



## "INNOVATIVE ACHIEVEMENTS IN SCIENCE 2023"

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### BASIC REQUIREMENTS FOR THE TECHNOLOGICAL PROCESS OF FORMATION OF A LONGITUDINAL PAWL BETWEEN ROWS OF COTTON

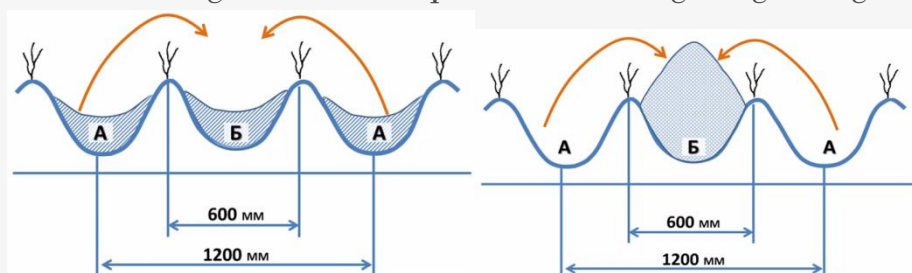
**Abstract:** *The article is about the importance of forming pawl between the rows of cotton, the requirements for mechanization of the technological process and the benefits of using a pawl-creating device.*

**Keywords:** *Pawl, pawl-creating device, removable soil, of forming longitudinal pawl, furrow profile.*

It is well known that some areas of irrigated agriculture (Kharezm, Bukhara, Kashkadarya, Navoi and a number of regions) during the cultivation period, before the first irrigation, longitudinal and transverse pawls are exposed between rows due to the slope and unevenness of the fields.

In the flow chart of growing cotton, for dividing into pieces of the field, where the process of the first building with the third cultivation is carried out, first of all, the formation of longitudinal pawls is required. From sowing cotton seeds to the first watering period, it is required to process between two feedings with one feeding and one opening of the furrow for feeding.

The quality of longitudinal pawls depends largely on the mechanical processing of the rows of cotton based on agrotechnical requirements during the growing season.





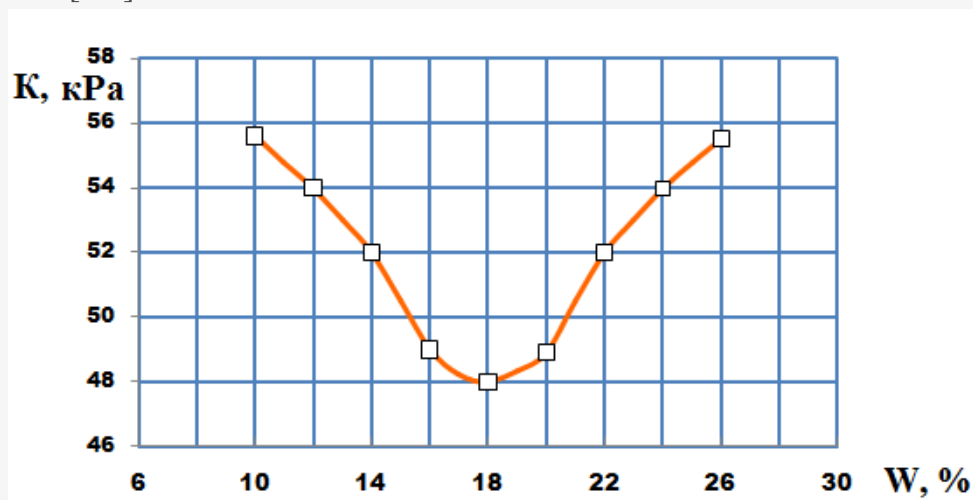
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A – lateral furrows with removable soil

B – The furrow where soil builds up and forms the pawl

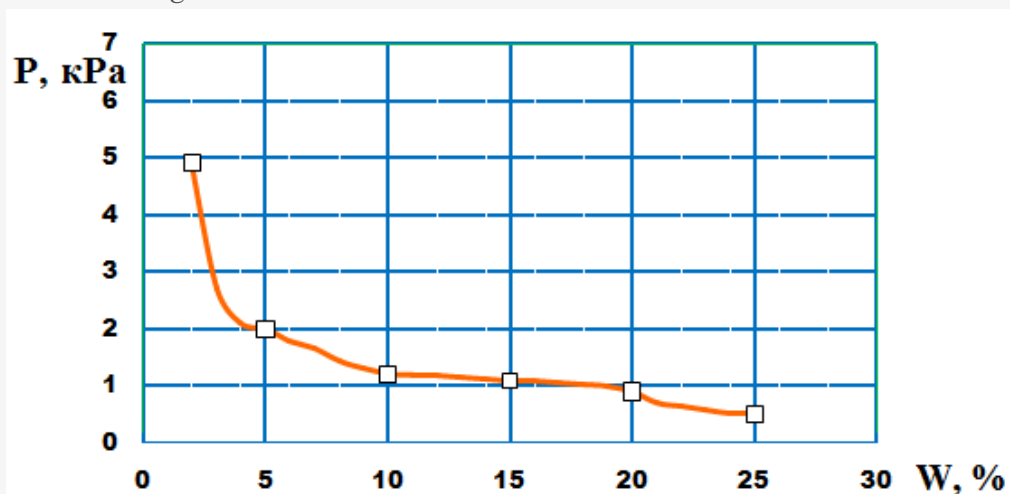
Picture 1. The process of forming longitudinal pawl between rows of cotton

When there is moisture in the soil at a low level of moisture, the resistance of the working bodies of gravity increases, since it is much more difficult to cut the soil layers with the help of working bodies. High soil moisture also leads to an increase in frictional forces. An analysis of scientific research shows that with soil moisture of 16-18%, its resistivity is minimal. This leads to a reduction in energy consumption by reducing the friction of the body on the soil. Figure 2 shows the change in soil resistance relative to its moisture content [2,3].



Picture 2. Change in soil resistance (K) depending on its moisture content (W)

As can be seen from the graph, its relative resistance varies depending on soil the moisture, and its relative resistance is minimal when the soil moisture is 16-20%. This is due to the softness of the soil. With a change in soil moisture, its hardness also changes. Low soil hardness is achieved due to the lemex of the working body, which facilitates cutting the soil and energy consumption. Changes in soil hardness due to its moisture content are shown in Figure 3.





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### Picture 3. Changes in soil hardness (P) depending on moisture (W)

As can be seen from the graph, when the soil moisture content is 5% or less, its hardness is high, and as soil moisture increases, its hardness decreases accordingly. Therefore when preparing formation of longitudinal pawl between rows of cotton it is advisable to have an average soil moisture content of 15-18% [Ошибка! Источник ссылки не найден.].

Relative irregularities in the cotton fields prevent uneven irrigation of the field, resulting in some rows of cotton sprouts being left insufficient or completely irrigated. The best way to prevent this is to form sufficient amounts of longitudinal and cross-sectional pawl between the rows of cotton, taking into account the field irregularities.

On the basis of sample technological maps developed for 2016-2020 by the Scientific-Production Center of Agriculture of the Republic of Uzbekistan and the Scientific-Research Institute of Rural Economy of Uzbekistan, regional research-production centers and branches of cotton growing scientific-research institutes developed by regional departments of agriculture, approved by scientific and practical councils and the standard and working process maps, introduced in production, describe the technological process of generating up to 400 p/m per hectare [1].

It is clear from farming practices that in the area of 1 hectare an average of 1-2 cross-sectional pawls is formed and up to 3-4 longitudinal pawls are formed. Based on this, given the relative unevenness of the cultivated area, 30-40% of this technological process is devoted to the formation of longitudinal pawls 60-75%. The following requirements are required for formation of pawl between rows of cotton.

1. The root system of cotton plantations in the adjacent rows of soil from which the soil is formed during the formation of the pawls and the root system are not exposed.
2. Make sure that the existing cotton branches on both sides of the pawl where the pawl is formed will not be damaged and buried with soil.
3. Ensure that the resulting pawl is sufficiently waterproof and sturdy enough to allow the pawl to grow.
4. Lack of large pieces (in order to prevent the appearance of water washes) in the line where the longitudinal pawl is formed.
5. Lemex cutting depth of extracted soil from the furrow is less than the depth of cultivation.
6. The pawl should be formed in one passage of aggregate, etc.

In carrying out the technological process of forming longitudinal pawl between rows of cotton, with mechanisms, formation of pawl techniques must meet the above requirements. At the same time, formation of pawl techniques should be easy to ensure that formation of pawl is low cost and high performance during the formation of pawl process and most importantly, the tractors used for the cultivation of cotton fields should



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be easy to assemble, also maintenance should be easy.

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