

**20) OPPORTUNITIE FOR USING GREEN LOGISTICS IN AGRIBUSINESS FOR NEEDS OF SUSTAINABLE**

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**Abstract**

The problem of the research offered to the scientific community specified the needs to identify opportunities of using the positive, economic effects of green logistics for the sustainable development of the economic system of the country as a whole. It is also necessary to specify the benefits of using green logistics for the results of functioning of economic entities involved in agricultural business. Scientific sources were analyzed, which made it possible to substantially fill the concept of green logistics with the purpose of own vision of this scientific category as a new form of socially responsible relations in agricultural business. The red line of the study is an attempt to substantiate the relevance of using green logistics as a tool for minimization of the economic system participants negative impact, namely agricultural enterprises, on the environment. The peculiarity of the initiated scientific research was to consider the specificity of the activities of agricultural enterprises, which is a reason for using green logistics to serve the economic needs. There have been identified the circumstances that cause to the transition from traditional to green logistics, which is a rational step of agribusiness. Improving the image of agribusinesses and the ability to appeal to foreign investors in order to gain financial opportunities to expand the limits of green logistics usage have been identified as having a positive economic effect. The consequences of the green logistics usage and the features of the transition to the model of green logistics in agribusiness are outlined.

**Key words:** green logistics, agribusiness, logistic processes, sustainability

**Introduction**

The topic of the study is justification of the economic benefits of using green logistics as a result of mutually beneficial collaboration of agrarian business goals with the ideology of environmentally oriented sustainable economic development. The problem of the offered research is to establish the feasibility of using green logistics to optimize the processes of functioning of agricultural enterprises and to determine the economic effects to meet the needs of sustainable development of the state's economic system as a whole.

The topic of green logistics has been repeatedly raised in publications by foreign scientists. So, McKinnon et al. (2010) point out that over the past 10-15 years, amid growing public and world governments' concerns about the environmental situation, companies are under increasing pressure to reduce the environmental impact of their logistics operations". "Rad & Gillemez (2017) insist that sustainable development is becoming an significant concept that is increasingly important. As logistics is a key element of enterprise activity, sustainability becomes a strategic issue for the logistics sector. Functional sustainability of enterprises is only possible if they are sustainable in terms of natural, economic and social dimensions". Klumpp (2016) emphasizes that nowadays there are several terms in active use defining the essence of the concept under study: green logistics, green transportation, environmental logistics, ecology logistics. At the same time, the use of green logistics has some paradoxical implications (Rodrigue et al., 2001). In addition, stepping up the fight of the indifferent community for expanding the scope of green logistics is a source of new challenges for traditional economic mechanisms (Dekker et al., 2012) – in the financial, technical, technological, material planes.

## Material and Methods

The works of modern scientists, published in professional international publications were the materials for the study. In the process of finding relevant bases, a toolkit for analysis of sources containing guidance on the meaningful content of the concept of green logistics was used to help to solve the problem of the study in order to offer a personal vision of this scientific category. The methods of analysis, evaluation, cognition have been applied to form an idea of the structure of the logistics state indicator Logistics Performance Index. The graphical method was applied to systematize and summarize the data obtained through monographic and analytical scientific methods regarding the possibilities of using green logistics in agribusiness. The benchmarking method was used to confirm or refute the assumptions about the cost-effectiveness of green logistics compared to traditional approaches to the organization of logistics systems.

## Results and Discussion

Under green logistics we offer to understand the process of minimizing environmental damage through the proper organization of logistics operations. In general, logistics combines transport and resource-intensive processes such as procurement, inventory management, warehousing, production ordering and distribution, and in some cases, reverse logistics and disposal logistics related to waste reuse, treatment and disposal. Therefore, green logistics is called a new form of socially responsible relations for the logistics of economic activities of enterprises, institutions and organizations. The essence of green logistics in the agricultural business lies in the use of environmentally friendly, nature-friendly mechanisms of transportation of products, raw materials, people, etc. involved in the production of agricultural products or such objects that present the result from the operation of agricultural enterprises.

The prospect of using green logistics in the agricultural business is the possibility of reducing at the expense of it the level of negative impact of the industry on the environment, regional and national environmental situation. At the same time, scientists prove the relevance of the use of green logistics for the sustainable development of business structures and national economies (Btzoj & Sipos, 2015).

The active use of green logistics in agribusiness is an effective tool for putting into practice such sustainable development goals as maintaining land ecosystems, responsible and efficient use of natural resources, and minimizing hunger challenge. Green logistics in the long term can have significant positive effects on achieving food security, securing growth in agricultural output and GDP growth. The expected positive economic effects of expanding the scope of green logistics for agricultural enterprises will be to improve their image and ability to appeal to foreign investors to obtain financial resources, because the desire of civil society to reduce the pressure on the environment leads to financial equilibrium an entity that demonstrates a higher level of propensity to support environmental initiatives. At the same time, the problem of hunger and lack of access to food in the underdeveloped countries of the world is showing global resonance, and therefore the focus on agricultural businesses will continue to increase. And since the problem of low efficiency of the fight against hunger is not only in the plane of production of agricultural products, but also in the plane of its transportation, the issue of logistics is again in the spotlight (Table 1).

A tool for assessing the state of organization and efficiency of logistics processes within the functioning of national economies of the world is an indicator called Logistics Performance Index (LPI). Currently, it is possible to use it from two positions national and international, but we believe that its practical value would be greatly increased if users were able to obtain an assessment of logistics efficiency within the economic sectors.

**Table 1.** Opportunities to use green logistics in agribusiness to achieve positive economic effects

Prerequisites for use in agribusiness	Possible positive economic consequences	Compliance with sustainable development goals
Extensiveness of agricultural production that breaks ecological equilibrium	Energy saving	Saving of land ecosystems
Stakeholders are not satisfied with the absence of responsible products transportation	Profit from recycling of agricultural waste	Reduction of anthropogenic, biogenic, technogenic load on the environment
Moral and physical obsolescence of the agricultural sector transportation fund	Increasing of the level of scientific knowledge of agricultural products, rising of prices and profit	Responsible consumption of resources and goods
Nonconformity of domestic products to international standards	Increasing of the level of competitiveness in international markets	Use of alternative modes of products transportation
The need for quality technical and technological restructuring of logistics processes	Receiving of the investments and other forms of financing the needs of the agricultural business	Overcoming hunger problem by intensive production and transportation

LPI is a comprehensive indicator, but it does not contain data on the use of green logistics. In view of this, there is a need to develop a Green Logistics Index, which would include, among other components, the economic effects of its use in various sectors of the economic system (trade, industrial, agricultural, and others). In particular, elements of such an indicator can be indicators of the ratio of traditional and green logistics; the level of saving of logistical costs after the use of green logistics, the proceeds from the recycling of recyclables after green logistics, the increase in the value of the reputable assets of entities using green logistics, etc.

The practical significance of the obtained results is the expediency of transforming the identified in the study the possibilities of using green logistics in agribusiness to achieve positive economic effects in the strategic guidelines for the development of agricultural enterprises within the development of strategies for their long-term operation. The proposed indicators for the formation of the Green Logistics Index can already be determined by enterprises using expert and mathematical methods. Offers for future research is to develop a methodology for calculating the Green Logistics Index. In particular, it is planned to use the method of expert survey to determine the structural elements of the Green Logistics Index, and the Fishburn formula to specify their specific gravity in the resulting indicator.

## Conclusions and Outlook

The results of the study are as follows.

1. Positive economic effects for agricultural enterprises from using the opportunities of green logistics will be: obtaining income from the processing of secondary resources, investment income through the image of "green" farms friendly to the environment; reduce of the cost of transport resources, increase of the turnover rate of current assets involved in transport operations, reduce utilization costs.
2. Increasing the level of efficiency of functioning of agricultural enterprises through the use of green logistics mechanisms will stabilize and improve the state of the domestic agricultural sector and form a strong basis for sustainable development of the Ukrainian economy, in particular, in those areas related to the goals of hunger and poverty, the use of renewable energy, responsible consumption of resources and benefits, and the fight against climate change.
3. An indicator of the efficiency of organization of logistic processes within different countries is Logistics Performance Index, which is determined annually by the World Bank. However, this powerful analytical tool does not have indicators that would indicate the level of popularity and extent of green logistics. Therefore, there is a need to develop a Green Logistics Index.

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