EURASIAN JOURNAL OF ACADEMIC RESEARCH
Innovative Academy Research Support Center
UIF = 8.1 | SJIF = 5.685 www.in-academy.uz

USING THE NEW INNOVATIVE SORTING DEVICE AND SAVING ELECTRICAL ENERGY IN PREPARING AGRICULTURAL CROP SEEDS FOR PLANTING

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https://www.doi.org/10.37547/ejar-v03-i02-p2-47

ARTICLE INFO

Received: 02nd February 2023
Accepted: 09th February 2023
Online: 10th February 2023

KEY WORDS

Hopper, seed, feeder, reducer, separation plane, seed, working body, cleaning brush, electrode.

ABSTRACT

The article presents the results of research on the process of sorting agricultural seeds in the electric field on such important properties as physical and mechanical and electrical properties, mass, geometric dimensions, dielectric constant.

Introduction. It is known that there are a number of agrotechnical measures in obtaining high yields from the seeds of all agricultural crops and producing quality products. In addition to other agrotechnical activities, the electrical sorting of seeds prepared for planting by quality indicators plays a very important role[1,2]. Because the main task is to get abundant harvest and quality products from the seeds of agricultural crops with high quality indicators, similar biological properties, high fertility and potential yield in laboratory and field conditions[3,4,5].

Methods. Currently, in order to improve the quality indicators of the seeds of agricultural crops, various sorting devices are used in the preparation of seeds for sowing. In order to ensure the need of quality seeds of the republic's agriculture and farmers, cotton seeds are sorted and planted in the seed preparation centers belonging to the "Klaster" enterprise[6,7]. Apart from these, the seeds of beans, mung beans, soybeans, rice, local peas and other vegetables and pulses are delivered to farms for spring and autumn sowing[8,9].

Results and Discussion. By sorting the seeds of these agricultural crops in the "Dielectric" sorting device, we will have the opportunity to increase the quality and quantity of the product by reducing the cost of planting seeds, increasing their fertility, increasing the potential yield, and reducing the cost of planting seeds on land areas, ensuring uniform and smooth germination of seeds, taking into account that it allows to increase productivity, reduce the cost of agricultural products, export to the domestic and foreign markets, and save electricity, the implementation of these works is considered urgent today (Fig. 1) [8].

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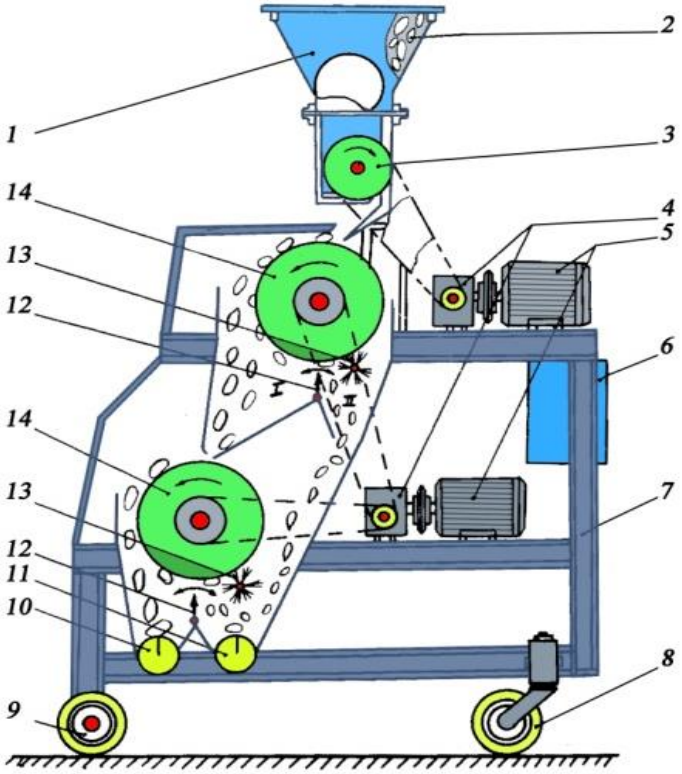

Figure 1. Overview of the dielectric sorting device.

1- hopper, 2-seed, 3-feeder, 4-reducer, 5-electric motor, 6-control shaft, 7-frame, 8, 9-front and rear wheels, 10, 11-planting and waste augers, 12-separation plane, the 13-separating edge and the 14- drum.

If the sorting process is carried out with the help of the electric sorting device shown in Figure 1, it is possible to separate the seeds of agricultural crops into two fractions "planting" and "waste"[9].

Figure 2 shows the working body drum of the Dielectric Sorter and the forces acting on the seed.

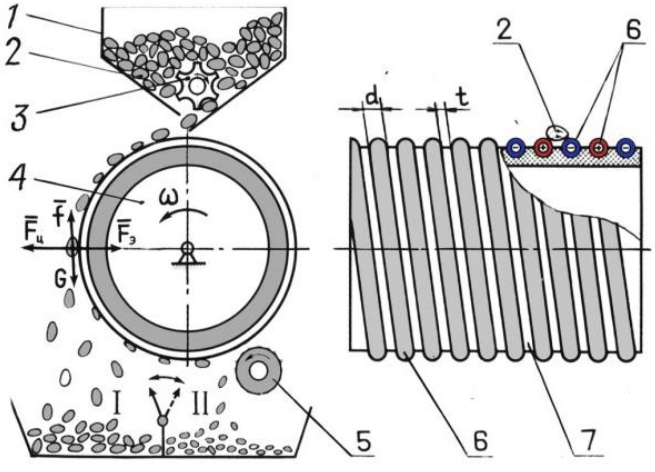

Figure 2. The principle scheme of the working body of the dielectric sorting device.

1- hopper , 2-seed, 3-feeder, 4-working body, 5-cleaning brush, 6-electrode, 7- electrode spacing, d-electrode diameter, t-electrode distance.

Conclusions. It is scientifically proven that the use of an electric sorter in the field to prepare quality seed for the spring, fall and year-round planting season. We will achieve the expected result by using the "Dielektrik" sorting device, which sorts the seeds in an energy and resource-saving electric way, increasing the efficiency of increasing the yield and the amount of products obtained as a result of the use of new innovative electric sorters[7,8].

Creating new innovative technologies for the agricultural sector and introducing them to the agricultural sector is a requirement of the present time for the implementation of these mentioned works[8,9].

Another advantage of the device shown in Figure 2 is that if we change the main parameters of the working organ drum, i.e., the diameter of the electrodes, the distance between them, the value of the high voltage applied to the electrodes and the number of revolutions of the working organ drum, it is possible to sort the seeds of other agricultural crops in the device, except for cotton seeds[12,13,17].

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