

ASSESSMENT OF UNDER-GROUND PESTS DENSITY IN POTATOES GROW AFTER WINTER WHEAT.

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Annotation

The results of held researchers in determining percentage of underground pests spread, winter phases, biological indexes in the fields of rotation crop potato and winter wheat were discussed in the article. According to that, soil layer of potato and winter wheat fields which were taken for experiments should be dug to 5, 10, 15, 20, 25 cm and all kinds of underground pests, fall armyworm (*Agrotis segetum* Den. Et Schiff), may bugs (*Melolontha melolontha*), click beetles (*Elateridae*) larvae will be determined.

Every found soil pests in the fields of the potatoes and winter wheat are compared, they are analyzed on the base of common methods. Practical conclusions and recommendations were given based on results.

Key words. Underground pests, the field of rotation crop potato and winter wheat, root neck, seedlings, buds, leaf and stalk pests.

Introduction

The resolution of the President of the Republic of Uzbekistan from the 1st of June, 2017 “About measurements to deliver material- technical resources in time required to place and grow rotation crops on the fields which are freed from winter wheat in 2017” is very important. Potato was planted on the fields of main and rotation crops and total yield was 2.9 million tons of potato was harvested in 2016. Potato was grown as a rotational crop in 37 thousand hectares of field and 3.5 million tons of potato was harvested in 2017. [8].

Specific natural climate conditions of Uzbekistan as well as favorable weather temperature during plant vegetation periods create advantageous condition to develop pests

of agricultural crops. That is why thousands of pests and diseases develop in the agricultural crops and they affect on the both quality and quantity of the yield.

Unique political forming and realizing it to increase productivity of agricultural crops and protect them from decreasing must be based on protection them from pests, diseases and weeds effectively using less poisoning, ecologically safety chemical and biological means. 15-20% of harvests are lost because of harmful impact of under soil pests of grain, rotated carrots and potatoes. From these pests armyworm (*Agrotis segetum* Den. Et Schiff), click beetles, calf headbugs, march beetle (*Melolontha afflicta* Ball), marble beetle (*Polyphyla adspersa*), May cochchafer (*Melolontha melolontha*), eat roots stalk and leaves of main and rotated agricultural crops and make significant harm to the yield. Most of these under soil pests have several years of vegetation period and they place in the soil carefully and it will be main factor to damage 25-30% of plants of rotated crops [4]. 51 kinds of pests belonged to 15 families are found in the crops of Solanaceous family. Out of 51 identified pests 40 of them are found in tomatoes and egg plants, and 48 of pests are in potato [3].

The importance of preparation period in winter for winter period of cutworms on the field, favorable weather condition years will be convenient to increase more pests. Wintering cutworms as well as control types of pests in fall army worm is useful for them from the second decade of August because of accumulated degree days [7].

In this reason researchers were held to assess density and determine under soil pests, level of appearance, winter stages, biological indexes in wheat and rotated potatoes.

The object and methods of the research. 2 hectors of rotation crop potato fields are chosen for researchers in farm "Salim Bakhobov", in the district of Bulugur, Samarkand province.

First of all, 25x25sm of soil examples were taken in diagonal (chess) methods from 5, 10, 15, 20 and 25 sm dug layer from this fields and soil were passed through entomological sieve in different measures. (Polyakov, 1980).

Examples were taken from 10 places in winter wheat and rotation crop potato fields, in a average 1m² (inside and round of field were calculated), the density in the grain and rotated potato were determined.

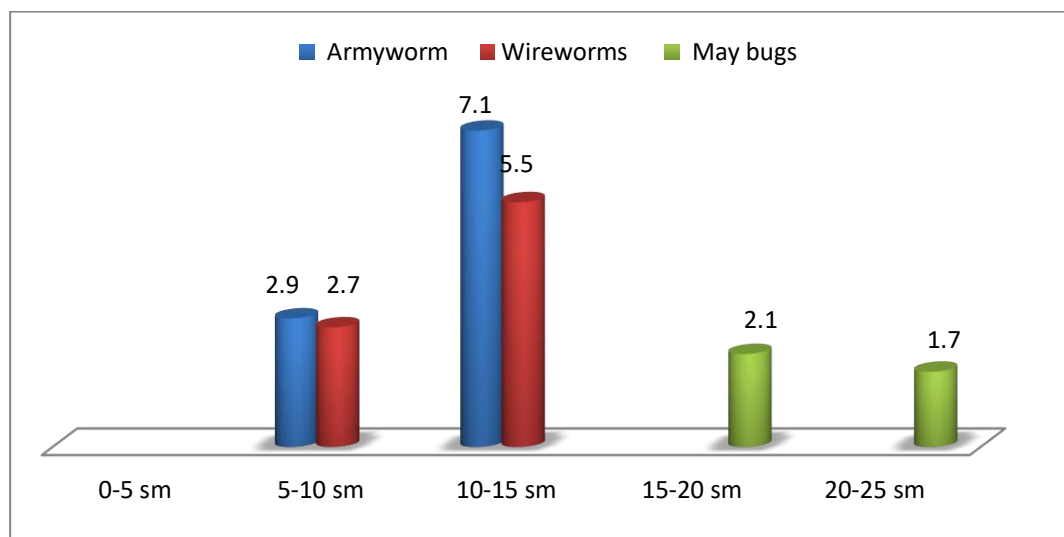
Taken results were analyzed on the base of common methods [1; 5;]

Results. During held researches 5sm of soil layer in 1m² (in chess method) taken from 2 hectors of potato field which were planted after winter and after checking pests were not found. 1.7 units of fall army worm larva, 1.3 units of wire worm larvas were found in the 5-10sm of soil layer in experiment field 10-15sm of soil was dug in this way and taken soil was passed through sieve. According to this the number of fall army warm larva was 4.7, wire worm larva 3.7. 15-20 and 20-25sm of soil layer were checked in this field and only 1.3 and 1.2 units of may bugs were found in worm phase.

When 5sm of soil layer was checked in 7 hectors of winter wheat field any pests weren't found. When soil layer was dug till 5-10 and 10-15sm 1.2-2.6 units of fall army worm larvas were found. 1,4-1,8 units of wire worm larvas were determined.

Also, when soil layer was dug till 15-20 and 20-25sm and soil was passed through sieve, 0,8-0,5 units of may bugs in worm phase were found. The results of this research are given in (Diagrams 1).

Diagrams 1. Assessment of density of under soil pest population in winter wheat and rotation crop potato fields.(Farm "Salim Bakhobov" in Bulungur district, Samarkand province. 2018-2019 yy.)



Every found pests from the soil layer in the fields of wheat and potato were compared on the base of held researches, variation coefficients were analyzed in percentage. Results are given in the following table 1

Assessment of density of under soil pest population in the fields of winter and rotated potato(Farm “Salim Bakhobov” in Bulungur district, Samarkand province 2018-2019).

Table 1

Experiment area	Limit	$m \pm m$	σ	$C_v, \%$	$t(1-11)$
The number of pests in the rotated potato after winter wheat	0.5-1.6	1.08 ± 0.15	0.42	39.45	7.32
The number of pests in the winter wheat fields	1.2-2.1	1.66 ± 0.12	0.35	21.55	

Note: Limit- number vibration; $m \pm m$ - overage index and its errors; σ - standard limits (average square limit); C_v - variation coefficients, in percentage; student coefficient.

According to that when the number of pests in rotation crop potato fields after winter wheat in Experiment 1 are was analyzed, Limit- number variation consists of 0.5-1.6, $m \pm m$ – average index and its errors reached 1.08 ± 0.15 . σ - standard limit (average square limit) consisted of 0.42 and C_v – variation coefficient was 39.45% (in Experiment 2) or limit – number vibration of the pests in winter wheat field was 1.2-2.1 average index and its errors was 1.66 ± 0.12 . In this version standard limit (average square limit) was 0.35 and the percentage of variation coefficient in rotation crop potato field was much lower or it was 21.55%. According to the analysis of experiment the fact that number of pests in potato fields were more than in wheat fields was proved, or it consisted of $t = 7.32 (p \geq 0.05)$.

Conclusion and recommendation.

The conclusion of taken results are the followings: Pests can feed in potato fields with leaves and stalk, they can winter under the soil and they can increase potato field than in the cultivated fields of winter wheat. This under soil pests can damage main and rotation vegetable crops and potatoes seriously in the next year. Taking these facts into consideration, introducing effective measurements against under soil pests in time, planting rotated vegetables, if the number of pests increase using poisoning chemical pesticides are recommended.

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