

The Impact of the Covid-19 Pandemic on the Supply Chain of Agricultural Products

Kamola Mukhamedjanova
Ph.D. student, Tashkent State University of Economics
Republic of Uzbekistan

Abstract - The supply chain is the worst affected industry because of the pandemic. Companies began to suspend levies with current suppliers; this immediately affected the functioning of supply chains. The agri-food supply chain, which has an equally important role in the country's economy, has also been affected to a large extent. In order to survive the crisis moment and continue to develop steadily, the article proposes present approaches of the different authors. In Uzbekistan's case introduction of a cold supply chain system to avoid collateral losses of agricultural products.

Key words: COVID-19, agriculture, management, cold chain, supply chain system

I. INTRODUCTION

Despite the quarantine and other measures being taken, the number of new infections is increasing all over the world (see fig. 1). The rupture of established economic ties, disruptions in the delivery and receipt of goods, as well as a decrease in the speed of response of their supply chains both locally and globally - the problem that arose because of the COVID-19 pandemic is now relevant for most companies in the world. Many low- and middle-income countries have recently been confronted with a large number of cases and introduced strict blocking rules that affect all aspects of the economy. The supply chain is the worst affected industry because of the pandemic. The situation with the corona virus affects almost all functional units - procurement, logistics, warehouses, finance, IT. [3] Companies began to suspend levies with current suppliers; this immediately affected the functioning of supply chains. In the context of the pandemic, the supply chains of a number of industries, including agricultural products, have been challenged.

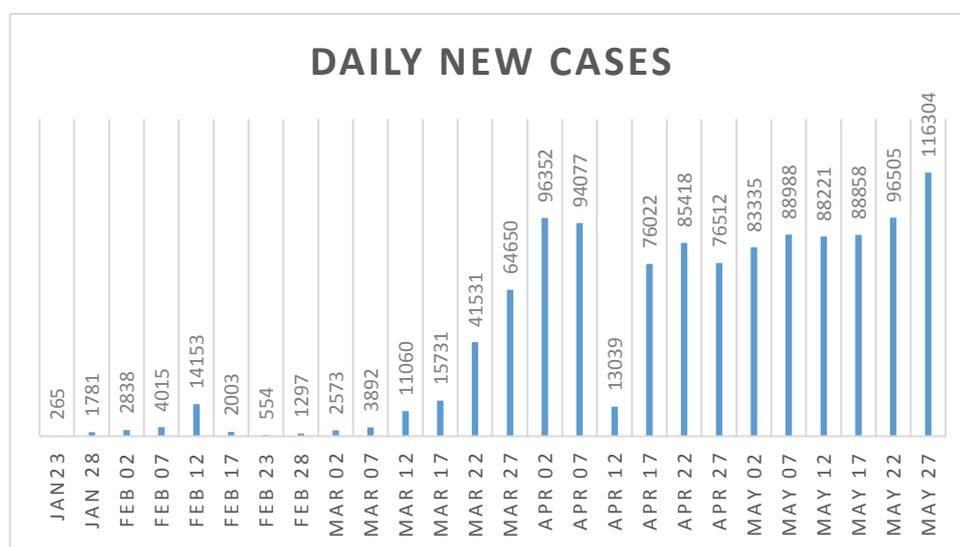


Figure 1. World daily new cases of COVID-19 coronavirus pandemic [10]

The aim of the study is to summarize the results of scientific publications and interviews from the different reliable sources and database (FAO, IFPRI, and Science Direct) on the impact of the covid-19 pandemic on the supply chain of agricultural products.

The objectives of the study are:

- Overview of major impacts of pandemic on supply chain management of agricultural products;
- Review of publications and interviews to highlight the main problems arising in the field of supply chain management of agricultural products due to novel Covid-19 pandemic;
- Determining the main proposed solutions according to reviewed publications.

The relevance of the chosen research direction is related to the need to comprehend the existing situation in the global market and try to find a solution for the local supply chains.

II. METHODOLOGY

A bibliographic method is used as a research methodological toolkit. At the first stage, the analysis of the content of publications, interviews related to impact of coronavirus to agricultural supply chain was performed. In this case, the search query used combinations of keywords, COVID-19 and agriculture. Then, the bibliographic database on the content of articles for the period 2019 to 2020, inclusive, was analyzed. Literature was screened and the text of the articles was analyzed to clarify whether they are relevant to research issues.

The article examined the work of foreign and local authors related to supply chain management and logistics.

III. LITERATURE REVIEW

Shashi, Roberto Cerchione, Rajwinder [4], Aboah, J., Wilson [5], Cui, J., Zhao [7], Innovative ways of development of Uzbekistan agroindustrial complex were researched by Russian and Uzbek scientists as well as Nuritdin Yuldashiev, Vladimir Nabokov, Konstantin Nekrasov [9], Bobir Tursunov [6].

IV. RESULTS

Within only a few months, more than a thousand studies on this topic have already appeared in the scientific literature [1]. Also, major opinions of specialists of supply chain management sphere.

According to the CEO of the Association for supply chain management (ASCM) Abe Ashkenazi, one of the key approaches to restructuring supply chains should be the so-called “supply chain mapping” - visualization of the entire supply chain of the company (“maximum supply chain”). This needs to be done in order to analyze not only their counterparties (1st level), but also the suppliers of their counterparties (2-3 levels), i.e. see the entire supply chain from raw materials to production and distribution of final products. [11]

The maximum supply chain includes the managerial company and all its counterparties - from suppliers of raw materials and supplies, distribution systems, as well as logistics, sales and other intermediaries. A maximum supply chain is a multi-level system consisting of suppliers and consumers at different levels, as well as intermediaries in which supply chain participants interact at different stages of the distribution process (see fig.2).

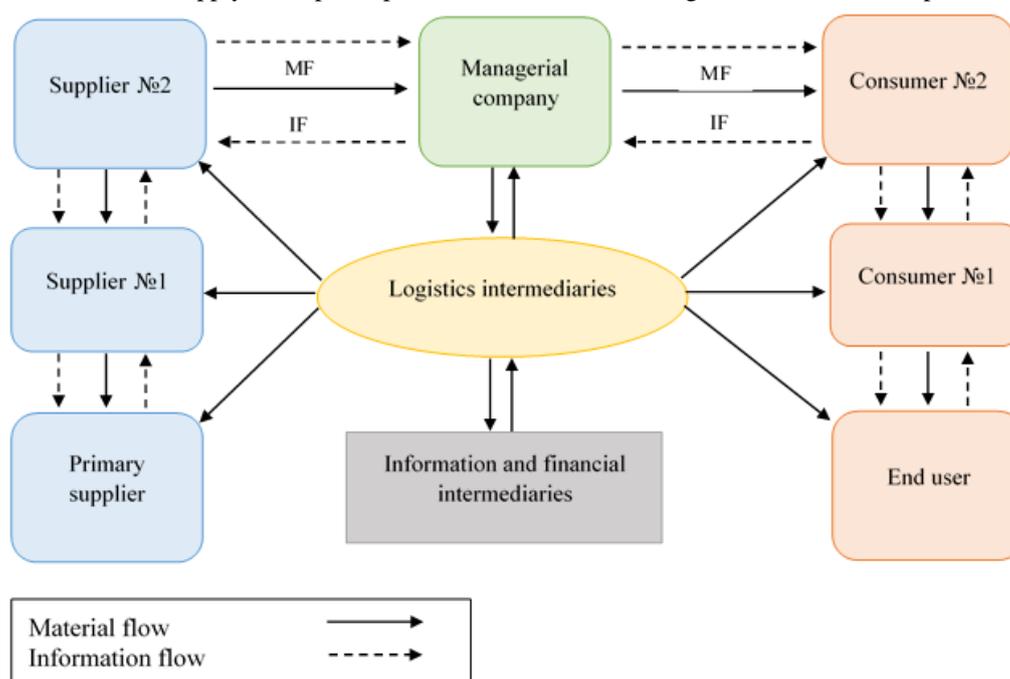


Figure 2. Maximum supply chain (Source: Author's approach)

At the macro level, food, especially fruit and vegetable supply chains, have fallen into a state of stress. In India, farmers feed cows with strawberries because they cannot transport fruit to markets in cities. In Peru, producers dump tons of white cocoa into a landfill because the restaurants and hotels that usually buy it are closed. And in the United States and Canada, farmers had to pour milk for the same reason. Legions of migrant workers from Eastern Europe and North Africa are trapped on borders instead of harvesting on farms in France, Germany and Italy. Crops rot in the fields. [14]

The interconnectedness of each link in the chain has to some extent made the whole chain difficult. COVID-19 can lead to higher food prices both as a cause and because of food shortages. Restrictions on supply chain logistics will increase transaction costs and therefore consumer prices. A speculative drive can occur and cause price increases. Higher food prices, in turn, may indicate an impending shortage. Now the business needs to formulate new requirements for its suppliers, as well as evaluate the entire supply chain up to the supplier of raw materials, and not just the assessment of their counterparty.[12]

Epidemic outbreaks are one specific case of SC risks. Long-term disruption and unpredictable scaling characterize this type of SC risk, while the spread of risks and the spread of an epidemic and simultaneous risks in the sphere of demand, supply and logistics infrastructure [8].

The editorial board of the journal of the agricultural system, believes that this is important identify the direct impact of the COVID-19 pandemic on agricultural and food systems in their broadest sense. For this, they organized an expedited Special Issue on the existing and potential impacts of COVID-19 on agricultural and food systems, encouraging readers who are well located around the world to submit articles describing the results and impacts already observed.[2]

In the case of Uzbekistan, which has become a major exporter of various fruits and vegetables, this problem has affected all links in the chain. It would be expedient to consider some of the issues in this regard.

At a videoconference chaired by President of the Republic of Uzbekistan Shavkat Mirziyoyev on April 14, issues of further development of the agricultural sector and increased food production were discussed, he also noted that: “In the current global crisis and pandemic, agriculture is the most promising sector in terms of employment and income, supporting economic stability”.[13]

The direct impact on small farms will be much less than on the lower and middle stream of the supply chain. This is because the majority of small farmers in developing countries rely on family labor, i.e. ‘tomorqa owner’. However, the farmers' sector will be indirectly affected by COVID-19 due to the disruption of supply chains and consumer demand due to lost revenue and other economic consequences of the pandemic.

It is known in Uzbekistan that the main player in the supply chain of fruits and vegetables is the exporter, who carries out the main process from post-harvest operations to the export of the product and is responsible for the quality of the product. Usually, the exporter comes to the field with his "pickers", sorts the product, and carries it out. In the event of a pandemic, however, it has become problematic for the exporter to carry out this process naturally.

Firstly, a sharp decline in demand in foreign markets, especially during the harvest season, led to an increase in product volume, which, in turn, increased the demand for storage. Growers, who are mostly accustomed to being picked up by an exporter, will have to store their products in refrigerators until they are in demand, which means that now there are additional costs for transportation and storage.

Secondly, the owners of refrigerators carrying out storage also have certain responsibilities, such as regular disinfection of refrigerators in a pandemic and regular medical examinations of workers, the provision of special clothing, and so on. This has led to increased storage costs in the refrigerator.

New risks create new demands in the industry. One of them is the introduction of a cold supply chain. The cold supply chain assumes that all processes are carried out at low temperatures, from the post-harvest processes to the end consumer. The main process is pre-cooling. The use of this system will serve to solve the aforementioned storage problems, prevent losses, moreover, the product coming through the cold chain will lead to the efficient operation of the refrigerator, which, in turn, is one of the factors affecting the reduction of storage costs.

As another solution, it can be offered the transition to a long-planned online mode of operation. One of the main advantages of this is that the responsibility for product quality and its delivery will be equally distributed to all participants in the chain. One example is the use of a QR code, which fixes a number of problems. It reflects all information about the origin of the goods, production and transportation conditions, information about the exporter, etc.

V. CONCLUSION

Summing up, the current situation with the COVID-19 coronavirus pandemic requires an immediate response from the business, especially in terms of adapting its supply chains to new realities. At the same time, growers need to continue to work on modifying their supply chains through a systematic approach and the introduction of new tools, thereby shaping the sustainability of their business. Also, in light of the pandemic, it is needed to update international standards of hygiene, working conditions and living conditions for agricultural activities, as well as for the entire value chain, needs to be reviewed.

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