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Measures to Control Parasitic Nematodes that Cause Diseases in Melon Crops

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Abstract: Various methods and tools are used to protect agricultural crops from nematodes. It is important to determine the composition of species of nematodes in the fight against them, to know their biology, ecology and many other specific features. The following methods are used in the fight against parasitic nematodes

Key words: Nematode, toxonomy, melon, watermelon, parasite, feld plants, fight against.

INTRODUCTION: Melons are widely grown in many countries around the world, including China, Turkey, India, the United States, Iran, Egypt, Spain, Ukraine, Bulgaria, and Central Asian countries [6.221 b]. In our republic, an average of more than 60 thousand hectares of land is planted with melons every year, of which 60-65% is watermelon and 35-38% is melon [3. 8-9 b]. The flesh of the fruits of these crops is tender, juicy, and sweet, and they also contain substances that are beneficial to the human body, including sucrose, glucose, fructose, vitamins, and organic acids. However, these crops are subject to a wide range of pests and can cause significant damage. One such pest is parasitic nematodes. Today, more than 2,000 species of parasitic nematodes infect almost all plant species, causing up to 10% of the world's crop yield to be lost each year. Under the influence of phytohelminths, the productivity of agricultural crops, vegetables, melons, technical and fruit trees is reduced by an average of 6-25%, in some cases by 70-95% [5. 3 b]. Among them, root-knot nematodes belonging to the Meloidogyne genus are very widespread and cause serious damage to plants, and as a result of the cessation of growth of the above-ground organs of the plant, it leads to stunting, yellowing of the leaves, low yield in some places or complete failure of the crop, and the death of the plant before the end of the growing season. Therefore, the prevention of damage to plants by parasitic nematodes and the development of a set of scientifically based, economically efficient and environmentally friendly methods and tools for pest control are of great relevance. The aim of the study is to develop measures to combat parasitic nematodes in melon crops.

LITERATURE REVIEW. The creation of new, ecologically clean, economically affordable modern methods for combating all types of parasitic nematodes is one of the urgent issues facing scientists. From this point of view, B.Sc., Professor Sh. Khurramov was the first in the world of science to develop the solarization method in 1977 and published it in the scientific press in 1978.

In the conditions of the country of Israel, Professor Katan also created the solarization method in 1978, unaware of Sh. Khurramov's work. This method is effective in hot summer and autumn countries, including Central Asia. Fields with phytoparasitic nematodes are plowed and dried in one of the months of June, July, or August.

The affected areas are plowed to a depth of 45-50 cm and left in the heat for two weeks. Then, soil samples are taken and examined. If live nematodes appear, the land is plowed again and left in the sun for another week. At this time, the soil temperature is left at a temperature of 48-50 degrees. As a result, the biological efficiency of the solarization method in the conditions of Surkhandarya is 95-98% (Sh. Khurramov 1989).

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In addition, winter frosts can also be destroyed by freezing the soil. During the freezing of the soil, nematodes in the roots of plants left in the field die. [4. 158-159 b].

METHODOLOGY. To identify common roundworms, anal-vulvar plate preparation and the Mashrut, Berman, and Sainkhorst methods widely used in helminthology were used.

Physical control measures. Physical control methods against nematodes include heat treatment of soil, seeds, seedlings, seedlings and plant materials, freezing, electric current, radioactive irradiation, ultrasound, osmotic pressure and ultraviolet light.

The soil can also be treated with steam, and before treatment, it is thoroughly plowed to remove plant debris and roots, loosen and aerate.

The effectiveness of the method of soil disinfection from phytogels is guaranteed by careful control of soil heating. For this purpose, a separate soil thermometer is installed and checked in the areas to be treated.

When soil is steamed at 100 degrees Celsius for 30-60 minutes, it kills mites and many other parasitic species.

Chemical control measures. Chemical control is a very expensive and environmentally damaging method in agricultural production. For this reason, the use of this method has been largely banned and restricted in recent years. Nevertheless, it is used to combat the root-knot nematode, that is, in heavily damaged and isolated fields where a dense population of the parasite is observed and foci of helminthiasis are evident.

Currently, the following nematicides can be used against root-knot nematodes in vegetables, melons, technical, and subtropical fruit plants: vidat, heterophos, dazomet, DD(50x), ipam-40, carbothion, and thiazone, etc. These nematicides can be used in greenhouses, nurseries, and small areas. Before applying nematicides to the soil, the soil is plowed, the clods are crushed, and the plant residues are collected.

The plowed area is kept at a temperature of 12-140 C for 7-10 days. This is because during this period, the larvae of the nematodes are absorbed into the soil. When the moist soil is turned over to a depth of 10-15 cm, its temperature should be 12-15 degrees. The effect of nematicides is effective in moist and heated soil.

In open fields, nematicides should be applied 30 days before planting in spring and autumn. The drugs should be applied to the soil in the early morning and watered at a rate of at least 20 l/m2. Vidat, 10% g. (USA DuPont). In areas where vegetables, melons, cotton and subtropical fruit plants are planted, 50 kg per hectare is applied against the root-knot nematode, 40 days before planting, to a depth of 5 cm on the soil surface, and then watered.

Heterophos, 7.5% g. (Russia). For vegetable and melon crops, it is applied at a rate of 80 kg per hectare to a depth of 15 cm of soil and watered. It is not possible to cultivate the soil by hand for 30-45 days. Ipam-40.40% (Hungary). For vegetable and melon crops, it is applied at a rate of 1000 l per hectare 40 days before planting, to a depth of 15 cm of soil.

Thiazone, 85%, is released as a powder. It is applied to vegetable, melon, legume and cotton fields against root-knot nematodes at a rate of 1000-1500 kg/hectare in spring and autumn, 30 days before planting, to a depth of 15 cm, and is watered sparingly.

Furan, 10%. In areas where vegetables, melons, technical and subtropical fruit plants are planted, it is applied against all parasitic nematodes at a rate of 40 kg per hectare 30 days before planting, sprinkled on the surface of the soil at a depth of 15-20 cm, and then watered.

All nematicides are toxic to plants and the environment. Therefore, they should be used only in strict accordance with the recommended methodical instructions. Therefore, they should be used only according to the recommended instructions for use. It is advisable to use nematicides only with the

help of specially designed tools and machines. The duration of the effect of nematicides depends on the temperature, humidity and the preservation of organic matter in the soil. The use of these preparations in areas with hard soil does not give good results.

Prophylactic control. Preventive measures are a simple, effective and inexpensive way to prevent plant nematodes from infecting them. This control is developed based on the sources and causes of helminthic diseases. Many species of parasitic nematodes survive in seeds, grains and seedlings and are widely spread by sowing or by transplanting to another place. To prevent the widespread spread of nematodes, seeds for planting should be taken from fields not infected with nematodes, infected seeds and seedlings should be disinfected before planting or not planted at all. Healthy seedlings and seeds should be used whenever possible.

Cleaning footwear and agricultural implements when working in areas infected with parasitic nematodes is important to prevent the spread of parasitic nematodes to healthy, uninfected areas. Research on melon crops has shown that among the identified parasitic nematodes, the root-knot nematode of the genus Meloidogyne must first be considered in order to organize control measures against the parasite, its biology, distribution, sources, as well as all other pests and diseases of the plants under study. This, in turn, will lead to the effective implementation of control measures.

It is necessary to conduct a survey of farms near areas where the root-knot nematode has been found, indicating whether their crop fields are infected with this nematode, providing information on the level of infection and the distribution map.

After the fields are cleared of vegetation, systematic inspections are required, and if nematodes are found, pest control measures are required. It is advisable to plant tree species and varieties that are not affected by the root-knot nematode on the banks of canals and ditches.

It is necessary to constantly eliminate wild and alien plants growing in atrophic fields. Because these plants are severely damaged by the root-knot nematode. Before being used in healthy fields, tires and other working parts of machines used in fields where the root-knot nematode is found, as well as work tools, are washed and cleaned of adhering soil in specially designated areas and disinfected with a 5% formalin, 30% table salt, 2% carbothionium solution and a solution of washing soda or ammonium nitrate in water.

CONCLUSION. The incidence of parasitic nematodes in plants varies. Various control methods and tools are used to protect plants from nematodes. It has been found that crop rotation, tillage, the use of vegetables with low susceptibility to pests, such as onions, garlic, turnips, cabbage, chives and other plants, tillage, heat treatment of soil, seeds, seedlings, seedlings and plant materials, and the use of chemicals only in cases of high infestation levels, lead to a decrease in parasitic nematodes and a significant increase in yield.

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