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VEGETABLE GROWING: STUDY OF MECHANIZED PLANTING SEEDLINGS

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Vegetable growing is one of the most important agricultural sectors in the Republic of Moldova and Ukraine. However, for various reasons, today vegetable production in Moldova is going through hard times, since the sales market for products has shrunk significantly, which has led to a reduction in the production area of major vegetable crops, such as tomatoes, cabbage, peppers and others.

The opening of the European market does not give farmers the opportunity to mass produce vegetables and increase the volume of vegetable products. In addition, the high level of imports of vegetables and vegetable products into the Republic of Moldova leads farmers astray from the production of domestic vegetables.

Another major problem is the production of vegetables in greenhouses. High energy prices do not make it possible to start producing vegetables from seedlings at an earlier date and growing them in greenhouses themselves. This has led to a slow and reliable takeover of the Moldovan market by Turkish vegetables, namely tomatoes, which appear on sale earlier and have a lower selling price at the same time of year. Thus, without state support for farmers growing, for example, tomatoes, it does not seem possible to even provide the country's population with local vegetables, let alone export vegetable products.

So, the high level of imports of vegetables and vegetable products into the country pushes farmers away from the production of domestic vegetables. Today, vegetable growers initially find themselves in unequal competitive production conditions with their foreign colleagues, since these problems are aggravated by problems in the technology of growing vegetable crops, which do not allow for the full mechanization of technological processes. Planting seedlings is one of the most labor-intensive and important technological operations when growing vegetables. A lack of workers in agricultural production is felt more and more strongly, and the mechanization of work when planting seedlings plays an increasingly important role.

Transplanting machines do not fully comply with the agritechnical requirements for the process of planting seedlings. The working parts of current imported planting machines do not always correspond to the physical and mechanical properties of the soil on which it is planned to grow vegetables. The result is a lot of wear on the working parts of the planting machines or failures associated with the machine breaking down in the field while performing work.

Preliminary field experiments on planting cabbage seedlings conducted in the early summer of 2023 at the "Polyus-Agro" farm in the village of Kremenchug revealed some design shortcomings of the carousel-type transplanting machine from the Italian company Checchi & Magli, such as: unevenness planting of seedlings; covering plants with soil; clogging of the press wheels and coulter with soil and plant remains.

During the experiments, simultaneously with planting, the performance of the equipment for installing a drip irrigation system additional installed on the transplanting machine was also tested.

Experiments have shown that this design can be improved by design and technological parameter optimization, which will eliminate the listed disadvantages and improve the quality of planting seedlings.