ISSN NO: 2771-8840
Date of Publication: 20-10-2022

Influence of Damage of the Winter Cutworm on the Yield of Cotton

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Annotation. In the conditions of the Bukhara region of the Peshku district, cotton is damaged by more than 200 types of pests. Among them, the most common is the winter cutworm, the harmfulness of which reaches 18%. To save cotton from damage by the winter scoop, a complex system of measures is used, among which the leading place is occupied by agrotechnical and chemical methods of control.

Keywords: winter cutworm, agricultural practices, harmfulness, damage, growth and development of cotton, methods of control.

Agrotechnical measures, which changed the main environmental factors, inhibit the development of the pest and improve the conditions for the development of cotton, are the safest measures in pest control.

The task of the research was to study the effect of certain agricultural practices on reducing plant damage by the winter cutworm.

Field experiments were laid in the farms of the Peshku district of the Bukhara region in 2022-2023. On the MFY farm in the experiment, autumn plowing was carried out on November 30; spring plowing on March 26 with a plow with a skimmer to a depth of 30-35 cm. Both options were located side by side, the area of each was 2.0 ha. Accounting for the number of caterpillars of the winter cutworm was carried out according to the method of F.M. Uspensky.

As the data obtained show (Table 1), autumn plowing compared with spring plowing reduced the number of winter cutworm caterpillars in cotton by 0.2 - 1.0 ind. for 1m2. This contributed to the reduction of damage to cotton by the winter cutworm by 1.8%. The yield of raw cotton in variants where spring plowing was applied.

Table 1

Influence of autumn plowing on the number of winter scoops and damage to cotton (farm)

Index	Posting dates				
	19 May	25 May	30 May	5 June	10 June
autumn plowing					
number of caterpillars ind/m^2	0.6	1.1	1.6	1.4	1.4
Damaged plants,%	0.2	1.1	1.4	3.4	3.2
Plants died,%	1.3	3.9	4.8	6.1	5.0
spring plowing					

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number of caterpillars ind/m^2	0.9	1.9	2.2	1.7	2.4
Damaged plants,%	0.4	1.3	2.1	6.3	5.2
Plants died,%	1.8	6.4	12.1	12.4	11.6

Winter irrigation contributed to a decrease in the number of caterpillars of the winter armyworm by 0.3 individuals per 1 m^2 compared with the control. (Table 2.) As a result of a decrease in the number of caterpillars and better development of plants in areas with winter irrigation, damage to cotton by winter cutworms decreased by 4.3%. This is due to the fact that winter irrigation, violating the conditions of normal overwintering of caterpillars, contributes to their freezing or prevents them from coming to the surface. At the same time, sufficient soil moisture in the spring ensures the receipt of friendly seedlings and intensive growth of cotton. As a result, damage to plants by winter cutworms is reduced and crop losses are reduced.

Table 2

Influence of winter irrigation on the number of caterpillars by the winter cutworm and damage to cotton seedlings by it (Peshku district, Bukhara region, 2022)

Index	Posting dates			
	May 20	May 30	June 9	June 13
winter watering				
number of caterpillars ind/m^2	0.2	0.4	0.6	0.4
Damaged plants,%	3.1	3.7	5.9	7.1
Plants died,%	0.0	2.0	1.8	2.0
Control				
number of caterpillars ind/m^2	0.5	0.9	1.1	0.8
Damaged plants,%	5.8	6.7	8.0	9.9
Plants died,%	0.0	5.5	3.3	3.5

Our observations indicate that the nature of the damage caused to cotton seedlings by caterpillars of the winter scoop is different. They damage both seedlings and seedlings that have appeared on the surface of the soil, and young plants before the appearance of 3-4 sometimes even 5-6 true leaves of cotton during the period. Germinating seeds that have not yet come to the surface of the soil are damaged, and if the seedlings of them all do not appear on the surface, they carry holes on the cotyledon leaves.

The emerging shoots of the caterpillars either gnaw or overheat at the level of the soil (near the root neck) or slightly higher. Sometimes they strongly eat cotyledon leaves or bite point of growth, which leads to the death of the plant. Sometimes the pest gnaws the root collar, leaves and lower parts of fully grown plants with 5-6 true leaves. This happens when hoeing clogged areas. At the same time, weeds are destroyed, and the caterpillars, deprived of food, switch to feeding on cotton.

Records and observations show that with a decrease in the number of weeds, the number of damaged seedlings of cotton by winter scoop caterpillars increases

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Table 3
The influence of agricultural practices on the number of caterpillars of the winter cutworm (Farmer of the Peshku district 2022)

Indicators	Control (without thinning cotton seedlings)	Thinning of cotton seedlings	Cultivation with application of mineral fertilizers	Cultivation and hoeing with seedling mandrel
Number of shoots of cotton, total pcs/m^2	16.6	17.2	16.6	16.2
Of which damaged pcs/m2	2.2	3.0	3.9	1.7
%	1.3± 1.3	16.1± 2.6	23.7± 1.9	10.7± 1.3
Number of weeds, total, pcs/m^2	16.3	18.1	8.2	3.3
Including: black nightshade	7.3	3.5	2.3	0.6
field bindweed	1.3	0.5	0.2	0.1
Marie white	5.9	3.6	2.1	0.3
Number of caterpillars, pcs/m^2	1.95± 0.32	1.95± 0.22	1.42± 0.19	0.82± 0.11

Note: The percentage of damage to seedlings increased due to the cultivation mouth filling them with soil.

In the fields where inter-row cultivation with the application of mineral fertilizers was carried out with violation of agro-cultivation and hoeing by ketmen (hoe), damage to cotton by the winter cutworm increased, because. a significant reduction in the number of weeds causes the caterpillars to feed on the leaves and tender stems of cotton. In addition, hoeing with ketmen (hoe) in many cases increases the number of damaged seedlings by covering them with soil.

Timely implementation of agrotechnical measures, thinning seedlings, inter-row tillage, hoeing contributed to the better development of cotton and reduced the number of caterpillars of the winter scoop.

The growth, development and abundance of caterpillars largely depend on the age of soil development. So, on the newly developed light loamy and meadow-marsh soils, eggs and caterpillars of the winter cutworm are not found, although the fields are littered with black nightshade, field bindweed, white marijuana and others. (Table 4). this is explained by the fact that scoops have not yet accumulated in significant quantities here

Table 4
Influence of the prescription of soil development on the number of winter cutworms (Peshku district 2022)

Posting date	Number of cotton plants			Quantity weeds, pcs/m2			population caterpillars For 1m^2, ind.
	Total pcs/m^2	damaged		Nightshade black	Bindweed field	Mary white	
		PCS					

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Newly developed lands							
04.05. 18.05. 26.05.	14.0 14.5 15.0	- - -		-11 -8 -3	2 - 3	17 21 6	- - -
Old irrigated lands							
04.05. 18.05. 26.05.	16.0 16.7 16.5	2.7 1.6 1.9	6.8 1.5 1.5	17 46 18	- 5 2	22 23 18	1.4 1.8 0.6

Conclusions:

Damage to cotton by winter cutworms depends on the number of caterpillars, careful implementation of agricultural practices when growing cotton, as well as on the degree of falling asleep of cotton seedlings with soil during cultivation, hoeing and thinning. With the implementation of all agricultural practices, damage to cotton is reduced by 19.5 - 54.9%.

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