

INFLUENCE OF GRAIN APHID PEST ON EXTERNAL WHEAT SYMPTOMS

Amirkulov Otabek Saidullaevich
Candidate of Agricultural Sciences, Senior Researcher. Laboratory of Plant Protection,
Scientific Research Institute of Agriculture in the Southern Regions. Karshi City,
Kashkadarya Region, Republic of Uzbekistan

| ABSTRACT | KEYWORDS |
|---|--|
| According to the research in the article, it is indicated at what stage measures should be taken to protect plants from pests, given that aphids cause more damage to the tillering of wheat in grain fields. | Wheat, aphid, harm, density, grains, yield, plants, ear, development, waste, sucking, sign, biometric, phenological, drug. |

Introduction

Today, there is an increase in the density and harmfulness of aphid pests at different stages of development of grain crops in irrigated and rain-fed grain fields of the republic. Aphids are one of the most dangerous and widespread small micro pests of grain crops. It is difficult for us to chemically control these pests and maintain wheat yield and grain quality, so it is important to know exactly when this pest will cause more damage to wheat.

Severe damage to aphid crops can lead to curling of leaves, leaving behind growth and incomplete ripening of grains (Popova, Soboleva, 1961; Abbasov, 1973; Sohen, 1981; Sharipova, Shvetsova, 1986; Belolipetsky, 1992, Tansky V.I.), exchange substances into the plant and changes in the anatomical structure of leaves (Instructions, 1981) [1]. According to Yu.A. Zakhvatkina (1986), if there are more than 50 aphids on a plant, the plant loses 10-14% of the flower and the yield decreases sharply [5]. Sh.T. Khodzhaev, A.A. Khakimov (1991) showed that the degree of damage to aphids depends on the period in which the crops were damaged. The later the plant is damaged by aphids, the less the yield loss will be [4].

For this purpose, in 2020-2021, several experiments were carried out on the field experimental fields of NIIZUR. When conducting these experiments at different stages of plant growth, the grain of the winter wheat variety “Turkiston” was artificially infected with aphids. Phenological observations were also carried out regularly.

Research Methods

The research was carried out on the basis of general entomology (Vinogradova, 1970; Larchenko, Kazimirsky 1973; Golub et al. 1980; Sokolov et al., 1981; KiriyaK 1984; Starostin et al., 1987; Voronin et al., 1988; Makarova, Doronina , 1988; Areshnikov, Starostin, 1992; Dorokhova et al., 2001; Tansky

et al., 2002) and agrotoxicology (VIZR, 1986; Chenkin et al., 1990; Khodzhaev et al. , 2004). The effectiveness of chemical and biological drugs is calculated using the Abbott formula (Gar, 1963) [2]. During the study, the wheat in the sample was completely cleared of other pests by treatment with a contact insecticide (Entometrin em.c. 150 l/ha) 20 days before the grain was infected with aphids, which could harm the crops.

The plants were artificially infected with a large aphid pest during the period of tillering and budding of wheat, a total of 9 lysometric backgrounds after protection from the external environment, 6 with 3 repetitions for each period and 3 for control.

Accordingly, 5, 10, 20 individuals of aphids per stem were infected. According to the results of our research in 2020-2021, the earlier the plant is damaged by grain aphids, the more the harvest will be lost. In our experiments 2020-2021. 5 aphids were placed per stem during the tillering period of wheat; due to 10 and 20 aphids, the amount of lost yield and changes in the morphophysiological characteristics of wheat were as follows:

Research Results

During the period of emergence into the tube, the height of the plants was 77.6 cm compared to the control in the variant of applying 5 grains per 1 stem; Experiments showed that plant height was 76.2 cm at 10 aphids per 1 stem, and 74.7 cm at 20 aphids per 1 stem compared to the control. The plant formed an ear in the variant with 5 aphids per stem - 6.2, in the variant with 10 aphids - 5.4, in the variant with 20 aphids - 5.7. The degree of heading was 86.5% in the variant with 5 aphids, 83.2% in 10 aphids and 81.7% in the 20 aphids variant.

The length of the ear was 7.9 cm in the variants with 5 aphids, 7.8 cm in the variants with 10 aphids and 7.7 cm in the variants with 20 aphids. The weight of one ear was 1.8 grams in the variant with 5 aphids, 1.7 grams in 10 aphids and 1.5 grams in the variant with 20 aphids. It was found that the number of grains in one ear was 35.7 in option 5, 34.6 in option 10, 34.2 in option 20. The weight of 1000 grains was 33.6 grams in option 5, 33.5 grams in option 10 and 32.0 grams in option with 20 aphids. The yield of one grain tillering was 6.2 grams in option 5, 5.1 grams in 10, 4.2 grams in option 20 with aphids; In the variant with 5 aphids per stem, the yield loss was 16.2% compared to the control; It was revealed that in the variant with 10 aphids per 1 stem, 28.3% of the yield was lost, which is 40.5% less than in the control with 20 aphids per 1 stem.

A similar experiment was carried out during the period of wheat booting. The plant height in the first option was 81.4 cm, 78.6 cm in the second option and 77.8 cm in the third option. Experiments showed that when 20 aphids were placed on one stem, the plant height was 74.7 cm compared to the control. In wheat, the number of ears per bush was 6.2 pieces compared to the control; in the variant with 5 aphids per stem, 6.0 pieces with 10 aphids, and in the variant with 20 aphids - 5.8 pieces. The length of the ear was 9.2 cm in the variant with 5 aphids, 8.9 cm in 10 and 8.7 cm in the variant with 20 aphids. The weight of one ear was 1.8 grams in the variant with 5 aphids, 1.7 grams in 10 and 1.6 grams in the variant with 20 aphids.

It was found that the number of grains in one ear was 39.5 in option 5, 38.6 in option 10, 37.8 in option 20 by aphids. The weight of 1000 grains was 34.7 grams in option 5, 34.2 grams in option 10 and 33.2 grams in option with 20 aphids. The yield of one grain tillering was 6.4 grams per 5 aphids, 6.1 grams per 10.5, 1 grams per 20 aphids;

A similar experiment was carried out during the period of wheat booting, in which the yield was 10.8% less than the control in the first option, by 17.5% in the second option and by 31.0% in the third option. The experiments show that there was no significant the influence of grain aphids on the amount of harvest during the period of wheat budding, compared with the period of wheat tillering. Research has shown that aphids are infected with pests during the tillering period of winter wheat, the loss of yield relative to the control in the first option is 16.2%, in the second option -28.3%, in the third option 40.5%, and in case of damage during the period, the exit into the tube was 10.8%, 17.5% and 31.0%. Aphid pests negatively affect the transition to the period of emergence into the tube, sucking up all the juice located in the stem and leaves during the tillering period of wheat. As a result of pest infestation, the wheat shoots wither and the leaves dry out, leaving the plant behind in growth and development and quickly dying due to poor respiration, that is, due to the stopping of the photosynthesis process.

Conclusion

According to the results of the study, it is recommended to carry out pest control measures in a timely manner, given that aphids in grain fields cause more damage during wheat tillering.

References

1. Tansky V.I. Biological basis of insect harmfulness. – M.: Agropromizdat. 1988. – From 182-198.
2. Dospehov B.A. Methodology of field experience. – M.: Kolos. 1985. – 351 p.
3. Lebedova A.T. Grow pumpkin // Plant protection. – 1993. - No. 7. – P. 32-33.
4. Khodzhaev Sh.T., Khakimov A.A. On the issue of developing EPV of sucking pests in conditions of complex infestation of plants by them // Tr. SANIZR. – Tashkent: UzAASKhN, 1991. – P. 93-96.
5. Zakhvatkin Yu.A. General entomology course. – M.: Agropromizdat, 1986. – P. 285-287.