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**ТАШКЕНТСКИЙ ИНСТИТУТ ИНЖЕНЕРОВ ИРРИГАЦИИ И
МЕХАНИЗАЦИИ СЕЛЬСКОГО ХОЗЯЙСТВА**

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Device for forming longitudinal thresholds among rows of improved porosity

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Abstract. The article presents an improved technical tool and technology for the formation of longitudinal thresholds in the separation of the area between the processes that take place after the third cultivation in cotton-growing farms and between the processes that take place before the extraction of irrigation furrows into the Forties. To do this, the constructions of existing threshold forming devices are analyzed and a longitudinal threshold forming device is recommended among the rows of porous equipped with a condenser cathode, which has the most convenient constructive solution. When using this threshold generating device, there is an experimental study that allows to increase the productivity of work by 10-15 times without reducing labor costs by up to 7-8 times. As a result of the experimental research, the density of the floors formed after the application of the recommended device is 1195...The fact that it weighs 1298 кг/м³ is based on the existing parameters, saving water consumption on the account of reducing the leakage of water from one contour to another, as well as the yield from cotton fields to 50 c/ha. This innovation is reflected in the experiments that yield 25-30% higher after the formation of longitudinal upholstery among the rows of porous with the help of techniques and technology devices.

1. Introduction

The main focus in providing the light industry of the Republic with cotton raw materials is aimed at increasing the cotton yield grown in farmer farms. For this purpose, in 2017-2021 in the strategy of action for the development of the Republic of Uzbekistan, including paragraph 7 of Section 3.2"... in the case of" reduction of energy and resource consumption in the economy, the broad introduction of energy-saving technologies into production, the expansion of the use of renewable energy sources, the increase in labor productivity in economic sectors " is defined, the fact that "modernization and rapid development of Agriculture" following Part 3 of part 3.3 indicates the positive work carried out on further reforming agriculture [1].

It is known that after the third cultivation in cotton-growing farms and among the processes that take place before the extraction of irrigation crops, it is necessary to first obtain longitudinal thresholds to divide the area between the foliage and the Forties[2, 3]. The need for technical means of obtaining longitudinal thresholds among the rows of husks is available today in all farmer farms of our Republic. Only in the Bukhara region, cotton is grown on an area of 100-110 thousand hectares [4, 5]. On average, 400-600 p per hectare, we can see the magnitude of the work volume if we take into account the demand for M thresholds. To date, this process is carried out both by hand power and by various equipment that is not scientifically based on some farmers [6]. However, all this has negative consequences, such as the fact that the water consumption in irrigation is 20-30 percent higher, the



formation of salt fragments in the irregularities of the dive, the difficulty of controlling the water in the field, the rapid leakage of water, the puddling of deeper parts of the dive, since the porous does not fully provide. One of the main reasons for this is since the density of the longitudinal floors formed between the rows of porous is not carried out at the required level. Considering that existing threshold forming devices are equipped with condensing devices, the introduction of a longitudinal threshold forming process between the rows of pores with the help of full-scale is relevant and important today[7].

To this end, the object and subject of the research is the technological process of creating a working body, a threshold, and a floor condensation, consisting of a floor condenser device of a longitudinal floor forming device between rows of cells. Soil condensation plays an important role in the technological process of growing agricultural crops since it significantly affects the hydrothermal mode of the upper layer of soil, Inter aligning the seed with the soil and increasing the flow of moisture across the lower horizon. Such a task is performed by devices equipped with a tightening working body.

Analysis of soil compaction tools shows that the existing compaction tools today are created mainly for the purpose of maintaining moisture in the soil, grinding the incisions formed in the process of planting, as well as in the processed fields, partially leveling and other purposes, without using them for the purpose of increasing their strength by compressing the flakes formed between the rows of cotton [8, 9, 10, 11, 12, 13].

To increase its strength by densifying the longitudinal floors formed between the rows of cotton, it is necessary to establish scientific and practical justification of the parameters of the dense Catholics, which have a special structure. In particular, the main objectives of the study were determined to improve the technological process of forming longitudinal thresholds among the rows of cotton, to base on the parameters of the device and constructive dimensions that increase their uniformity by densifying the floor formed for the device of longitudinal thresholds.

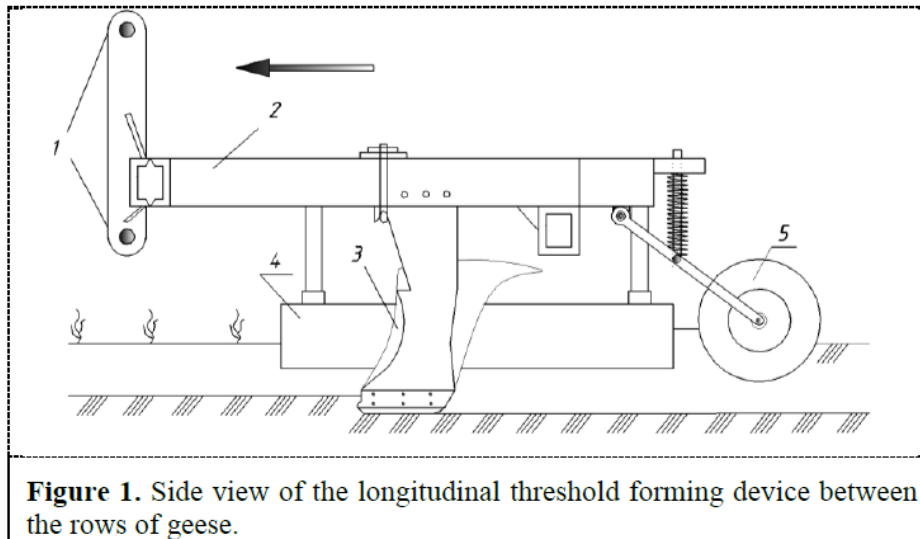
2. Methods

Theoretical studies were based on higher mathematics, classical, and peasant mechanics, while experimental studies were supported by approbation methods in specially created Laboratory-field devices and fields of the Educational – Scientific Center of the Bukhara branch of TIAME [14,15]. As a working body of the floor condenser device for the longitudinal floor extraction device between the rows of gauze, the conical surface cathode was prepared in several variants [16]. To install the catcher on the receiving device, a special design was designed and a copy of his experience was prepared [17]. Mechanism prepared for the condenser cathode is fixed to the device by adjusting the row on which the threshold should be generated by the back of the device. The mechanism allows the catcher to move in a vertical steep - plane relative to the device [18].

1-the picture depicts the view of the longitudinal threshold receiver from the side between the rows of ribs.

The issue posed universal is solved using a working body consisting of a casing with a semi-submerged surface, which is adapted to the installation on the base of the tractor, is located at an angle of $\alpha=40^\circ$ relative to the direction of movement, and a condensing the catcher device to increase the strength of the formed floor [19].

The threshold formation device consists of the hopper 1, 2 and the spherical shell 3, which is installed at an angle ($\alpha=40^\circ$) towards the direction of movement of the hopper and the hopper 3, and the spherical shell 4, which protects the porous nichols from the pressing of the soil pile, which is thrown from the surface of the hopper the catcher 5 and the device works in the following order[20]. When the device moves along the rut with the help of a tractor, the soil in the rut is moved to the side while the rut is lifted along the surface casing 3, the rut is rolled over to the rut which should be formed by increasing the protective shell over the 4 of the soil and the overturned soil is densified with the help of a densifying the catcher 5 [21].



Also, the compressive working body (cathode) on the formed floor is compressed with a coil to adjust the compressive strength in the vertical plane, which serves to ensure the pressure of the device at the specified power effect [22].

The threshold formation between the rows is formed in two passes, as a result of the movement of the aggregate to the opposite sides. In both transitions, the densifying cathode centralizes the soil by the rut and intensifies and increases its strength [23].

3. Results and Discussion

Field-experimental research was conducted using the device created above. The results of the experiment were processed in a static manner, and regression equations were obtained that adequately characterize the criteria such as the gravitational force of the aggregate, the diameter of the condensing cathode, the conical angle of the condensing cathode, the impact force of the cathode compression coil [24]. The analysis of these regression equations showed that for the device equipped with a condensing working body to ensure the required degree of condensation of the floors between the rows of the porous, the aggregate's gravity was determined to be $F=300\text{ N}$, the diameter of the condensing cathode was $D=45\text{ cm}$, the conical angle of the condensing cathode was $\alpha=350$, it was determined that the impact strength of the cathode compression coil is $Q=300\text{ N}$ [25]. The process of creating thresholds through the technological process described above allows 10-15 times to increase the productivity of work without reducing labor costs by 7-8 times [26].

4. Conclusions

Taking into account the above parameters, when the longitudinal threshold forming device was used among the rows of cotton equipped with a condenser device, the agrotechnical process of qualitative formation of soils was ensured on demand. As a result of experimental research, the density of non-dense flakes by the cross-sectional area is 1120...If it was 1150 kg/m³, then the density of the flakes formed after the application of the recommended device was 1195...It was determined that it was 1298 kg/m³. In particular, the yield from cotton fields was increased to 50 c/ha. The conducted studies showed that the yield of this device was 25-30% higher when compared to the thresholds harvested using a device not equipped with a condenser device.

Taking into account the above, it was found that when using a floor-forming device equipped with a condensing working body, which is recommended to ensure the durability of the floors in the formation of longitudinal thresholds among the rows of cotton, it is economically effective.

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