



REVIEW

Covid-19, Challenges and Recommendations in Agriculture

Mehdi Zarei* Abdullah Kaviani Rad

Soil Science and Engineering Department, School of Agriculture, Shiraz University, Shiraz, Iran

ARTICLE INFO

Article history

Received: 28 April 2020

Accepted: 11 May 2020

Published Online: 22 May 2020

Keywords:

Coronavirus

Agriculture

Food supply chain

Recommendation

ABSTRACT

On 11 March 2020, the World Health Organization declared Covid-19 is a pandemic disease that is spreading at different speeds in different countries of the world. Given these issues, the global economy is experiencing a different and new experience that is currently taking place in different countries. We are seeing a decrease in production, logistical problems, as well as a change in production patterns, demand and consumption. The agricultural sector has not been immune to the economic damage of the outbreak and has suffered serious damage. If the necessary measures are not taken for sustainable production in agriculture and maintaining the supply and demand cycle, health and food security will face a crisis. Given that there is always a zero point again about the prevalence and infection, social quarantine and health care are still essential. To manage the problems caused by the Corona crisis, accurate and appropriate programs, mechanisms, and evaluations with different strategies are needed, and appropriate sustainable models should be considered for spatial and temporal requirements.

1. Introduction

Coronavirus is the common name for Coronaviridae and Orthocoronavirinae, also called Coronavirinae^[1]. Their structure also has a typical RNA genome. Of the 40 different species of the coronavirus family, seven have been found to have been transmitted to humans, leading to diseases such as the common cold family^[2]. Sometimes some coronaviruses attack the respiratory tract, and sometimes their symptoms go away and their stomachs appear. These types cause disease in human populations and have mild to severe symptoms. The new type is Covid-19, which causes fever problems, dry coughs and sometimes respiratory problems such as shortness of breath, shortness of breath and sore throat and runny nose^[3]. The first cases of the disease have been

observed in Wuhan, China, which is now widespread in most parts of the world, and has spread from epidemic to global pandemic. The coronavirus pandemic has now killed more than 200,000 people. At least 177 countries have reported cases of Covid-19^[4]. It has severely affected the global economy in recent months. In addition to the sharp fall in global stock markets and the sharp and unpredictable instability of oil prices, it is also experiencing a record low^[5].

There is currently no antiviral or vaccine treatment for coronavirus infections. The production of safe and stable vaccines is a major challenge, and the research and testing period is very long. Although the prevalence of a clinical threat is global, our knowledge of this new virus is very limited^[6]. Therefore, the only way to deal with this disease is to reduce traffic and travel restrictions, and

*Corresponding Author:

Mehdi Zarei,

Soil Science and Engineering Department, School of Agriculture, Shiraz University, Shiraz, Iran;

Email: mehdizarei@shirazu.ac.ir

finally to cut off the transmission chain, which is now being implemented in most countries. Banning traffic and shutting down businesses may be a good way to maintain public health, but it will also have adverse consequences. The risk of Covid-19 is such that it can be considered the beginning of a recession in the global economy. Among the global effects of the Corona outbreak are rising unemployment, a severe shock to the economy and damage to foreign trade. The sharp decline in trade, declining consumption and rising unemployment have been the consequences of a lash to some industries. The decline in manufacturing activity in the world is obvious. Injured jobs from the lowest to the highest damage are respectively, education, agriculture, construction, art, factories, and, ultimately, retail and wholesale trade^[7]. Given the globalization of the virus, there are concerns about the future at all levels, and it is necessary to consider the consequences on different scales in the form of different scenarios so that, God willing, this serious crisis can be managed and overcome. Agriculture and food security may be harmed, and there is a need to minimize the prevalence and pollution in agricultural communities and farms with guidelines and recommendations.

2. Materials and methods

Numbers of reports of news agencies, national and international sites and some articles have been used to write this article^[1-9].

3. Results and Discussion

The food supply chain is a complex network, and agriculture is one of its most fundamental components in countries. One of the main services of the agricultural sector is food production, providing raw materials for other sectors, employment, income generation, and expanding non-oil exports^[8]. The agricultural sector is one of the most important and influential sectors in the country's food security. Corona crisis, its effects on these categories should be identified and studied and practical solutions should be provided for relevant organizations and officials.

The food supply chain includes various phases of production, processing and processing of goods (factories) and, transportation (logistics), storage (and warehousing), retail and goods services.

Although there was no or less supply shock today due to the availability of food, due to its upward role, the vulnerabilities need to be identified and reduced. In each case, there is a need for guidelines to reduce the risk of disease. In the production section, we are faced with the following groups: (1) farmers (owners and tenants) and

workers (indigenous, seasonal and permanent), (2) agricultural experts, (3) tools, equipment and mechanization, (4) agricultural inputs including fuel, seeds, seedlings, fertilizers, pesticides, etc, basic resources including soil, water, plants and livestock...

There are different things in the supply sector, but what is important is to shorten the production and supply route, and to deliver it to all consumers in a healthy way.

Hypotheses, some suggestions and recommendations include the following. In order to reduce the speed or stop the spread of corona, the possibility of contamination of various components including human, soil, water, plants, livestock, tools and equipment should be considered and health strategies and special instructions should be considered. Some coronaviruses that infect animals are able to infect humans and then spread to other individuals, although they have become rare. Acute Respiratory Syndrome (SARS) and Middle East respiratory syndrome (MERS) (MERS) are examples of diseases caused by coronaviruses that originate in animals and are common in humans^[9]. It is recommended that veterinary specialists in particular have a solution in this regard. On the sites, I saw that due to the contamination of people in the water pool in China, the virus survives in the water and there is a possibility of contamination of water resources. In general, one should be vigilant and plan in various fields.

In general, in the supply or production sector, less production is possible, although it may not be significant. Work and effort should not be stopped, especially in the field of production, and the ability to do the work must be provided and double incentive policies must be provided.

If the crisis continues, food supply chains are likely to be disrupted in the coming months. The workforce will shrink, and food production and processing will be disrupted, and intensive agricultural production will be affected. The livestock sector will be affected, and due to logistical constraints and labor shortages, we will have no access to livestock feed and slaughterhouse capacity reduced.

Restrictions on transportation and quarantine measures are likely to prevent farmers and consumers from accessing the entry and exit markets, leading to a loss of income, a loss of production and an impact on future cultivation. Obstruction of transport routes, especially for food supply chains, may lead to an increase in the level of food losses and wastes.

On the demand side, as the disease spreads, we will see a significant increase in demand over time. Food demand is generally unhealthy, although dietary patterns may change.

Fear of contamination will reduce the risk of double risk by reducing visits to food markets. Serious monitoring of the distribution of goods and prices is needed more than ever.

Purchasing methods will change. Restaurant traffic will decrease, e-commerce will increase, and production and consumption at home will increase.

There may be a problem with imported and exported products.

In general, vulnerable populations and their immediate needs in agriculture and the production chain should be identified, quickly met, and supportive and encouraging assistance packages should be considered. Plans to purchase agricultural products, especially from small farmers, and to shorten the production to consumption route should be pursued and implemented to reduce the risk of contamination as the cycle shortens. Free donations to poor people who have lost their income should be considered alongside financial assistance to restart production.

The Ministry of Agriculture and the Faculties of Agriculture should work closely with the Ministry of Health and other departments as part of the response to Covid-19.

All necessary precautionary measures should be taken to protect employees and clients in accordance with health recommendations.

Agricultural-related assemblies should work as much as possible during the current epidemic so that manufacturers and processors can continue to operate effectively and keep supply lines open.

Operation of food and other processing equipment, ensuring the continuation of payment and commercial activities that are necessary to protect farm income, and that employees and farmers can continue their activities and put them on the market are important. In many cases, these activities depend on the ability to perform monitoring and inspection tasks.

Collections must reassure people that they are doing their best in all their activities.

Important Note: It is necessary to there are several ways to help farmers look for their needs in relation to Covid-19 restrictions. A wide range of online features should be available.

As always, farmers need to remember to follow basic environmental safety protocols and safety rules when working on the farm.

Production of food and proper functioning of the food supply chain during this difficult period is essential. It is very important that farmers, gardeners, ranchers, and those involved in processing, retail, and distribution continue to do what is important to ensure that the food sup-

ply chain is active and that progress is being made.

There is currently no report that Covid-19 can be transmitted through food or food packaging. However, it is always necessary to observe hygienic tips when using or preparing food (for example: washing hands and surfaces and packages, separating raw meat from other foods, cooking at the right temperature, etc.). Be more careful when receiving food products from countries that have approved Covid-19. There is no evidence so far to show that food produced can transmit Covid-19. Because the virus that causes Covid-19 survives at different times, depending on the levels or objects. For this reason, it is very important to follow the 4 main steps of food safety, cleaning with the recommended methods, separation, cooking and cooling. Public health and safety experts, and workers working in food processing plants that have work activities, if they are suspicious of Covid-19, should be exempted from work and activity and stayed in home quarantine or considered hospitals for care and treatment. Food establishments, like other workplaces, need to comply with the protocols set by the Ministry of Health.

Make the necessary arrangements with the officials of urban, nomadic and rural health for all jobs, so that timely and accurate information can guide appropriate responses to agricultural-related collections wherever their operations are located.

In working environments, maintaining the social distance, the distance between 180 and 200 cm, is important in preventing the spread of this virus.

4. Conclusion

The prerequisite for success in combating the disease is, first and foremost, social distance and maximum testing of the disease, followed by isolation of patients. World chances of contracting the coronaviruses are high by the end of 2020. There are ways to get out of the recession and the crisis that make it easier to move forward with a smart economy. These strategies include flexibility of working hours, division of labor presence during the week, regulation of the regulatory system on corona credits, and maintenance of supply and demand cycle, and serious management and supervision. Attention to models and consideration of strategies, solutions and recommendation should be considered, and readiness and action at all levels should be appropriate to the place and time.

References

- [1] Anonymous. ICTV Taxonomy history: Orthocoro-

- navirinae. International Committee on Taxonomy of Viruses (ICTV), 2020.
https://talk.ictvonline.org//taxonomy/p/taxonomy-history?taxnode_id=201851847
- [2] Fielding B. A brief history of the coronavirus family – including one pandemic we might have missed, 2020.
<https://theconversation.com/a-brief-history-of-the-coronavirus-family-including-one-pandemic-we-might-have-missed-134556>
- [3] Seladi-Schulman J.. Signs and symptoms of coronavirus (COVID-19), reviewed by Meredith Goodwin, Healthline Media a Red Ventures Company, 2020.
<https://www.healthline.com/health/coronavirus-symptoms>
- [4] The New York Times. 2020.
<https://www.nytimes.com/2020/04/26/world/coronavirus-ews.html>
- [5] Donyaeh Egtesad. 2020.
<https://www.donya-e-eqtesad.com/fa/tiny/news-3642232>
- [6] Farnush. Gholamreza et al.. Recognition of new coronavirus-2019 and Covid-19 based on available evidence-review study, *Journal of Military Medicine*, 1399, 22(1).
- [7] Egtesadnews. 2020.
www.egtesadnews.com/fa/tiny/news-332286
- [8] Pragyandeepa. Role of agriculture in the economic development of a country. 2020.
<http://www.economicdiscussion.net/economic-development/role-of-agriculture-in-the-economic-development-of-a-country/4652>
- [9] National Institute of Allergy and Infectious Diseases, Covid-19, MERS & SARS,
<https://www.niaid.nih.gov/diseases-conditions/covid-19>