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## **LOGISTICS AS A COMPETITIVE ADVANTAGE IN THE DEVELOPMENT OF THE AGRICULTURAL SECTOR IN UKRAINE**

The article substantiates the essence of logistics as a competitive advantage of the agricultural sector of Ukraine. Approaches to the definition of types of logistics are considered. The deterrent factors of development of agrarian logistics by types of transportation (automobile, rail, water) are determined. The factors influencing the dynamics of sales of agricultural machinery are substantiated: unregulated legislation; military action; devaluation of hryvnia; instability of the exchange rate; introduction of import duty on agricultural equipment; prices for agrarian products. The main problems and obstacles in the development of agrarian logistics in Ukraine are generalized.

**Keywords:** logistics, agrarian logistics, transport, infrastructure, agrarian sector.

**Target setting.** Today, logistics is needed in virtually every industry in the developed countries of the world. Foreign experience, innovative technologies of logistics application have long proved its effectiveness, especially in the agrarian sector.

In the current context of market economy and globalization processes, more and more developed countries of the world are betting on strengthening of the role of the agrarian sector. Ukraine has all the necessary components for further building up and using the potential of the agrarian sector growth. First of all, it is not only about increasing the export of raw materials, but also the finished products, as well as the use of new generation agricultural machines, cultivating and harvesting technologies, and improving the logistics component, which should help minimize losses at each stage and each process.

**Actual scientific researches and issues analysis.** Theoretical aspects of logistics development and logistics management were considered by foreign and domestic scientists, in particular by F. Kotler, Y. Krykavsky. Problems of logistics development in the agricultural sector in Ukraine were considered by such national scientists as O. Gutorov, O. Maslak, N. Prozorova, P. Prozorov, O. Shmatok in their works. At the same time, further research and substantiation of the essence of logistics as a competitive advantage of the development of the agrarian sector of Ukraine are relevant.

**Formulation of research objectives.** The purpose of the research is to substantiate the essence of logistics as a competitive advantage of the agrarian sector of Ukraine. The main task is to determine the factors and obstacles to the development of agrarian logistics.

**Statement of basic materials.** The complication of production and the intensification of competition in the 80-90's of the 20<sup>th</sup> century demanded a clearer relationship of logistics with the strategic goals of enterprises, as well as the enhancement of the role of logistics in increasing the flexibility of agricultural enterprises, their ability to respond quickly to market changes. Based on this fact, the main task of logistics was the development of a painstaking and well-grounded proposal that would help to achieve the greatest efficiency of the agrarian sector enterprises, increase its market share and gain advantages over competitors<sup>1</sup>.

Logistics is a set of processes that involve handling, storing and transporting any type of product. In every field of application, it has its own peculiarities of describing the concept of this term. Therefore, in the practical sense, logistics is the management of resource provision of economic activity and product flows, directed from producers to consumers, including informational, financial and service (warehousing, transport support, etc.) support of these processes.

<sup>1</sup> Гуторов, О.І., Прозорова, Н.В., Прозоров, Р.Г. (2013). *Формування логістичних систем в сільському господарстві: монографія*. Харків: Цифрова друкарня № 1, 259.

On the basis thereof, logistics is divided into production and sales. Industrial logistics provides for production of necessary resources, namely: seeds, fertilizers, plant protection products, fuel and lubricants, etc. That is, it is responsible for their delivery to the place of destination and takes into account storage facilities.

Sales logistics in agriculture provides for bringing of grown products to the requirements of state standards, short-term or long-term storage and transportation of products. Logistics activity is based on information provision, which is the basis of taking management decisions and financial support of the respective costs. The separate logistic structure of enterprises includes transportation departments and warehousing<sup>1</sup>.

In modern conditions, Western specialists distinguish several types of logistics: logistics associated with the provision of material production – supply logistics or procurement logistics; production logistics; sales logistics, or marketing, or distributive, or commercial<sup>2,3</sup>. Allocated also warehouse and transport logistics, which are, essentially, constituent parts of each of the 3 types of logistics.

Consequently, the objects of logistics management are information, material and financial flows in the structure of the activity organization.

An integral part of all types of logistics is also the mandatory presence of a logistic information flow, which includes the functions of collecting data on the material flow, their transmission, processing and systematization in the next issue of the finished information. This subsystem of logistics is often called computer logistics or information logistics<sup>4</sup>.

Logistics in the agrarian sector of the economy (agrarian logistics) is a new applied area of logistics related to the application of its provisions and methods in the field of agrarian production. It is this element that serves as the unification of the rest of the agrarian food sub-complex (cultivation, storage, harvesting, processing and marketing of agricultural products)<sup>5</sup>.

In Ukraine, agrarian logistics is at the initial stage of development. Alongside with that, in the developed countries of the world – the USA, Canada, Western Europe, Australia, Poland, Czech Republic, Germany, etc., the high efficiency of using logistic approaches and methods in the agrarian sector is long appreciated. Today, in many countries of the European Union, government structures are increasingly encouraging enterprises of the agrarian sector to introduce the practice of using the principles of logistics in their activities.

After the introduction of a complete Free Trade Area with the European Union, competitive conditions for agricultural business are changing. EU markets are getting closer and opening up more opportunities for new destinations and new product produced in Ukraine. The devalued national currency has somewhat mitigated the competitive struggle for domestic enterprises and gives an opportunity to enter new markets (China, India, Iran, Egypt, etc.), to improve the quality of production and production efficiency. Gradual opening of new markets for agricultural products will continue the important processes of diversification of exports and will help to avoid further dependence on the market of an individual country.

High effective demand for agricultural products; the availability of competitive and qualified managers at the enterprise; continuous work of an agrarian enterprise at optimizing the use of resources; a competitive approach in agricultural production can be considered competitive advantages in the agrarian sphere<sup>6</sup>.

Therefore, domestic agricultural enterprises will have to make great efforts and invest considerable funds in upgrading their production, marketing policy, finding new partners, and improving product quality. The need for increased exports of finished goods will open up new productions in the country and create new jobs, develop infrastructure, attract new investments and develop new technologies. Agrarian logistics is already being rebuilt into new markets offering new supply systems, opening new transit opportunities, establishing new partnerships with new transport corridors.

<sup>1</sup> Маслак, О. (2015). Аграрна логістика: реалії сьогодення. *Агрортал Пропозиція* <<http://propozitsiya.com/ua/agrarna-logistika-realiyi-sogodennya>> (2018, лютий, 01).

<sup>2</sup> Котлер, Ф. (1998). *Маркетинг-менеджмент*. Санкт-Петербург: Питерком, 896.

<sup>3</sup> Котлер, Ф. (1990). *Основы маркетинга*. Москва: Прогресс, 736.

<sup>4</sup> Крикавський, С.В. (2005). *Логістичне управління*. Львів: Львівська політехніка, 684.

<sup>5</sup> Шматок, О. (2012). Аграрна логістика в Україні. *Географія та туризм*, 222-234.

<sup>6</sup> Boiko V., Rusnak A. (2016). Organizational and economic principles of developing competitive strategies of agrarian enterprises. *Scientific letters of Academic society of Michal Baludyansky*. Kosice. Slovakia. 4. 21-24.

According to the researches by the World Bank, Ukraine took the 80<sup>th</sup> place (the 61<sup>st</sup> place in 2014) among more than 160 countries according to the logistics performance index in the agricultural sector in 2016. The first places of the logistic rating took Germany, Luxembourg, Sweden and the Netherlands. Except them, the top ten leaders in terms of LPI are Singapore, Belgium, Austria, United Kingdom, Hong Kong and the United States. China was on the 27<sup>th</sup> place (one step above the rating in 2014). India (the fastest growing economy) did not hit the first 30<sup>th</sup>, but it was in the 35<sup>th</sup> place, which is 19 positions higher than its position in 2014. If we will consider the scores for each characteristic separately, Ukraine is the worst rated in the customs clearance of goods (2.30 points against 4.12 by Germany), which is the 116<sup>th</sup> place in the list according to the rating by a separate characteristic. Ukraine was best evaluated for the timely delivery of goods to destinations (3.51 points against 4.45 by Germany), it is the 54<sup>th</sup> place in the list. In general, with a five-point system in 2016, Ukraine received 2.74 points.

From 2007 to 2016, the dynamics of the LPI for Ukraine was as follows: the highest index was demonstrated by the country in 2014 (the 61<sup>st</sup> place, 2.98 points), the lowest – in 2010 (the 102<sup>th</sup> place, 2.57 points, although the country took the 73<sup>rd</sup> place with a lower overall point of 2.55 in 2007). Moreover, Ukraine showed the worst index among all the assessed characteristics in the customs clearance of goods from 2007 to 2016, except for 2014<sup>1</sup>.

According to the opinion of the experts of the World Economic Forum (WEF), the decline in a number of countries in the ranking depends mainly on two reasons: transport infrastructure and the quality of logistics services (including transport operators and customs brokers).

In the logistics chain, that is, in the chain, which pass the material and information flows from the supplier to the manufacturer, one distinguish the following main links: supply of materials, raw materials; storage of products and raw materials; production and processing of products; distribution of finished products; transportation; consumption of finished products<sup>2</sup>.

However, the greatest concern among industry experts is the problem of reliability of the supply chain. This factor can be considered more important than speed. The key to ensuring reliability is the effectiveness of customs work. However, given the tendency towards world disintegration, this factor does not allow to improve the reliability factor.

Having summarized the deterrent factors in the development of agrarian logistics in Ukraine by type of transportation, one can distinguish the following (Table 1).

Table 1

#### Deterrent factors in the development of agrarian logistics

Types of transportation	Factors of development of agrarian logistics
Automobile	<ul style="list-style-type: none"> <li>- relatively high cost of transportation;</li> <li>- loss of time due to accumulation of vehicles at ports in “peak” periods;</li> <li>- significant wear and tear of machinery and high depreciation costs due to poor road quality;</li> <li>- inefficient transportation over long distances.</li> </ul>
Railway	<ul style="list-style-type: none"> <li>- state monopoly on the services and property of most railway cars;</li> <li>- critical period of operation of grain cars;</li> <li>- low train-handling capacity of railway stations in “peak” periods in ports;</li> <li>- lack of state investment programs for renewal of the fleet of grain cars.</li> </ul>
Water	<ul style="list-style-type: none"> <li>- high capital intensity of development of own terminals and fleet;</li> <li>- low mobility and efficiency of transportation, limited transportation areas;</li> <li>- limited access to deep-sea areas when terminals are located.</li> </ul>

<sup>1</sup> Eizvestia.com (2017). *Індекс ефективності логістики 2016 – Німеччина знову в лідерах*. <<http://eizvestia.com/uk/ekonomika-ukr/full/366-indeks-efektivnosti-logistiki-2016-nimechchina-znovu-v-liderax>> (2017, лютий, 10).

<sup>2</sup> Крикавський, Є.В. (2005). *Логістичне управління*. Львів: Львівська політехніка, 684.

Due to ineffective logistics, domestic producers of agricultural products lose today about \$ 20 per 1 ton of manufactured products, which in the annual equivalent at current export volumes of Ukraine reaches \$ 600 million. At the moment, the costs of logistics in the agrarian sector of Ukraine are 30% higher than in the USA and by 40% in the EU countries<sup>1</sup>.

As Ukraine, as a country with a great potential in the agricultural sector, plans to increase its export potential of grain and other agricultural products in the near future, so special attention should be paid to the development of agrarian logistics and its efficiency.

Despite the fact that the agrarian business is becoming increasingly attractive with investment every year, and the export of products grows (according to the State Statistics Service of Ukraine, for 8 months grain and oilseeds accounted for 17.5% of national exports, at that the volume of deliveries grew more than by 18% compared to the same period last year), developing agriculture needs a modernized fleet of machinery to ensure this growth.

The dynamics of sales of agricultural machinery is influenced by a set of factors: unregulated legislation; military action; devaluation of hryvnia; instability of the exchange rate; introduction of import duty on agricultural equipment; prices for agrarian products.

At the same time, world producers of agricultural machinery consider the Ukrainian market one of the most promising in Europe. According to the data of the Ministry of Agrarian Policy and Food of Ukraine, more than 71.3 thousand units of sewing machines, 313.3 thousand units of soil cultivating machines, less than 132.7 thousand tractors<sup>2</sup> were engaged in seasonal field work last year. As far back as 2016, Ukrainian agricultural producers purchased almost 21.7 thousand units of various agricultural machinery for more than 6 billion USD, at that, these costs are very small taking into account the high degree of wear and tear of the park, in which the most part is made up of old vehicles or old imported equipment, which requires constant expenses for purchase of spare parts and repairs. More than 80% of the equipment does not meet modern requirements. The volume of the Ukrainian agricultural machinery market, subject to its timely and qualitative upgrade, may reach over \$ 3 billion a year.

The import statistics of agricultural machinery in recent years looks disappointing. Since the end of 2014 there has been a tendency to reduce sales of imported agricultural machinery. According to the State Fiscal Service of Ukraine, in 2014, agricultural machinery for the sum of about \$ 667 million was imported, and in 2015, its import amounted to only \$ 177 million. The high cost of imported machinery allowed domestic producers of agricultural machines to increase production and become more competitive. In a context of increasing competition, manufacturers often make special financial decisions: in addition to traditional installments, sellers often provide seasonal repayment<sup>3</sup>.

But not the less problem, which today impedes the growth of the agricultural machinery market, is devaluation of the Ukrainian currency. Until now, the issue of timely compensation of VAT to exporters has not been resolved, which reduces the incomes of agricultural producers, and leak of, or rather excessively high cost of financial resources in Ukraine.

Banking finances at rates of the NBU from 25% to 19% do not offer to the machinery importers using the tools of short- and long-term loans, overdrafts. Difficulties with currency regulation (compulsory sale of currency, the possibility of purchasing currency within the limits specified by the NBU) restrict the ability of both importers and their customers to acquire new equipment. The effect of deferred demand for machinery multiplied by the growing market and increased by the available access to more affordable financing will immediately show an increase in imports of agricultural machinery.

Modern logistics companies are responsible both for their business and for business partners. The urgent requirement of time is the provision of vehicles performing goods delivery with alarms and GPS-monitoring. The high liability limit for cargo insurance provides additional guarantees for the supply of products that have a high price (equipment for the construction of grain complexes and terminals, elite seeds, agricultural machinery, etc.).

<sup>1</sup> Agropolit.com (2016). *Логістика як конкурентна перевага у розвитку агробізнесу в Україні*. <<https://agropolit.com/blog/58-logistika-yak-konkurentna-perevaga-u-rozvitku-agrobiznesu-v-ukrayini>> (2018, березень, 11).

<sup>2</sup> Ukrstat.gov.ua (2017). *Наявність сільськогосподарської техніки та енергетичних потужностей у сільському господарстві у 2016 році: статистичний бюлетень*. <<http://www.ukrstat.gov.ua>> (2018, березень, 20).

<sup>3</sup> Agropolit.com (2016). *Основні перепони розвитку агрологістики*. <<https://agropolit.com/blog/93-osnovni-pereponi-rozvitku-agrologistiki>> (2018, квітень, 20).

The main obstacles in the development of agrarian logistics in Ukraine are:

- lack of a government program for the development of agrarian logistics at the proper level;
- lack of qualified logistics personnel in agricultural enterprises;
- lack of funds for implementing logistic approaches, since software logistics products are too expensive for domestic enterprises;
- lack of funds for the construction of a sufficient number of modern warehouses;
- lack of funds for the purchase of modern vehicles;
- poor road pavement quality, imperfect digital GPS-software for Ukrainian roads and lack of a network of communication systems for large-scale transport;
- low investment attractiveness of the agricultural branches in Ukraine, which is largely due to the imperfect regulatory and legal framework;
- corruption component<sup>1</sup>.

One of the main problems in the development of logistics infrastructure of enterprises in the agrarian sector is the limited financial resources for their activities. For most agrarians, the sources of proceeds are the incomes from the sale of manufactured products and granted services, borrowing funds from banking institutions, the programs of state support. Within 2014-2015, agricultural producers increased their own incomes, but expenditures also increased. During the same period, the material and technical resources used in agriculture increased twice and sometimes even three times. At the same time, the sale prices of products increased on average by 1.5-2 times. This, of course, contributed to the accumulation of free funds, which can be directed to the implementation of projects for the development of enterprise infrastructure.

The possibility of attracting financial resources is bank crediting. However, crediting conditions in the modern period are unattractive. The credit rates offered by the banking institutions with related services exceed 30% per annum. For example, according to the results of 2014, the profitability level of agricultural activities of agricultural enterprises made 26.4%<sup>2</sup>. That is, attracting bank crediting will be an additional financial burden for agricultural producers.

It is more acceptable for agricultural producers to have state funding programs for allocation funds for the construction of logistic infrastructure objects and their provision with respective equipment. However, such programs have not been funded in recent years or the funds allocated from the budget are insufficient to meet the needs of business entities<sup>3</sup>.

**Conclusions.** There are already optimistic forecasts that one should expect high efficiency of agricultural development in Ukraine subject to overcoming the main obstacles during the formation and improvement of the logistics system in the agrarian sector. Today, logistics remains a “problem” factor in the agrarian sector. This is a shortage of modern elevators and low quality of road infrastructure, insufficient investments in modernization of rail and road transport, therefore, in almost all parts of the process in Ukraine, there are reserves for improvement of showings, and therefore – for further growth.

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<sup>3</sup> Маслак, О. (2015). *Аграрна логістика: реалії сьогодення. Агрортал Пропозиція*. <<http://propozitsiya.com/ua/agrana-logistika-realiyi-sogodennya>> (2018, лютий, 01).

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