
- Under the chairmanship of the governors, a commission was established in the provinces and the transportation, sheltering, and health issues of those working in the agriculture and animal husbandry sectors were ensured before the governorship.
- Within the scope of activities such as planting-planting, irrigation-spraying, along with animal shelters, animal farms, and animal care centres, those permitted by Provincial/District Psychohygiene Boards are exempted.

Other Implementations

Other implementations applied from the COVID-19 process in Turkey can be expressed as follows;

- The farmers' watering declaration deadline, which due date was March 15th, extended until April 30th.
- It is provided to submit a declaration to the irrigation associations via the web page of the farmers.
- The process of obtaining a Search and Use Certificate requested by farmers to open a "groundwater well" for agricultural irrigation has been shortened.
- It was reported that in the periods when the fish purchase prices in the market are below the production

costs, fish will be purchased at an affordable price to ensure product stability in the fish market.

- Farmer Registration System applications can also be made via E-Government in Turkey.
- Until May 31st, Customs Tax has been reduced to 0% for 100.000 tons of paddy (Anonymous, 2020b).
- Customs Tax, 31.5% of the molasses produced from sugar beet was abolished (Anonymous, 2020c).
- Lemon export will be carried out with preliminary permission (Anonymous, 2020d).
- General Assemblies of Agricultural Cooperatives, Producer, and Breeder Unions have been postponed to the end of July 2020 and it has been stated that it can be postponed for another 3 months if necessary.
- Imports of Crude Oil were reduced to 18 % until May 31st 2020 (Anonymous, 2020e).
- Imports of Sunflower Seed have been reduced to 9% until May 31st 2020 (Anonymous, 2020e).
- The customs tax reduction on paddy imports has been extended until June 30th 2020 (Anonymous, 2020f).
- Communiqué on surveillance applications in watermelon import entered into force (Anonymous, 2020g).
- Support for seed cotton marginal payments was also provided for cotton (Anonymous, 2020h).
- Support for increasing domestic consumption for processed seafood was provided (Anonymous, 2020i).
- Raw Milk Support and Regulation of the Milk Market Implementation Communiqué entered into force (Anonymous, 2020j).
- Processed Seafood Support Communiqué entered into force (Anonymous, 2020k).
- Communiqué Amending the Communiqué on Dried Apricots Licensed Warehouse entered into force (Anonymous, 2020l).

Food security is also important in this period when the disease's treatment protocol has not been widely rolling out. The measures taken were directed towards sustaining agricultural production and protecting both producers and consumers. Producing sufficient food for human beings is crucial if the price is scarce. In this context, considering Turkey's agricultural products that would be no different from other countries in the world.

Results and Discussion

There is no doubt that human being suffered from one of the most important pandemics recorded in history. However, some of them behaving deliberately started to question our relationships with nature.

When trying to find the reason that "how it started a few hypotheses are convincing. As a result of the hypotheses, capitalist agriculture could be the "missing link" of the pandemic. That kind of the relationship which is not considering planning and only focusing on uncoordinated various short-term economic interests (Villulla, 2020).

The epidemic necessitated social isolation to reduce the speed of the epidemic's spreading and control it, although it causes the restriction and slowdown of almost everyone's life. Total production in the economy takes place in the main services, industry, construction, and agriculture

sectors. The economic slowdown caused by COVID-19 does not affect all sectors in the same way.

Within the framework of COVID-19 measures, countries have applied various measures such as travel restriction, quarantine, closure of borders and curfew, and its effects on agricultural production and supply chain.

Citizens flocked to the markets due to restrictions in many countries. Demand for products with a long shelf life has increased rapidly due to the unpredictability of how long the outbreak will last. People competed with each other to purchase pasta, rice, flour, and various legumes and canned goods. Due to the epidemic, this generation first encountered empty shelves in the markets.

With the outbreak, all elements in the agricultural production and food chain were identified as critical sectors, allowing them to continue their activities without interruption. Those engaged in farming and animal husbandry were allowed to continue their work without interruption. Also, necessary precautions were taken in order not to interrupt the food delivery.

While industry and digital sectors have come to the fore as priority areas for countries in recent years, COVID-19 once again revealed how critical agriculture and animal husbandry are for the economies of countries.

Within the framework of the restrictive measures applied due to the epidemic while people close to a large extent, the activities of non-essential business enterprises have been temporarily suspended in many countries, except where basic food needs such as markets, butchers and greengrocers can be met.

Turkish Republic has addressed the economic problems arising from the COVID-19 pandemic in several ways. One important set of measures has related to discretionary financial aids as all sectors. Thanks to the measures taken and the policy tools implemented during this process, there were no problems in access to agricultural products.

COVID-19 has also shed light on weaknesses in Turkey's agricultural sector. In this process reforms to make the Agri-food system and livelihoods more resilient. Key among the needed changes are agricultural market reforms and solutions to connect farmers to markets, the creation of food safety and provision of reasonable working conditions, and decentralized food systems, especially for vulnerable communities.

If the COVID-19 pandemic is prolonged, permanent policies should be produced for fragile sectors such as agriculture, and programs such as agricultural support packages should be implemented urgently. It should not be forgotten that the most critical threshold in this process is the continuity of the production chain, and measures should be taken immediately to isolate and protect the working segment.

The most reasonable way to address this urgent need is to use social safety extensively to stabilize their lives with food and cash. The Turkish government has announced several aid packages in the COVID-19 process. However, to cope with the second and third wave of coronavirus, people should continue their lives under WHO rules, also measures taken for food supply security should be continued.

Most of the measures taken to prevent the COVID-19 outbreak will negatively affect the income of seasonal mobile agricultural workers and the production costs of

farmers. An urgent set of financial and in-kind support should be considered so that seasonal mobile agricultural workers and their families are minimally affected by cost increases. Who will have access to these supports, the proposed board again; With the coordination that will be established between employers, agricultural intermediaries, and agricultural chambers, it can be considered locally and recorded?

Conclusions

The agricultural sector is known as the sector that is least affected by cyclical events due to its exclusive features. From this point of view, it can be said that there will be fewer breaks in the chain from production to consumption in the agricultural sector during the COVID-19 process. When the content of this discourse is elaborated, it can be understood why there will be less breakage in agriculture. First of all, agricultural production will continue to be maintained due to the production for auto construction even if the market shrinks. Subsequently, it is the basic sector in which the physiological needs of people (food consumption) are met, the main input used in production is alive (plant or animal) and the necessity of living this creature, the production cannot be interrupted due to the continuity of the production material (the necessity to milk from dairy animals, when the seed is thrown into the land) certain items such as obtaining some products, etc.) will ensure the continuity of production and consumption in the sector (Gündüz, 2020).

As a result of the restriction of global mobility in the world, the concept of "self-sufficient state" has been effective in taking more protective measures at the country level, for agriculture to regain strategic value.

Focusing on the outbreak and prospects, it once again demonstrated how critical agriculture and food areas are for countries, and the need to secure the supply chain.

In the current situation in the world and Turkey to replace in place can the answer to the question of what kind of development will be experienced in the future will not be at all easy. However, it is a fact that; It is obvious that countries are working on new measures in order not to recur the various risks in the field of agriculture and food with COVID-19 in the future.

Since the supply and demand of agricultural products are inelastic, high variability in producer and consumer behaviour is not expected compared to other sectors. However, a decrease in food demand is foreseen in this process. Besides, it is believed that the digital marketing network will develop in the agricultural sector in the upcoming period within the framework of purchasing behaviour.

The COVID-19 crisis has shown how digital technologies can help make supply chains function better and more efficiently (Kumar et al., 2020).

Countries are expected to set various new strategies to be more prepared for the interruptions that may occur in the global trade of basic agricultural products. It is envisaged to increase agricultural supports and strengthen food supply chains so that countries can become self-sufficient in food.

Considering that the outbreak may have short-term effects as well as medium-term effects, production plans

for future periods should be created. Because in the next period, many countries in the world are expected to take a protective approach in agriculture in order not to have problems with food supply security.

During the COVID-19 pandemic, the contribution of a strong scientific committee is evident in managing the process of establishing and implementing successful health policies. It has become compulsory for the agriculture sector to carry out its activities under the guidance of a competent scientific committee to affect the crises least and to direct the future with strong policies, not only today.

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