THE RESULTS OF A STUDY ON THE SELECTION OF THE WORKING PART THAT SEPARATES THE NUT PODS FROM THE HUSK

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Annotation: This article presents the results of research on the selection of the working part of the nut harvesting machine to separate the pods, as well as the types of separators separating the nuts from the stem and their performance at the required level.

The main task of agricultural production is to fully provide the population of the republic with cheap and environmentally friendly food products by increasing the efficiency of all its branches.

At present, the technological processes in the cultivation of walnuts in the country, ie from sowing to harvesting, are carried out using technical means used in cotton and vegetable growing. However, the harvested walnuts are mainly harvested by hand. This, in turn, leads to delays in the harvesting process and poor quality, as well as an increase in the cost of the finished product.

Based on the above, the Namangan Engineering and Construction Institute has developed a machine for harvesting walnuts, which digs out the nuts and separates them from the pods [1-4].

This article presents the results of a study on the selection of the working part of the nut harvesting machine that separates the beans.

In order to select the optimal type of working part (hereinafter referred to as the separator) separating the nut nut from the stalk, comparative tests of planar, finger and screw-shaped separators were conducted based on the analysis of the literature [5-7].

A prototype of a plank, comb, and screw-shaped separators and a nut-picking machine were prepared for comparative testing (Figures 1 and 2).

а)

б)

б)
a-plank, b-comb, v-screw,
Figure 1. Separators

Figure 2. An experimental version of a nut harvesting machine

The experimental version of the machine was designed to allow it to install different types of spacers and to change the transverse distance between them.

Comparative tests of the separators were conducted in early spring on a field planted with walnuts at 70 cm row spacing. In this case, the completeness of the separation of pods from the stems was determined as an indicator of the performance of the separators. This figure was determined by the ratio of walnut pods in the stems to the pods separated from the stems. The test results are given in the table below.

Table.

T/p	Separator types	The pods on the stem	The number of beans selected	Separated beans,%
1	Plakali	1000	468	46,8
2	Comb	1000	642	64,2
3	Vintsimon	1000	854	85,4

From the data in this table, it can be seen that when using a screw separator in the separator section of the nut harvesting machine, 39.4 and 21.2 percent more beans are separated from the pods, respectively, than from the bar and comb separators.

Conclusion

When a screw separator is used in the separating part of the nut harvesting machine, 39.4 and 21.2% more beans are separated from the pods, respectively, than from the bar and comb separators.

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