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SELECTION OF THE MAIN DIRECTIONS OF PRODUCTION OF SMALL-SIZED EQUIPMENT USED IN MODERN SMALL-SIZED FARMS

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Annotation:
In this article, the selection of the main directions in the design of new types of small-scale agricultural machinery used in agricultural work in our country. Determining the main shortcomings of today's existing agricultural techniques. Determining the main priority areas of design work.

Keywords: Tractor, greenhouse, motoblock, small-sized farms, priority direction, technique

Until recently, small farms, including greenhouses, were not properly developed in Uzbekistan, and the volume of agricultural products produced in them was extremely low. However, as the population's demand for fruit and vegetable products is increasing every year, it has caused a significant increase in the number of greenhouse farms using modern advanced agricultural technologies. This growth is an objective process, because agricultural technologies used in modern greenhouses allow to supply high-quality vegetables and fruits to the market in sufficient quantities throughout the year.

However, due to the fact that only manual labor was used in the old and small-sized greenhouses, no mechanization was carried out in the performance of work inside the greenhouses in the republic. Accordingly, even in new modern greenhouses today, the share of manual labor is very high, which significantly limits the productivity of workers and sharply increases production costs.

In new modern greenhouses, considering their functional capabilities (automatic irrigation systems, heating, lighting and ventilation, automated system, regulation of

sunlight flow to greenhouses and control of heat loss reduction), the lack of labor mechanization in them is especially surprising. All these innovations can make it possible to apply new advanced agricultural technologies in greenhouses and to obtain incomparably higher yields compared to the previous ones, but, as mentioned above, the lack of mechanization means limits these processes.

One of the main technological processes in greenhouses is transportation of cargo, seed materials, fertilizers, productive crops, etc. inside the greenhouse. In order not to use the physical strength of workers, some farms use small-sized tractors or motoblocks as a means of energy. However, the exhaust gases released from the engine during the use of these machines have a very harmful effect on the closed atmosphere of greenhouses (see Figure 1).

a)

b)

c)

Figure 1. Motoblocks and tractors in use today *a)Chimgan-304; b) Chimgan-260; c) Motoblock.*

In developing the designs of the machines and products described above, they took into account many modern achievements and innovations used by leading companies and firms in the production of machines of a similar class and the same purpose, including design developments.

Products of this type and with their own construction have not been produced in the Republic of Uzbekistan. At the same time, the production volume of all types of agricultural products, including greenhouses, is constantly increasing, and the introduction of new agricultural technologies in greenhouses is increasing the demand for machines of this class and the level of performance.

In the production of industrial samples of small-scale equipment for use in modern greenhouses, which will be developed within the framework of the project, comparisons were made with existing analogues of greenhouse equipment developed by the Republic of Turkey, the Russian Federation, the Republic of Poland, South-East Asian countries, including the Republic of Korea, and other foreign countries.

In particular, in the Turkish "POLAT" company, the Russian "KIPZ" JSC, the Polish "PRECIMET H.C.E. Sp. r.oo." company and "Doosan" company of the Republic of Korea, it was found that up to 50% of foreign exchange savings can be achieved by calculating the costs of the production of the mobile platform with an electric lift produced within the project and the costs of importing them.

Also, the Canadian company "Cyberwoks Robotics", the Netherlands-made "Berg BeTrac" electric tractor, the Chinese company "Ningbo Ruyi", the Japanese company "Mitsubishi Nichiyu ForkliFt" and several other leading companies of foreign countries produced electric tractors produced within the project compared to small-sized cars, up to 30% foreign exchange savings were analyzed.

Exhaust gases from the engines of these cars - diesel and carburetor engines - also contain some harmful compounds, primarily CO (carbon monoxide) and other carcinogens. The higher the class and power of the tractor, the higher the amount of exhaust gases.

In addition, the atmosphere polluted by waste gases inside greenhouses has a negative effect not only on people, but also on the growth and development of crops, reducing their yield and quality.

Taking into account the above, the main goal of today's greenhouse and small-scale production equipment is to design and manufacture industrial models of small-scale electromotive equipment for use in modern greenhouses, taking into account the fact that they do not have a harmful effect on the environment and the ecological situation.

The goal of the problem is to solve the problem of mechanization of the main processes of growing agricultural crops in greenhouses and a sharp reduction in the level of

manual labor, which will certainly lead to labor productivity, crop yield, cost reduction and an increase in the overall profitability of greenhouses.

In accordance with the priority of the set tasks, the main novelty of the creation of these techniques is the design and production of industrial models of small-scale equipment for working in modern greenhouses, their distinctive feature is to eliminate the presence of harmful waste in the atmosphere of greenhouses and to increase the general ecological cleanliness of the environment.

In short, the set of tasks that can be solved with the introduction of new small-sized machines (increasing the productivity of the agricultural sector, developing the agricultural machinery of our country with the growth of its export potential, reducing Uzbekistan's need to import such machines) and also the development of the machine industry Development of global trends confirms the relevance of the proposed works.

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