

LARGE-SCALE AGRICULTURAL LOGISTICS AND SUPPLY CHAIN

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Abstract:

With the development of the market economy, the complexity of the production of products and the management of the flow of products in the traditional way is felt. Also, the acceleration of the flow of information and the rapid development of informatics require the use of digital technologies in the proper organization of the flow of products. Proper organization of the flow of products in agriculture, on the one hand, reduces the loss of products, and on the other hand, it normalizes storage and transportation costs. The late introduction of logistic systems in agriculture will also help to alternative costs of resource supply in production. Accordingly, this article describes the connection of production, storage and transportation of agricultural products as a single chain based on an integrated management platform and its economic efficiency.

Keywords: *Agriculture, resources, logistics system, industrial enterprises, supply, exchange, information, digital technologies, resource suppliers, managing, information platforms.*

Introduction

Agriculture is one of the main sectors of the economy of Uzbekistan, and the achievements in this field directly affect the economic potential of the country. Therefore, the development of the agricultural sector and the reduction of the cost of manufactured products, the proper organization of the flow of resources and products are one of the urgent issues of today. However, we must understand that logistics was actually used in industrial enterprises and the service sector, and entered the agrarian sector relatively late. In addition, the rapid development of online business created the basis for rapid development of the logistics business¹. On the one hand, the logistics of

¹ Aloysius, J. A., Hoehle, H., Goodarzi, S., & Venkatesh, V. Big data initiatives in retail environments: linking service process perceptions to shopping outcomes. *Annals of Operations Research*, vol. 270, pp. 25-51, January 2018.

the agricultural sector alternates the supply of resources; on the other hand, it reduces the cost of transportation and storage of cultivated products, which is one of the main factors that ensure high efficiency in the agriculture of Uzbekistan.

Today, there are a number of online platforms that provide services for the agricultural sector in Uzbekistan, most of them only serve the purpose of information exchange. It is not enough to analyze the data in the agricultural sector of the republic and conduct research on the volume of production of products and their flow according to the results of the analysis. Therefore, it is desirable to improve the agricultural logistics system by processing and analyzing a large amount of information. The development of logistic services in agriculture implies not only the transportation of products, but also the provision of all resources for production and the transportation of products at the lowest cost. In our conducted research, mainly based on the "cloud logistics" system in agriculture, proposals were developed for the effective operation of this system.

The development of the economy and the rapid improvement of digital technologies require information in the agricultural sector as well as in all other sectors. Today, one of the most urgent problems in the agricultural sector of Uzbekistan is the lack of information for producers. That is, it is limited for the producers to get accurate information on the total cultivated area, the gross yield and the possibility of entering the domestic and foreign markets by types of products. This causes imbalances in the supply chain of agricultural products. In fact, logistics plays a particularly important role between farmers and resource producers and consumers of products: in addition to providing farmers with resources, it studies the market demand for their products and manages the flow of products, as well as, gives manufacturers the opportunity to get accurate information. However, it should not be forgotten that since farmers do not have the opportunity to communicate with consumers, resource suppliers and product sales channels at the same time, it is advisable for logistic companies to perform all processes. That is why Uzbekistan is facing big problems in the production of agricultural products and managing the flow of products. Of course, there is informal intermediary activity on the supply side, but this is a process based solely on the interests of intermediary's². Of course, there is informal intermediary activity on the supply side, but this is a process based solely on the interests of intermediaries.

If we look at the stage of development of agricultural supply chains in foreign countries, we can take the experience of the USA as a well-developed system. That is, almost 80% of agricultural products in the USA operate in the form of "producer-logistic center-retail trade-consumer". That is why US agriculture makes extensive use of digital technologies. In addition, the digitization of agriculture in European countries such as Germany, the Netherlands, and France is at a high level. In addition, the agricultural sector is fully digitalized in economically developed countries such as South Korea, Japan and Canada. In all these countries, it was achieved by providing the agricultural sector with accurate and correct information and developing logistic services.

In our opinion, it is appropriate to fully digitize the Uzbek agricultural system, that is, to increase the speed of the Internet even in the most remote areas, and to encourage producers to use digital technologies. In this way, it is possible to achieve more efficiency in information provision, because today farmers should be able to upload information to information platforms, as well as have the opportunity to receive information freely. All manufacturers will be able to use digital technologies and gain access to information in the planning of their activities. This helps to organize the production in the field in the most optimal way, i.e., with the provision of resources and products in agriculture at low costs. At the same time, the foundation will be created for the creation of an online planning system for the production of agricultural products in Uzbekistan. On the one hand, online planning of production allows for the processing of large quantities of waste, on the other

² Bailey, D. The emergence of supply chains and their potential impact on Utah's food and agricultural products. *Transfusion*, vol. 50, pp. 1838–1848, August 2010.

hand, it allows to provide the population with quality food, as well as to evaluate the price policy, in which all subjects operating in the agricultural sector are formed as a single chain 1 figure. In this, all economic subjects, the lowest and the highest, operate based on mutually beneficial cooperation. At the same time, in order to properly organize the flow of agricultural products, the information supply should be transmitted not only online, but also offline. Because full monitoring of production processes and the processes of organizing production according to standards rely more on offline monitoring

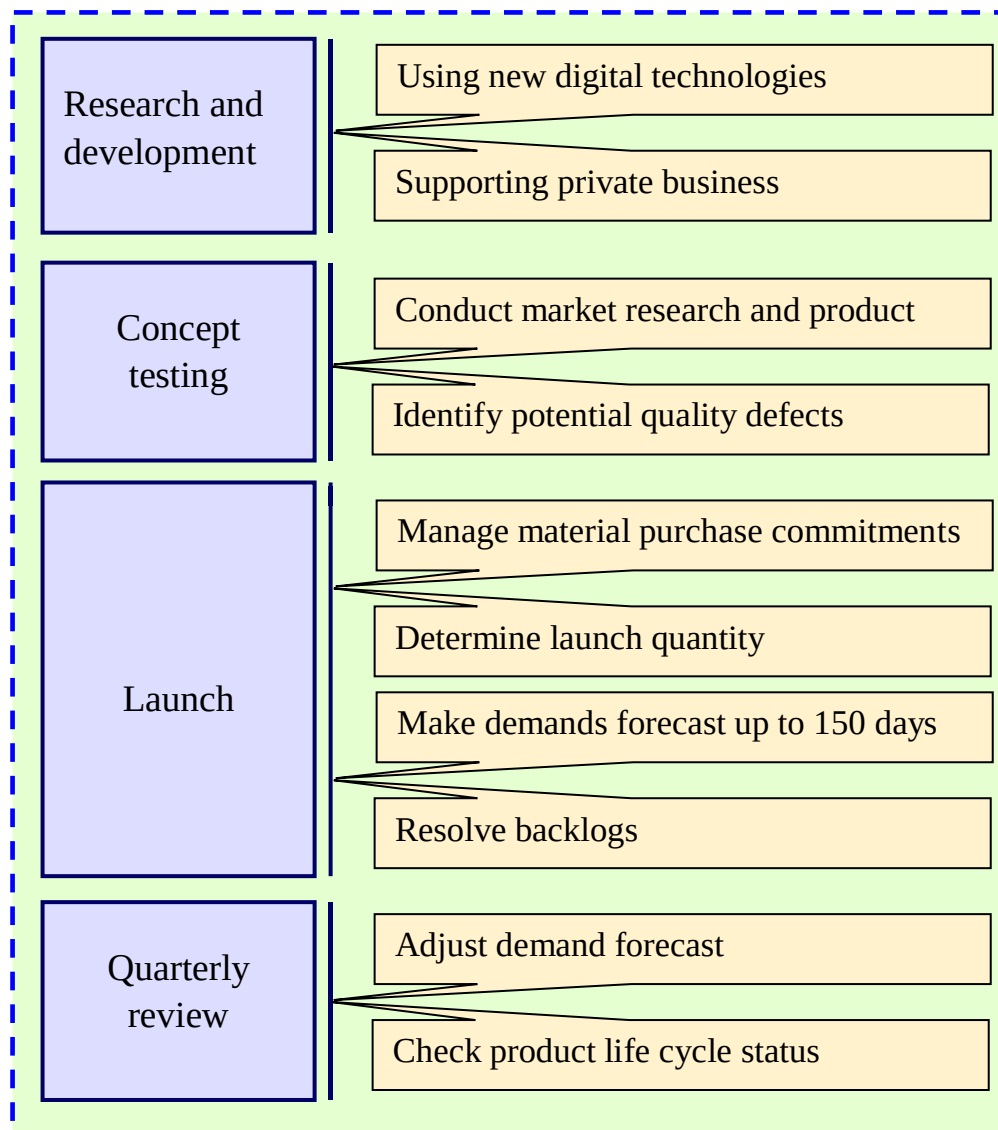


Figure 1. Agricultural supply chain based on big data.

From Figure 1, we can see that the production of agricultural products and the proper organization of the flow of goods mainly consist of 4 stages:

- at the first stage is research and development, which allows for a complete analysis of the market demand and the activities of competitors, which type of products will have a comparative advantage in the production of products;
- in the second stage, the selected concept is tested, which involves the analysis of market capacity, demand and purchasing abilities of consumers, as well as determining the comparative advantage of the manufactured products in terms of quality. In addition to being able to show

the different aspects of the product from the products of competitors, it also envisages the formation of a brand for agricultural products;

- is the stage of processing the collected materials, managing the purchase of raw materials, and at the same time determining the volume of output (part of scrap) from the manufactured products. In fact, even after the sorting of the produced agricultural products, it is observed that the natural loss coefficients of the correspondingly produced goods decrease. At this stage, it is necessary to prevent the natural loss from exceeding the established standards and to prevent the cost from being high. At least 5 months before the production of products, researching consumers and determining the penetration of consumer markets;
- it is necessary to analyze the observed changes in the volume and consumption of products every three months. Because the products are produced once or twice during the year, but the consumption is constant throughout the year, and it is the main task of marketers to determine in advance that the volume of consumption changes in each season.

In conclusion, we can say that the formation of a large-scale database in the agricultural sector requires a large amount of money to organize its management, but solving issues such as climate change and the emergence of water problems, as well as the effective use of resources, is the first of all to increase the volume of production. is about choosing the right one. Accordingly, proper management and analysis of all data flow in the system of production, transportation, storage and delivery of agricultural products to consumers is a requirement of today.

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