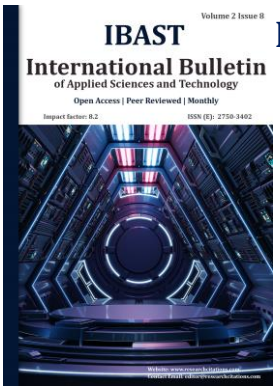

EFFECTIVENESS OF BIOENERGY-M BIOPREPARATINS AGAINST VERTICILLOUS WIRE DISEASE OF COTTON

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Annotatsiya
Among cotton diseases, verticillosis wilt is the most widespread and harmful disease of medium fiber cotton varieties in Uzbekistan. In some years, 50-60% of the crop is lost as a result of severe infection of cotton with verticillium wilt, and it is extremely dangerous to plant cotton in these fields in the following years.
Key words: cotton, verticillosis, fungus, Bioenergy-M

Honorable President Shavkat Mirziyoev, in his address to the Oliy Majlis on December 29, 2020, specifically emphasized that the factor that gives the fastest results in reducing poverty and increasing the income of rural residents is the sharp increase in productivity and efficiency in agriculture.

The gradual implementation of economic reforms in our republic is considered the main factor of our development. Each reform is carried out on the basis of a certain legal source, because social and economic reforms cannot be implemented without a solid legal basis.

Cotton is grown mainly for fiber. On average, 320-340 kg of fiber and 560-580 kg of seed are obtained from 1 ton of raw cotton. In turn, 3500-4000 m2 of fabric is produced from 340 kg of fiber, and 112 kg of oil, 10 kg of soap, 270 kg of cotton-cake, and 170 kg of feed from seed and 8 kg of lint (fluff) are produced from 580 kg of seed.

The causative agent of verticillosis in cotton is Verticillium dahliae Kleb belonging to the Hyrhomycetales order immature fungus. It is a typical soil-dwelling organism with a simple development. In the soil, the fungus develops in the remains of dead plants. Conidial spores and microsclerotia are formed in its colorless, multi-branching mycelium. The conidia-bands are straight; they form 3-5 branches with one-celled, colorless, elliptical conidia (2.1-12.3x1.4-4.2 micrometer). Microsclerotia are formed as a result of rapid division of vegetative mycelial cells in different directions; they are dark brown or almost black in color, oval-oblong in shape, 212-215 µm long.

The fungus begins to develop when the soil moisture is 20%. A comfortable humidity is around 60-70% for it, high humidity stops the growth of microsclerotia and the development of the fungus. Its reaction develops rapidly in neutral or weakly alkaline (around RN7) soils. Its development slows down in soils with acidic (up to RN5) and alkaline (up to RN9) reactions [1].

Verticillosis wilt is a very dangerous disease. The osmotic pressure of the plant and the turgor state of the cells decrease, transpiration increases, the arrival of water and mineral substances to the surface areas of the root and plant decreases, the parenchyma cells of the wood die and leaves fall prematurely when it develops as a result, the yield and quality of

cotton decreases sharply. Fertilization and germination of seeds obtained from diseased plants is low. Depending on the variety and the duration of the disease, the yield can decrease from 22 to 77% [2].

Scientific researchers were carried out in order to study the fungicidal properties of Bioenergy-M biopreparation against verticillosis in cotton tree in the conditions of Marhamat district.

Bioenergy-M biopreparation is an ecologically clean, universally applicable, long-acting microbiological fungicide. This drug is enriched with micro and microelements, has anti-stress properties and protects plants from fungal and bacterial diseases. It has antibiotic, antipathogenic properties, increases fertility, and accelerates the growth and development of the plant.

In our studies, Sporagin s.e.k. YeA/r 1500 was recommended as a standard option against verticillosis of cotton-plant. 1500 EU/r biopreparation (consumption rate 2.0 l/t) and Bioenergy-M preparation (2.0 l/t) were used in the experiment.

In the results of the experiment, the spread of the disease and the biological effectiveness of the fungicides used against the disease were studied. (table1)

Fungicides used against verticillosis

Biological efficiency (Andijan region, Marhamat district. 2022)

Table 1

Experiment variants and fungicide consumption rate	Biological efficiency of fungicides used against wilt disease		
	After processing.		
	15 days	30 days	45 days
Sporagin s.e.k. 2.0 l/ha	80,5	82,0	75,5
Bioenergy - M em.k. 2.0 l/ha	88,9	85,5	80,9
Control (unprocessed)	-	-	-

Bioenergy-M em.k was observed that the biological efficiency was 88.9% when the drug was used at 2.0 l/ha according to the received information

References:

1. E.A. Kholmurodov, M.A. Zuparov, R.K. Sattarova et al. - Agricultural phytopathology. Tashkent 2014. B 5-8.
2. A.Sheraliyev - General and agricultural phytopathology. Tashkent "Talqin" 2008.