

IDENTIFICATION OF PROBLEMATIC ISSUES IN THE ORGANIZATION OF DELIVERY OF PERISHABLE FOOD PRODUCTS IN REFRIGERATED CONTAINERS IN THE DIRECTION OF EUROPEAN COUNTRIES

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Given that refrigerated containers are largely dependent on the temperature control function, container carriers should pay special attention to the risks that arise during cold chain logistics. Thus, assessing cold chain safety risks can reduce the likelihood of accidents and concerns about product damage [1].

With the advent of refrigeration technology and the improvement of global logistics methods, the demand for temperature-sensitive perishable products (PTSP) is steadily growing. The global logistics industry is actively developing, with “temperature logistics” as an innovative value-added service. Logistics companies also hope to leverage their soft power in the form of core technologies, management quality, and accumulated logistics talent and systems to enter new global cold chain logistics markets. This suggests that cold chain freight transportation is expected to be in huge demand. In addition, PTSP goods transported in cold chain logistics include perishable products (such as fruits, vegetables, flowers, dairy products, seafood, and meat products), processed foods, and specialty products (such as pharmaceuticals and chemical raw materials), and the transportation of many specialty pharmaceuticals and medical products require even stricter temperature control, forcing cold chain logistics service providers to ensure a high degree of temperature integrity. As a result, PTSP products must be subjected to temperature control at all stages of the supply chain to maintain their freshness and ensure product safety and quality [2, 3].

PTSP must be kept at a certain temperature throughout the production, processing, packaging, transportation, storage, and distribution stages until they reach the hands of consumers, and temperature control ensures that their quality and value are not compromised during the logistics process. In particular, when PTSP products must be subjected to complex logistics operations such as long-distance transportation, repetitive loading and unloading, short-distance movement, and storage, improper temperature control can easily lead to dire quality and safety risks [4].

Refrigerated containers used for maritime transportation have the advantages of large capacity, high loading and unloading speed, convenience and ease of maintenance, and are currently widely used [5]. The cost of transportation of reefer containers is 3-5 times higher than the cost of transportation of conventional containers, and although the market for reefer containers is not as large as the market for conventional containers, they are more profitable than conventional containers. As a result, in order to ensure more profitable transportation, many international container carriers - shipping companies specializing in container transportation - have decided to reserve a certain part of the holds on newly built container ships for refrigerated containers. However, in practice, although refrigerated containers are more profitable than ordinary containers, the compensation required for damaged goods in refrigerated containers is proportionately higher than for goods in ordinary containers. Moreover, the various logistics operations required when international container carriers are involved in the transportation of refrigerated containers in the cold chain create certain new risks (e.g., impacts arising from complex lifting operations and temperature, humidity and ventilation control, etc. The transportation process entails many possible accidents and risks that increase the likelihood of cargo damage. These aspects explain why risk management is a vital issue for container carriers engaged in cold chain logistics and is a topic worth exploring in more depth.

In Ukraine, the volume of cargo transportation in containers in 2023 was 34% higher than in 2022, when only 150 thousand TEU were transported (Fig.1). Previously, in 2021, UZ transported 279.8 thousand TEU. In terms of the range of goods, in 2023, grain was transported in containers the most - 49% and ferrous metals - 17%. They were followed by oil cake (14%) and oil (10%). Export transportation of goods in containers in 2023 amounted to 124,946 TEU, import - 37083 TEU, domestic - 38387 TEU, transit - 844 TEU [8].

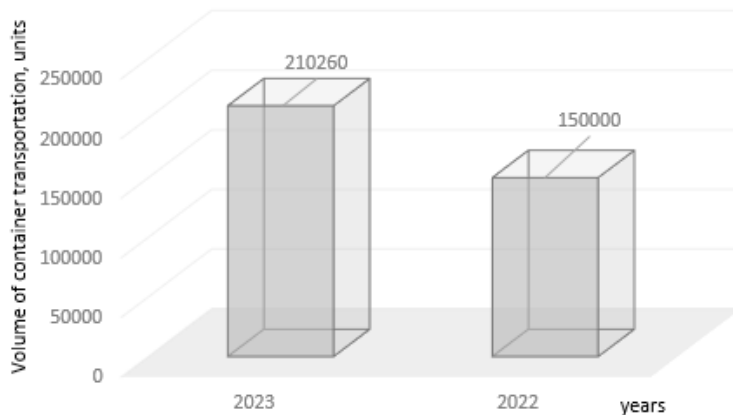


Figure 1 - Volume of container transportation by “Ukrzaliznytsia”

Having analysed the developments in the field of improving the technology of cargo delivery in containers in international traffic, we determined the content of the problems under study. This allowed us to determine the main results and direction of the study.

1. Formation of reliable container delivery technologies at the macro level, taking into account the rational use of warehouse and transport resources [9-11];
2. Identification of smart technologies for the delivery of containers with different types of cargo, taking into account stochastic changes in demand for this service [12-13];
3. Introduction of modern technologies for ordering services in logistics centers in the organization of transport processes [14];
4. Development of an effective option for the delivery of goods, including in containers, taking into account the risks of certain technical operations, corresponding to losses of different levels [15, 16].

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ШЛЯХИ ПІДВИЩЕННЯ ЕФЕКТИВНОСТІ ВИКОРИСТАННЯ ТРАНСПОРТНИХ ЗАСОБІВ ПІД ЧАС ЗБИРАННЯ ЗЕРНОВИХ КУЛЬТУР

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Агропромисловий комплекс є невід'ємною складовою загальноекономічної системи країни і, завдяки потужному експорту, створює умови для продовольчої безпеки в світі [1-3]. Сполучною ланкою в єдиному технологічному ланцюзі аграрного сектору виступає транспорт, який забезпечує взаємозв'язок і взаємодію із суміжними сферами виробництва. Ключову роль у транспортній системі відіграє автомобільний транспорт, що в аграрній логістиці виконує доставку продукції від поля до споживача і завдяки своїй гнучкості та мобільності знижує загальні витрати на виробництво.