



DEVELOPMENT OF THE SUNN PEST ON WINTER WHEAT CROPS IN EXTREME CONDITIONS OF THE REPUBLIC OF KARAKALPAKSTAN

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ANNOTATION

The article presents the results of a study of the spreading and development of sunn pest on wheat crops. The dynamics of development and harmfulness from the beginning of April to the end of the growing season in the extreme conditions of Karakalpakstan were determined. Recommendations are given on the use of optimal types of chemicals to prevent the development of the pest.

KEYWORDS. Pests, dynamics, harmfulness, biotope, biocenosis, biological efficiency.

INTRODUCTION

At present, the occupied area of the territory of the Republic of Karakalpakstan is 167,091 km², which covers about 37% of the entire territory of the Republic of Uzbekistan, being located in the extraordinary zone of risky farming. In the north-east it borders with the regions of Kazakhstan, in the east and south with Turkmenistan, in the south-west with the Khorezm region. The region, in certain criteria, differs from its neighbors in terms of natural, climatic, soil and plant resources. The main territory is the primary ecosystem, where cotton, rice, wheat, vegetables, melons and fodder crops are cultivated in the agrobiocenosis of the country, occupying certain areas. The climate is sharply continental, the cold period (below -10°C) lasts from October to March, the increase in air temperature in summer reaches + 40-45°C, in winter it drops to minus 25-30°C, which actively affects the cultivation of winter wheat varieties [1].

In this agro-climatic condition, winter wheat has been cultivated for the last 20 years and currently covers more than 53,000 hectares. In the main part of the occupied area, varieties transported from Russia Krasnodar-99, Tanya, Grom, Gratsiya and varieties Yaksart, Omad, Asr, Orol bred by local breeders are cultivated. The above varieties of Russian wheat are intensive, which, with the use of optimal agrotechnical work, give the maximum yield.

A change in plant resources growing in agrobiocenosis is observed with the appearance of new insect species that were not previously recorded in this region. Among such factors in the biotope of this region, particularly dangerous types of wheat pests include: wheat thrips (*Haplothrips tritici* Kurd), wheat aphids (*Schizaphis graminum* Rond), sunn pest (*Eurygaster integriceps* Put), barley leaf beetle (*Lema melonopus* L.) and others. [2-4].



METHODS OF THE RESEARCH

In determining the types of pests and entomophagous species in the biotope of wheat grown in Karakalpakstan, the methods of BP Adashkevich, Sh.T.Khojaev were used and V.I.Tansky's methods was used to define the damage. The results of the study were analyzed by variance, and mathematical statistical processing was carried out on the basis of the method of B.A. Dospekhov [3-5-6-7].

RESULTS OF THE RESEARCH

According to the spreading area and the damage, the sunn pest turned out to be the dominant species. This type of pest first appeared in the region after 2010 and is now widespread in all areas of wheat and causes serious damage to crops. To develop optimal measures against the pest, studies were carried out to study the bioecological features of development, population dynamics, harmfulness and protective measures.

It has been established that the sunn pest winters in the imago phase on plant remains under stones around the fields. At an elevated air temperature of + 5 ° C, it leaves the wintering place and continues its spread on wheat crops in the third decade of April. First, the female additionally feeds and lays eggs, the intensity of reproduction of adults, eggs and larvae in this agro-climatic condition falls on the May.

The results of a study on the development of the bioecology of the pest indicate that the female pest developing under optimal conditions lays an average of 60.2 eggs, 46.1 larvae come out of them, of which 34.5 reproduce until the imago phase. During May and until the second decade of June, reproduction per 1 m² of wheat field is 1.0-2.1 adults, 10.5-12.2 eggs, 6.9-9.5 larvae. Leave for wintering in the third decade of June.

When breeding a sunn pest per 10 m² of field, on average, up to 10 specimens 46.2 pieces are destroyed from each 1m² of the field, 0.14 pcs. grain and from a mass of 1000 grams of wheat grain is reduced by 11.1 grams, which leads to a yield loss of 10.9 quintals per hectare, with a deterioration in the quality of the crops.

To prevent this loss, the methods and terms of treatment with chemicals recommended for use on wheat crops against pests have been studied. The treatment was carried out using a tractor sprayer with a working fluid flow rate of 200-300 l/ha (Table 1).

As a result of the work carried out, it was found that the use of chemicals in controlling sunn pests on wheat crops with a density of 12.9-24.1 per 100 plants ensures the destruction of 73.1-93.1% of the pest in the third day after treatment. The biological effectiveness of the drugs during 14 accounting days was 96.4-98.9%, which is more effective drugs were Bagheera 20% s.e.k. in consumption 0.1 l/ha, 10% em.c. Killer extra - 0.1 l/ha, 5% em.c. Esfen-alpha - 0.3 l/ha, 55% em.c. Cyperphos-0.5 l/ha, 55% em.c., which are currently widely used on wheat crops in controlling this type of pest.

**Table 1.****Biological effectiveness of the use of chemicals against harmful bugs on wheat crops***Chimbay district of the Republic of Karakalpakstan, 2020-2021.*

Variants	Spendin g norms, л/га	Amount of pests until application, pieces for 100 plants	Biological effectiveness in days, %					
			3		7		14	
			\bar{S}	$\pm m$	\bar{S}	$\pm m$	\bar{S}	$\pm m$
Bagira, 20 % s.e.k.	0,07	24.1	89,1	1,6	93,6	2,4	95,2	2,1
Bagira, 20 % s.e.k.	0,1	18.5	94,1	1,8	97,1	1,9	98,9	0,8
Atilla, 5 % em.k.	0,15	21.5	86,3	3,1	92,1	1,6	94,4	2,1
Atilla super, 10 % em.k.	0,1	17.4	83,1	2,4	93,2	3,0	94,8	2,5
Killer neo, 10 % em.k.	0,07	20.5	86,1	2,7	88,4	2,9	91,3	2,6
Killer extra, 10 % em.k.	0,1	17.2	87,4	3,2	90,6	2,8	93,2	1,8
Dalate, 5 % em.k.	0,2	14.6	82,4	2,6	83,2	3,1	86,1	1,6
Esfen alfa, 5 % em.k.	0,3	12.9	93,1	2,9	95,2	2,9	96,4	2,2
Ciperphos, 55 % em.k.	0,5	17.5	92,5	2,4	96,1	2,5	98,2	1,0
Entometrin, 25 % em.k.	0,2	16.4	73,1	2,9	79,6	2,2	84,3	2,3
Agrophos-D, 55 % em.k.	0,5	15.8	84,8	3,5	91,6	2,8	92,5	2,1
Control (without application)	-	24.0	Amount of pests.					
			26,5	2,4	31,6	3,5	38,1	1,1

CONCLUSION

Thus, in the agro-climatic conditions of the Republic of Karakalpakstan, cultivated intensive varieties bred in the conditions of the Russian Federation turned out to be favorable for the mass development of many types of specific pests such as wheat thrips (*Haplothrips tritici* Kurd), wheat aphids (*Schizaphis graminum* Rond), sunn pest (*Eurygaster integriceps* Put), barley leaf beetle (*Lema melonopus* L.). According to the spreading area and harmfulness, the sunn pest is dominant, which lives up to 10 specimens per 10 m² of field, reducing 7.9 quintals of yield per hectare, with a deterioration in the quality of the crops obtained. To prevent the loss of these crops, the use of chemical treatment with the above-mentioned preparations is recommended.

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