EUROPEAN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND MANAGEMENT STUDIES

VOLUME03 ISSUE05
DOI: https://doi.org/10.55640/eijmrms-03-05-40 Pages: 195-198

WAYS TO INCREASE QUALITY INDICATORS OF POLYCROP SEED

Usmanov Inomjon Israilovich
Ph.D., Kokan Branch Of Tashkent State Technical University Named After Islam Karimov, Uzbekistan

Abdullajonov Sirojiddin
M.Sc., Kokan Branch Of Tashkent State Technical University Named After Islam Karimov, Uzbekistan

Najmitdinov Zikrillo
M.Sc., Kokan Branch Of Tashkent State Technical University Named After Islam Karimov, Uzbekistan

Abdusattarov Akhadjon
Student Kokan Branch Of Tashkent State Technical University Named After Islam Karimov, Uzbekistan

ABOUT ARTICLE

Key words: Productivity, agrotechnical measures, seed, poly crop

Received: 21.05.2023
Accepted: 26.05.2023
Published: 31.05.2023

Abstract: This article discusses the ways to increase the quality indicators of police crop seed.

INTRODUCTION

It is known that the quality indicators of the seeds prepared for planting play a very important role in obtaining a high yield from poly crops, along with other agrotechnical measures. Because uniform and smooth sprouting of seedlings, further growth, ripening of the crop, and finally, the productivity of poly crops directly depend on the quality indicators of the seeds prepared for sowing. Therefore, increasing the quality indicators of the seeds of polys crops prepared for planting is one of the urgent tasks today.

Poly crop seed quality can be improved by various methods, including selection. It is known from scientific sources that in order to obtain high-quality seeds of agricultural crops, biological properties close to each other, with high fertility and potential yield in laboratory and field conditions, it is necessary to sort them according to all important physical and mechanical properties [1-7]. Such a requirement is fully met by sorting the seeds of winter crops in the electric field. Because the electric field affects the seeds with a directed electric field strength of different values, taking into account all their important physical and mechanical properties. As a result, in the electric field, the seeds of

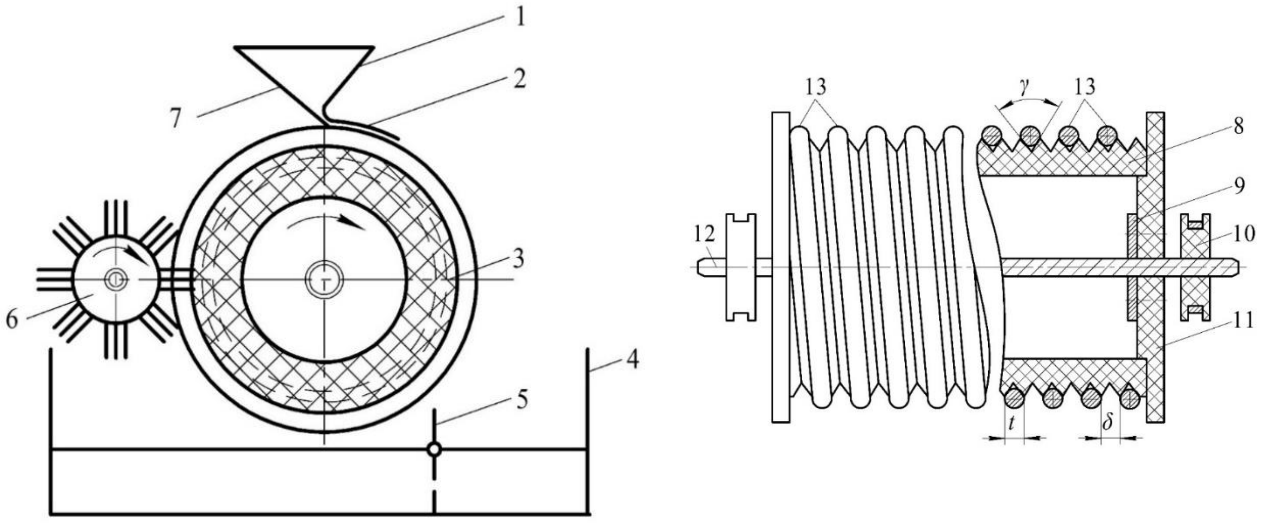
agricultural crops are sorted by all important physico-mechanical properties, i.e. mass, geometric dimensions, density, electrical resistance, dielectric absorption and other similar important properties [3, 4].

Taking into account the above, as a result of the research and design work carried out in the Scientific and Research Institute of Agricultural Mechanization and Electrification in the following years within the framework of the State scientific and technical programs, the selection of seeds of agricultural crops, including cash crops an energy and resource efficient electric sorting device was developed [1, 2]. The essence of the energy- and resource-saving electric sorter device is that the electric field on the surface of the working body is created in two different conditions, that is, as a result of the friction of two dielectric materials rotating against each other, and between electrodes of opposite directions wrapped in grooves directed in a two-lane helical shape to a dielectric drum. . As a result, seeds are affected by the cumulative electric field strength, which increases the accuracy of sorting them into seed and technical fraction.

Figure 1 shows the principle scheme and working body of the electric sorter device developed to improve the sorting efficiency of the seeds of polys crops.

The device is loading hopper 1, guiding device 2, working body 3, receiving hopper 4, dividing plane 5, separating brush 6, sliding board 7, polyethylene pipe 8, flanges 9, current transmitters 10, side disks 11, shaft 12 and counter. - 13 electrodes with the opposite direction are formed.

The working body 3 is made of a polyethylene pipe 8, on its surface four-lane screw grooves with a depth angle of 60° and a width of 5.0 mm are directed, and it is fixed to the shaft 12 with the help of flanges 9 and side disks 11. In the four-lane helical channels, one channel is left in relation to each other, electrodes 13 of opposite direction are wound, and they are connected to a high-voltage source through current transmitters 10.



a) b)

1-picture Electric designed to sort the seeds of polys crops.

The principle scheme of the sorting device (a) and the working body (b):

1-loading hopper; 2–directing device; 3-work body; 4-receiving bunker; 5–plane of division; 6–a separating brush; 7-sliding board; 8-polyethylene pipe; 9- flanges; 10current transmitters;11-side disks; 12-shaft; 13-electrodes with opposite signs.

The surface of the working body 3 of the proposed electric sorting device has grooves directed in the form of a four-lane screw, and because electrodes 13 with opposite directions are wrapped and there are grooves between them, the seeds of sorghum and other similar crops are rationally placed in the grooves, which increases the technological efficiency of sorting.

The guiding device 2 is made of a flexible dielectric material, and it places the seeds to be sorted in the grooves between the electrodes 13 of the opposite direction, preventing them from bouncing off the surface of the working body 3. This has a positive effect on the technological process of self-sorting.

The principle of operation of the device is as follows. When it is connected to the network, the working body 3 and the separating brush 6 are rotated. At this time, the sorted poly crop seeds are delivered from the loading hopper 1 through the sliding board 7 to the surface of the working body 3 at the same rate. The seeds delivered to the surface of the working body 3 are placed in the grooves between the opposite electrodes 13 in the direction of movement and with the help of the directing device 2, and are polarized under the influence of the electric field generated between them. As a result, the seeds are attracted to the working body 3 by the force of the electric field generated between the opposite electrodes 13. In addition to the electric field force, the seeds are also affected by centrifugal force, gravity, inertia, reaction and frictional forces. Based on the mutual ratio of the acting forces, depending on their physico-mechanical properties, the seeds are separated from the surface of the rotating working body 3 at different angles and separated into the appropriate fraction of the receiving hopper 4, that is, the seed or technical fraction. The seeds stuck to the surface of the working body 3 are removed from its surface with the help of a brush 6.

It is known from scientific sources that the electric field affects the seeds with electric field strength of different values, taking into account all their important physical and mechanical properties. As a result, the seeds are sorted in the electric field according to all important physico-mechanical properties, i.e. mass, geometric dimensions, density, electrical resistance, dielectric absorption and other similar important properties. In addition to the force of the electric field, the seeds are also affected by mechanical forces, and the technological process of sorting depends on the mutual ratio of these forces.

Therefore, during the technological process of sorting, polys crops are cut off from the surface of the working body at different angles, depending on their physical and mechanical properties. Depending on the physical-mechanical properties of the seeds, the angles of separation from the surface of the working body, the structural dimensions of the device and the operating modes can be based on the mutual ratio of the acting forces.

Since the seeds are rationally located in the grooves between the electrodes 13 with opposite directions, by changing the value of the voltage applied to them, it is possible to sort the seeds of different types of polys crops and other similar seeds in the proposed device.

REFERENCE

1. Isroilovich U. I. METHOD AND RESULT OF IDENTIFYING SEPARATION ANGLE OF MELON SEED FROM THE SURFACE OF ELECTRIC SELECTOR'S OPERATIVE ORGAN //Harvard Educational and Scientific Review. – 2022. – Т. 2. – №. 1.
2. Aydarov S. G., Yuldoshev O. K., Usmanov I. I. Scientific basis of selection of seeding seeds from the starting material //IOP Conference Series: Earth and Environmental Science. – IOP Publishing, 2021. – Т. 868. – №. 1. – С. 012078.
3. Усмонов И. И. РАЗРАБОТКА ПЕРСПЕКТИВНОЙ ТЕХНОЛОГИИ СОРТИРОВКИ СЕМЯН ДЫНИ //СОВРЕМЕННАЯ НАУКА И ТЕХНИЧЕСКИЙ ПРОГРЕСС. НОВАЯ ПРОМЫШЛЕННАЯ РЕВОЛЮЦИЯ В ЗЕРКАЛЕ СОВРЕМЕННОЙ НАУКИ. – 2022. – С. 51-55.
4. Мухаммадиев А., Усмонов И. Қовун уруғларини ултрабинафша нурда нурлантириш параметрлари ва иш режимларини аниқлаш// Юқори самарали қишлоқ хўжалик машиналарини яратиш ва техника воситаларидан фойдаланиш даражасини оширишнинг инновацион ечимлари: Халқаро илмий-техник конференция. – Гулбаҳор, 2022. – Б. 476-480.
5. Спирин Н.А., Лавров В.В. Методы планирования и обработки результатов инженерного эксперимента. – Екатеринбург: ГОУ ВПО Уральский Государственный технический университет – УПИ, 2004. – 258 с.
6. Кобзарь А.И. Прикладная математическая статистика. Для инженеров и научных работников. – Москва: Физматлит, 2006. – 816 с.
7. Росабоев А.Т. Электр саралагич қурилмасини такомиллаштириш натижаси //Энергия ва ресурстежаш муаммолари. – Тошкент, 2015. – № 3. –Б. 205-209.