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## **MODERN TRENDS IN THE CONFECTIONERY INDUSTRY OF UKRAINE**

Confectionery industry is one of the most developed branches of food industry in Ukraine. The confectionery industry now has many confectionery factories. In addition, confectionery products are made by specialized shops of bakery factories, vegetable canning factories, as well as catering enterprises.

In future, a significant increase in the production of confectionery products is expected, including a sharp increase in the production of products that are in high demand in the population: soft glazed sweets, waffles, paste and marmalade products; the production of wrapped and packaged confectionery products will increase significantly.

Today, the problems of the confectionery industry can be divided into four groups:

1. Financial problems.
2. Problems related to the domestic policy of the state: the growth of sugar prices as a consequence of the state's attempt to help the sugar industry to exit the crisis.
3. Problems associated with the Russian market of sales: the imposition of goods by import duty at 21% per 1 kg and the introduction of 20% VAT on Ukrainian confectionery products.
4. Problems related to packaging of confectionery products.
5. Modernization of equipment and quality assurance [2].

The research of problems of modernization and high-tech development of leading sectors of the economy, and in particular the food industry, is devoted to a number of scientific works of domestic and foreign scientists and researchers, including O. Amosh, V. Boyko, B. Danilishin, L. Daineko, D. Krisanov.

The most important problems of the present in the development of the food industry are the structural imbalance of the industry, the strengthening of interdisciplinary processes polarization in terms of providing basic assets and their depreciation, price disproportions for different food products, loss-making activities, and stable encouraging economic performance in others. The limited state investment in the industry and the lack of domestic resources for the renewal and modernization of the production of food, beverages and tobacco products, as well as the existence of problems with the attraction of loans, the importance of *foreign direct investments* for the further development of the industry is increasing. The achievement of stable production, high competitiveness and economic efficiency of the food industry requires constant renewal of fixed assets, which requires active search of sources of funding from enterprises, and the creation of conditions for investment from the state. The food industry occupies one of the first places in terms of foreign investment, which amounts to almost one third of total investment in the Ukrainian economy.

To modernize production, the strategic task should be a technological renewal of their material base with the use of high technologies.

The processing equipment of the confectionery factories is very diverse. However, many groups of machines and devices have common features. The classification of equipment can be based on the following classification characteristics: the nature of the impact on the product, the nature of the working cycle, the degree of mechanization and automation, the functional purpose of equipment.

By the nature of the impact on the product equipment can be divided into machines and apparatus.

The machine has a mechanical effect on the product. In this case, the properties of the product or material do not change. Only the shape, size, and other physical parameters change. The peculiarity of the machine is the presence of moving working bodies, which directly affect the product mechanically.

The devices carry thermal, electrical, physico-chemical, biochemical and other actions that cause changes in physical or chemical properties or aggregate state of the processed product. A characteristic feature of the apparatus is the presence of a reaction space or a working chamber.

By the nature of the working cycle, machines and apparatus are divided into machines and apparatus of periodic and continuous operation.

In machines and apparatuses of periodic action, the product can be processed for a certain period of time (cycle) and then removed from the machine or apparatus. After that, the process cycle is restored. The mode of operation of the working bodies of such equipment during the cycle is continuous, continuously changing.

In machines and apparatuses of continuous action, the process proceeds continuously, under steady state conditions, with the simultaneous continuous supply of raw materials and the output of the finished product. The working bodies of the apparatus equipment operate in a stable environment.

By the level of mechanization and automation, machines and apparatus are divided into machines and non-automatic operation devices, semi-automatic and automatic.

In the non-automatic operation of loading, unloading, transfer, control, as well as individual technological operations carried out by workers with direct influence on the object being processed.

In semi-automatic equipment, all major technological operations are performed by a machine. Some auxiliary operations (for example, transportation, loading and unloading), as well as operations of control, adjustment and supervision remain.

In automatic equipment, all technological, auxiliary and control operations are carried out automatically according to a predefined program. Manual operations remain the debugging and monitoring of the operation of the machine [3; 4].

By functional purpose, technological equipment of confectionery factories can be divided into the following main groups:

1. Machines and assemblies for preparation of raw materials and preparation of semi-finished products. This group includes machines and assemblies for scouring and screening of raw materials, machines for its crushing, dosing devices, machines for mixing raw materials and obtaining semi-finished products.

2. Apparatus and machines for heat treatment of raw materials, semi-finished products and finished products. This group of technological equipment includes various heat exchangers for heating, boiling or cooling of raw materials and semi-finished products, chambers for cooling semi-finished products or molded products, as well as furnaces for baking flour confectionery products.

3. Machines and assemblies for forming products or their blanks. This group of equipment includes machines and units for stamping products, cutting machines and machines for casting billets of products.

4. Machines and assemblies for twisting, packing and packaging of finished products [1].

In the confectionery industry, fully automated lines have not yet been created, there are only partially automated lines.

These tasks are solved in the confectionery industry mainly on the basis of the creation and introduction of new high-performance equipment, advanced technology and the further transition to a more perfect form of production – mechanized and automated flow lines. In accordance with this, the main direction of technological progress in the confectionery industry is the creation, implementation and further improvement of mechanized and automated flow lines, aggregates and automatic machines for the production of various confectionery products.

The introduction of mechanized flow lines and high-performance aggregates and automatic machines in the confectionery industry can increase the efficiency of production: increase labor productivity, mechanize labor-intensive manual processes, reduce production areas by 1,5-2 times, reduce the loss of valuable raw materials, eliminate intermediate packagings, significantly improve the quality of products and sanitary and hygienic conditions of production.

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