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EFFECTIVENESS OF MEASURES TO CONTROL MELON PESTS AND DISEASES IN THE CONDITIONS OF THE REPUBLIC OF KARAKALPAKSTAN

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ANNOTATION

The article presents measures to control diseases and pests, which are considered to be the main problems in the cultivation of melon crops in the conditions of the Republic of Karakalpakstan. The effectiveness of the use of a combined control system of pest and disease control measures has been determined. Autumn and spring agrotechnical measures in the destruction of pupas that have gone to the wintering, timely and moderate use of chemical preparations to control mature breeds and diseases, achieve high biological efficiency.

KEYWORDS: melon, pests, diseases, agrotechnical measures, chemical preparations, efficiency.

INTRODUCTION

The climatic conditions of the Republic of Karakalpakstan are quite different compared to other regions. The soil and climatic conditions of the region are considered to be sharp continental, the summer season is very hot, the winter season is cold, the amount of precipitation is low, and sometimes there are cases when there is little or no snow in the winter season. For the cultivation of agricultural crops, it is necessary to plow the land, organize autumn and spring salt washing. Therefore, most of the cultivated areas of the region are saline, which has a negative effect on the cultivation of agricultural crops. In addition, as a result of the lack of water, which is among the main problems, failure to carry out agrotechnical measures on time, measures against weeds, pests, and diseases in their time, leads to a sharp decrease in the amount of productivity.

In the conditions of the region, various varieties of melons are grown from agricultural crops. During the vegetation period, which lasts from 75 to 135 days, depending on the variety, various diseases and pests accumulate. It was found out that melon fly (*Myiopardalis pardalina* Big.), which is considered to be the most harmful of the pests, and fusarium wilt, powdery mildew are more common diseases.

METHODS OF THE RESEARCH

Methodical manual of V.B. Golub et al. (1980) was used in determining the developmental phases and morphological signs of the melon fly pest in laboratory conditions using special binoculars, to determine the dynamics of development, 100 plants (5 plants out of 20 samples) were examined between 5 and 8 in the morning, and methodological instructions of Sh.T. Khojaev (2004) were used in agro

toxicological studies on mature breed and flight activity, movement to flight, application of anti-chemical preparations.

Studying the level of development of diseases based on the methodological manual published by scientists of the All-Union Institute of Plant Protection, determining the degree of damage caused by fungal based on the methods of A.I.Dudka, S.P.Wasser, A.A.Ellanskaya, methods of A.E.Chumakov, T.I.Zakharova were used in determining the level of spread of diseases (4).

The biological effectiveness of the chemical preparations used to control the pest was determined using the formula of W.S.Abbott (1925) based on special methods.

RESULTS OF THE RESEARCH

Melon fly (*Myiopardalis pardalina* Big.), which is the main and most harmful in melon fields in the Republic of Karakalpakstan, has been spreading since 2001. The states of origin and spread of the melon fly, morphological signs, bioecological development characteristics, level of damage, controlling measures are being studied. In the course of 2018-2022, integrated control measures were carried out, having studied the bioecological development feature of the melon fly pest. In the course of our research, in our 2022 observations of the pest, it was found that the first mature breeds of the melon fly flew out of the wintering on May 23 under laboratory conditions and on May 28 under field conditions.

In order to save the harvest in the melon fields, coordinated control measures were carried out. It belongs to the family of insects that fully develops in the nature of bioecological development of the pest. The mature breed is adapted to flying in the open air, its eggs and worms develop in the fruiting body, and its pupas develop at a depth of 5-30 cm in the soil, depending on the conditions, and goes to the



countryside. It is effective to carry out coordinated control measures against each development phase of the pest.

In our research, the effectiveness of spring plowing, autumn plowing, autumn plowing and salt washing, autumn plowing and spring salt washing, and spring plowing and salt washing were studied among the agrotechnical measures in controlling pupas of the pest. 70.0% of spring plowing operations, 78.5% of autumn plowing operations, 93.3% of autumn plowing and salt washing operations, 73.3% of autumn plowing and spring salt washing operations, 71.4% of spring plowing and salt washing operations caused the death of wintering pupas compared to the control option. As a result of the decrease in the number of wintering pupas, in the fields where agrotechnical measures have been carried out effectively, the development of future generations is prevented.

In our research, during the vegetation period, we counted worms and fungal in the average of 10 pieces of trapping equipment placed in melon fields. 209.1 pieces of the first generation, 154.7 pieces of the second generation, and 144.9 pieces of the third generation were collected and destroyed in our observations of 2021 by placing the trapping equipment on the melon fruits where the pest laid eggs. A total of 152.5 pieces of fungal were collected from the first generation of the pest, 109.3 pieces from the second generation, and 82 pieces from the third generation. It was found that due to the mechanical destruction of the fungal collected in the trapping equipment, the number of future generations has decreased.

In our research, when conducting actions of controlling the melon fly pest, we prepared 200-300 liters of working solution per hectare with insecticides, the active substances of which are deltamethrin, malathion, lambda-cyhalothrin, lambda-cyhalothrin + thiamethoxam, cypermethrin + chlorpyrifos, by processing at 5-8 a.m., on the 14th day of the event 96.0-98.0% biological efficiency was noted.

Taxonomic analysis of the collected data on the biological characteristics of the fungus that cause a lot of damage to melon crops in the region revealed that they belong to 3 classes, 6 orders, 8 families, 15 genera, 26 species and 7 forms.

From microbiological preparations Bist sus.k. and Trichodermin n. cook. applied to control Fusarium wilt disease in melon. In this case, in the control option, it was known that the fusarium wilt disease of plants increased, and it was 22.3% on the 45th day of the research. 62.8% efficiency was recorded on the 45th day when Bist sus.k. preparation was used. In the variant where Trichodermin n. kuk. was used the efficiency was 69.0-70.0% on this day.

In our studies, fungicides Previkur (1.5 kg/ha), Falcon (0.3 l/ha), Alto Super (0.3 l/ha) were used against melon powdery mildew, and their biological effectiveness was determined.

Previkur - 78.4%, Falcon - 70.0%, Alto Super - 61.8% in 45 days of the preparations used against powdery mildew in melon.

CONCLUSION

It was found that there is an opportunity to reduce the number of future generations by carrying out coordinated measures against the melon fly. In addition, melon crops should not be

grown in the same field every year. Among the chemical preparations against mature breeds of the pest, the use of chemical preparations with active ingredients deltamethrin, malathion, lambda-cyhalothrin, lambda-cyhalothrin + thiamethoxam, cypermethrin + chlorpyrifos was noted to be highly biologically effective. In order to reduce the number of development of the pest, it is recommended to carry out the combined control measures effectively.

Using Bist sus.k. and Trichodermin n. cook. from microbiological preparations against Fusarium wilt disease of melon, in the indicated norms and periods shows high efficiency. Taking into account the high biological efficiency of Previkur (1.5 kg/ha) preparation against powdery mildew, it is recommended to use it in farms and agricultural households.

LIST OF REFERENCES

1. Adashkevich B.P. "Biological protection of cruciferous vegetable crops from harmful insects". - Tashkent: "FAN", 1983. -p. 180-188.
2. Gar K.A. *Methods for testing the toxicity and effectiveness of insecticides*. - Moscow: "Agricultural literature, magazines and posters", 1963. - p.167.
3. Golub V.B., Kolesova D.A., Shurovenkov Yu.B. *Entomological and phytopathological collections, their compilation and storage*. - Voronezh: "Izd. VU", 1980. - p.228.
4. Durshimbetov I.K. *Diseases of cucurbits crops (melons, watermelons) in the conditions of Karakalpakstan and measures to control them. Abstract of PhD in Agricultural Sciences*. - Tashkent, 2019. - p.17-18.
5. *Guidelines for testing insecticides, acaricides, biologically active substances and fungicides (Compiled by Khojaev Sh.T. and others)* - Tashkent, 1994. - p.102.
6. Khojaev Sh.T. *Methodological guidelines for testing insecticides, acaricides, biologically active substances and fungicides (II edition)*. - Tashkent, 2004. - p.102.
7. Yusupov R.O. *Biology and harmfulness of the melon fly and the development of measures to control it. Abstract of PhD in Agricultural Sciences*. 06.01.09. - Tashkent, 2018. - p.20-25.
8. Abbot W.S. *A method of computing the effectiveness of an insecticide //J. Econ. Entomol. - 1925. - V.18. - №3. - P. 265-267.*