NOVATEUR PUBLICATIONS
JournalNX- A Multidisciplinary Peer Reviewed Journal
ISSN No: 2581 - 4230
VOLUME 6, ISSUE 7, July -2020

STUDY OF OPERATING CONDITIONS OF COMBINED UNIT

A. N. KHUDOYAROV
Professor, Andijan branch of Tashkent State Agrarian University

D. A. ABDULLAEV
Docent, Andijan branch of Tashkent State Agrarian University

M. KHOLDAROV
Independent Researcher, Andijan branch of Tashkent State Agrarian University

H. NORKULOV
Master, Andijan branch of Tashkent State Agrarian University

ABSTRACT:

The article presents the results of research on the technology aimed at minimal tillage of the soil and the study of the operating conditions of the combined unit that implements it. It was found that the hardness and density of the egat soil is higher than that of the ryegrass and stalks, due to the compaction of the egat soil during the growing season under the influence of the wheels of the mowing tractor.

KEYWORDS: Minimal tillage technology, combined aggregate, g working conditions, research results, egat soil hardness, density, pile, seam row, crop vegetation period, mowed tractor wheels.

INTRODUCTION:

The technology, which focuses on minimal tillage, is implemented in the fall, when the cotton stalks are loosened and the fields are loosened without overturning at a depth of 30-40 cm in one pass of the aggregate last season. fertilized by the method, the old buds are pushed to the same loosened and fertilized areas, new buds with a height of 25-30 cm are formed, that is, the bottom is softened and fertilized p instead of last season's branches stalks and stalks are replaced by stalks.

When comparing the above-mentioned existing and proposed technologies of preparation of fields for sowing, the proposed technology significantly reduces labor, energy and fuel consumption due to loosening of lands without overturning and the absence of storming, mulching and chiseling measures, the number of field trips it was found that the soil is not over-compacted due to shrinkage (6-7 times to 2 times) [1,2].

The main working bodies of the combined unit are the road softener without overturning the soil, the fertilizer device for tape-fertilizing the softened layer, and the cotton pickers that form piles on the softened and fertilized layer.

The combined unit is mainly used in the preparation of fields free of cotton and other agricultural crops for sowing next year in areas where the natural and climatic conditions, which do not allow saline and jacob water, allow the cultivation of cotton in cotton.

Physico-mechanical properties of the soil were studied in the fields where corn was grown as a secondary crop after cotton and winter wheat. Soil moisture, density and hardness were determined according to the requirements.

Soil moisture has a significant impact on the amount of energy consumed in its

cultivation and the quality of work performed.

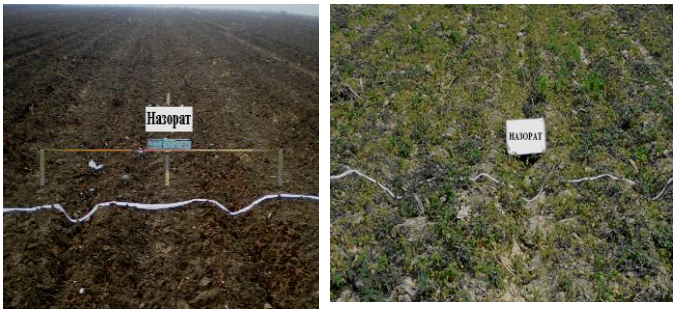
When the soil moisture is high, the energy consumption increases as it sticks to the working bodies, not crumbling enough. In addition, the working process of the machine is disrupted as a result of the soil settling in front of the working bodies. In the treated layer with a low amount of moisture, large lumps are formed

It is ripened when the soil moisture is around 16-18% in irrigated gray soils and 18-20% in meadow swampy soils, and it crushes well during cultivation and has low resistance.

The hardness of the soil depends mainly on its moisture and mechanical composition. A decrease in moisture leads to an increase in its hardness, and the hardness of light soils in terms of mechanical composition is lower than that of moderately heavy and heavy soils.

Soil density is a key indicator that determines its physical and biological properties. When the soil density is in the range of 1.1-1.3 g / cm3, favorable conditions are created for the development of cotton and other agricultural crops.

Moisture, hardness, and density of the soil in the experimental fields prepared for the combined aggregate treatment were determined (Fig. 1.2).



a b

a-cotton-free field; a field freed from b-replanting Figure 1. To be processed with a combined aggregate general view of the prepared field

It describes the general appearance of the field, which was cleared of cotton, the cotton stalks were plucked and prepared for cultivation with a combined aggregate in the fields where corn was grown as a secondary crop after winter wheat, and the transverse profiles of the ridges and ridges.

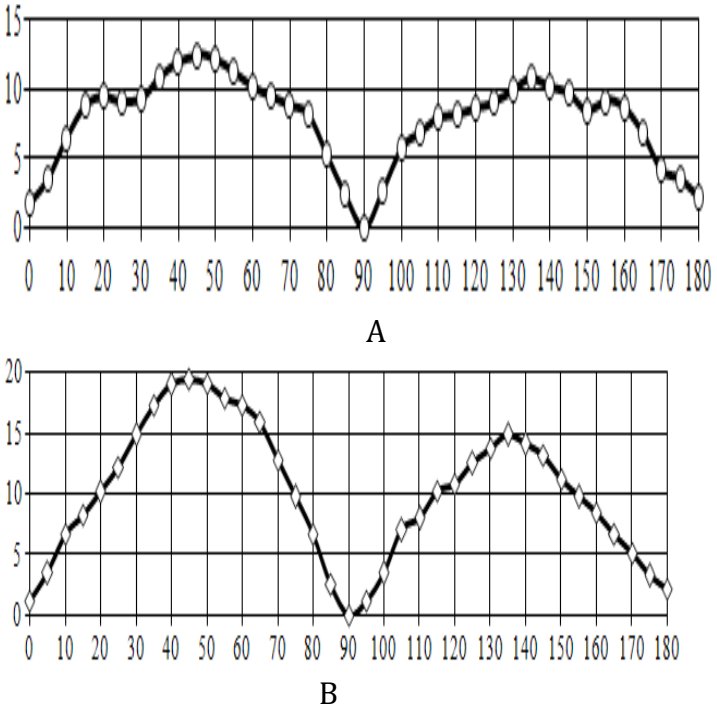


Figure 2. Transverse profiles of buds and ridges present on the surface of fields free from cotton (a) and replanting (b)

RESULTS:

The results of the study showed that in the fields where the cotton stalks were removed, the depth of the ridges (or the height of the ridges) varied in the range of 10.7-12.4 cm, and their average value was 11.7 cm. In the fields where maize was grown as a secondary crop after winter wheat, these figures were 14.8–19.4 and 17.1 cm, respectively.

Soil samples from 0-10, 10-20, 20-30 and 30-40 cm layers of egat, pile and chok rows of the experimental field were studied. The data obtained are presented in Tables 1 and 2.

1-table Moisture, Density of Loose Field Soil and Hardness Data

Sample location	Soil layers, cm			
	0-10	10-20	20-30	30-40
Soil moisture, %				
Egat	7,3-16,8	9,5-12,8	10,5-13,9	10,9-15,8
Pushta	4,8-15,5	4,3-8,0	8,5-11,0	9,9-12,9
The middle of the seam line	5,2-16,0	4,7-9,8	9,5-12,5	8,8-14,9
Soil density, г/см³				
Egat	1,38-1,45	1,43-1,48	1,47-1,53	1,48-1,54
Pushta	1,33-1,36	1,34-1,38	1,41-1,45	1,43-1,51
The middle of the seam line	1,35-1,39	1,38-1,42	1,37-1,51	1,39-1,50
Soil hardness, МПа				
Egat	2,89-3,41	3,06-3,21	4,01-4,21	4,58-4,89
Pushta	0,92-1,42	1,42-2,89	3,12-3,34	3,29-3,74
The middle of the seam line	1,33-2,08	2,18-2,78	3,47-3,68	3,89-4,22

Table 2. Data on moisture, density and hardness of field soil freed from corn planted as a secondary crop

Sample location	Soil layers, *см*			
	0-10	10-20	20-30	30-40
Soil moisture, %				
Egat	14,7-18,3	12,6-17,2	12,4-16,8	10,8-17,2
Pushta	11,3-14,7	13,4-15,4	11,6-16,4	12,3-14,8
The middle of the seam line	13,8-17,6	14,7-16,9	13,8-16,4	11,7-16,3
Soil density, г/sm³				
Egat	1,31-1,36	1,37-1,42	1,44-1,49	1,46-1,53
Pushta	1,24-1,32	1,32-1,38	1,38-1,43	1,41-1,48
The middle of the seam line	1,28-1,34	1,34-1,37	1,39-1,45	1,47-1,52
Soil hardness, МПа				
Egat	1,74-2,86	2,47-3,73	4,04-4,42	3,87-4,78
Pushta	1,21-1,87	2,04-2,86	3,14-3,76	3,37-4,14
The middle of the seam	1,68-2,64	1,97-2,91	3,08-3,44	3,78-4,46

From the data in Tables 1 and 2, it can be seen that the hardness and density of the egat soil in both backgrounds is greater than that of the ridge and suture row. This can be explained by the fact that during the growing season of crops, the soil of the field is compacted under the influence of the wheels of the mowing tractor. It should also be noted that in the cotton-free field, the soil moisture was low, hardness and density were high. This can be explained by the fact that, firstly, corn grown after winter wheat is also watered in September, and secondly, the corn between the tractors of mowing tractors enters 2-3 times less than between the rows of cotton, and therefore the soil is less compacted.

CONCLUSION:

Comparing the existing and proposed technologies for preparing fields for sowing, a significant reduction in labor, energy and fuel consumption due to loosening of roads without tillage and the absence of harrowing, mulching and chiseling, a sharp reduction in the number of units passing through the field (6-7 times to 2 times).

The results of the study showed that in the fields where the cotton stalks were removed, the depth of the ridges (or the height of the ridges) varied from 10.7 to 12.4 cm, and their average value was 11.7 cm. Were 8-19.4 and 17.1 cm, respectively.

Moisture, hardness and density of the soil in the cotton and maize fields prepared for the combined aggregate processing were determined, and in both backgrounds it was found that the hardness and density of the egat soil was higher than that of the ridge and seam row. was found to be at the expense of.

REFERENCES:

1) A. N. Hudayarov, M. Mамadaliyev, M. Yuldasheva, R. Muradov Power-efficient method of tillage and its technology model European science review Austria, Vienna January-February. №1-2, 2017 212-214
2) Khudoyorov A.N. Combined unit for minimal processing // Technique in agriculture. Moscow, 2009. - No. 6. –S.56-57.