



International Journal for Innovative Engineering and Management Research

A Peer Reviewed Open Access International Journal

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IJIEMR Transactions, online available on 28th March 2021. Link

<https://ijiemr.org/downloads/Volume-10/ISSUE-3>

DOI: 10.48047/IJIEMR/V10/I03/113

Title: **MAIN REQUIREMENTS IN THE PROCESS OF CREATING LONGITUDIAL PAWLS BETWEEN COTTON RAWLS.**

Volume 10, Issue 03, Pages: 522-524.

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MAIN REQUIREMENTS IN THE PROCESS OF CREATING LONGITUDIAL PAWLS BETWEEN COTTON RAWLS.

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Abstract: The article discusses the importance of creating a longitudinal pawl between rows of cotton, its impact on water efficiency, and the main requirements for longitudinal pawling.

Keywords: cotton, longitudinal pawl, transverse pawl, unevenness, slope, water consumption, relief, floor.

Introduction

Irrigated lands in the cotton-growing regions of the country are also divided into three zones according to natural-climatic and soil conditions, mechanical composition of the soil, its processing technology, types of machines and agro-technical requirements. In the cotton-growing areas of the third zone, longitudinal and transverse pawls are taken between the rows due to the slope and unevenness of the field before the first irrigation during the cotton growing season. Cotton is grown in this area by irrigating the fields in small sections along the longitudinal and transverse pawls. Depending on soil conditions in cotton farms, in order to divide the area between the third cultivation and the first irrigation process into pawls and sections, it is necessary to create longitudinal pawls first. The relative unevenness of the cotton fields prevents even irrigation of the fields some rows of cotton seedlings become malnourished or not irrigated at all. The best way to prevent this is to create a sufficient amount of longitudinal and transverse pawl space between the rows of cotton, taking into account the unevenness of the field.



Figure 1. A field with longitudinal and transverse pawls between rows of cotton

Agricultural Research and Production Center of the Republic of Uzbekistan and On the basis of standard technological maps developed by the Uzbek Research Institute of Rural Economics for 2016-2020, regional research and production centers and branches of cotton research institutes, Model and working technological maps, developed by the regional agricultural departments, approved by the scientific and practical councils and introduced into production, describe the technological process of creating a pawl of 400 p/m per hectare [1].

The importance of pawls in the process of self-irrigation and the requirements for it according to the recommendations of the Bukhara branch of the Uzbek Cotton Research Institute on agro-techniques for growing medium-fiber cotton varieties "Bukhara-6", "Bukhara-8" and "Bukhara-102" are given [5].

It states that the following differences are observed in non-pawled fields compared to pawled fields:

- Yields are 15-30 % lower depending on the flatness and terrain;
- 20-30 % higher water consumption;
- Formation of salt particles in field unevenness;
- Difficulty controlling water flow in the field;
- Increase irrigation duration by 1.5-2 days;
- There are several benefits to irrigating cotton by dividing it into sections;
- Full and regular irrigation of the area is provided;
- Reduces water waste;
- Convenience for field water control;
- Sequential irrigation of cuttings ensures fast and high-quality execution of the technological process.

In cotton farms, depending on the soil conditions, the area between the third cultivation and the first irrigation process requires the formation of longitudinal pawls first. The technological process of forming a longitudinal pawl between the rows of cotton is as follows: take the soil from the edges on both sides of the middle row where the pawl is to be formed, without damaging the cotton seedlings consists of alignment.

The height of the floor and the cross-sectional area formed between the rows of cotton are the main indicators. These indicators can be determined using the following scheme.

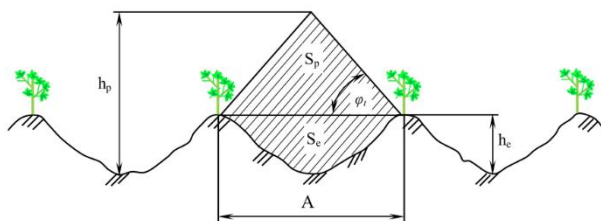


Figure 2. Scheme to identify altitude and cross line surface of pawl.

According to the data given in the literature, if we assume the angle of natural shedding of the soil $\phi_t = 35-40^\circ$, it turns out that

the height of the pawl is at most $h_p = 25.2$ cm. The cross-sectional area of the pawl is the sum of the two surfaces, viz

$$S_{um} = S_p + S_e$$

where S_p – is the face of the upper triangular part of the pawl;

S_e – is the face of the lower edge of the floor.

Longitudinal pawls between rows of cotton are formed before the first irrigation of cotton and used until the end of the growing season. Therefore, it is necessary to carry out this technological process through pawl-forming devices that meet the established agro-technical requirements. The following requirements apply to the formation of a pawl between rows of cotton:

- Not to damage the cotton seedlings in the rows and on both sides of the pawl;
- The depth of cutting of the soil removed from the field by means of soil;
- Forming devices with the ploughshare of the working body is less than the depth of cultivation with the cultivator;
- At least 70-80 % of the fractions up to 50 mm in the pawl formed when the soil moisture is 10-12 %;
- The height of unevenness on the surface of the pawl and at the bottom of the ridge should not exceed 2-5 cm;
- The height of the pawl between the rows of cotton is more than 20 cm above the pile;
- The width of the longitudinal pawl formed between the rows of cotton should be 55-60 cm;
- The process of forming a longitudinal pawl should be carried out in one pass of the unit.

The longitudinal and transverse pawls created on the basis of the above requirements lead to a significant reduction in water consumption, ensuring the reliability of the process during the first irrigation of cotton. Irrigation of cotton seedlings should be smooth and saturated, making it easier for irrigators. It is especially important to ensure that the longitudinal pawls

are formed before the first irrigation and used in subsequent irrigations, in accordance with the established agro-technical requirements.

Literature:

1. Model technological map for 2016-2020 developed by the Agricultural Research and Production Center of the Republic of Uzbekistan and the Research Institute of Agricultural Economics of Uzbekistan. T. 2016 y.
2. Standard technological maps for cotton growing in Bukhara region for 2019. Buxoro - 2018.
3. H.H.Olimov. Substantiation of technological process and parameters of longitudinal pawl forming device between cotton rows: abstract of the Doctor of Philosophy (PhD) dissertation in technical sciences. - Tashkent, 2019
4. A.N.Murtazoev. Improving and justifying the parameters of the device that forms a longitudinal pawl between rows of cotton: abstract of the dissertation for the degree of Doctor of Philosophy (PhD) in technical sciences. - Namangan, 2020 y.
5. K.Olimov and A.Juraev. "Determining the cross profile of manmade pawl and pawl before creating longitudinal pawl between cotton rows" // International scientific conference «Construction Mechanics, Hydraulics and Water Resources Engineering» (CONMECHYDRO – 2020).