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COTTON WILT

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Pages 190-191, V.25, 1964
Trudy vses. Inst. Zashch. Rast.

V.I. Popov

In 1964 cotton wilt disease had spread to all the republics of Central Asia. No reports of the development of cotton wilt in the Transcaucasus republics were received.

VERTICILLIUM WILT (*Verticillium dahliae* Kleb.), as in past years, was widely distributed, but particularly intense in Uzbek SSR. A mass infection of cotton plants was observed in Andizhan, Fergana, Tashkent, Bukhara, and other oblasts by 15 August 1964. In Andizhan oblast cotton wilt was recorded in all areas investigated. Maximal infection (70% of the plants) was noted by mid-August. Cotton wilt was also recorded in all rayons of Fergana oblast. The incidence of the disease as computed on the basis of periods was as follows: 15 June -- 3%; 15 July -- 24%; 15 August -- 49%; and 28 August -- 52%. During the latter part of August the percentage of affected plants in all of the investigated fields was as follows: Kirov rayon -- 25%; Leningrad rayon -- 61%; Altyarykskiy rayon -- from 10-61%; Akjunbabayevskiy rayon -- 42%; Kubinskiy rayon -- 53%; other rayons -- 30-58%. In other oblasts of Uzbek SSR the disease developed to about the same degree as in 1963.

In Tadzhik SSR the largest outbreaks of the disease were noted in the area of Leninabad and in Gissarskaya valley. Cotton wilt was found in all rayons of this region. As of 1 August, the maximal number of affected plants in the investigated fields in Kanibadam rayon reached 32%; in Khodzhentskiy rayon -- 23%, in Regar rayon -- 22%, and the disease spread with lesser intensity in Lenin, Ordzhonikidze, and Gissar rayons. In

all, cotton wilt was recorded in an area of no less than 40,000 hectares in Tadzhkistan; of this total about 17,000 hectares were highly infected, and more than 15,000 hectares were moderately infected.

The coefficient of damage induced by cotton wilt was determined by us in the kolkhoz imeni Lenin, Regar rayon.

By knowing the number of plants in the groups intensely infected, it is not difficult to calculate the crop loss for each field with the following formula:

$$\Pi, = \frac{12m + 25n}{100}$$

Π_{gamma} = crop loss (percent)
m = number of mildly affected plants (percent)
n = number of strongly affected plants (percent)

Out of a total of 82% plant affection indicated on one map (field), 21% were found to be only mildly affected, and 61% strongly affected. By substituting these numbers for the figures in the formula we obtained a crop loss of 17.8%; in a second field 29% of the plants were mildly affected and 18% strongly affected. In this case 8% of the raw cotton crop was lost.

Mild development of cotton wilt was noted in three kolkhozes of Chardzhouskiy rayon in Turkmen SSR. Only 0.8-2.0% of the cotton variety 138-f was affected by the disease.

In Kirgizia SSR wilt was discovered on 1 August 1964. By 10 August it was noted that 2.3-22% of the plants were affected by the disease.

FUSARIUM WILT (*Fusarium vasinfectum* Atk.) was found in all areas where thin-fiber varieties of cotton are cultivated. It only developed to a moderate degree in

Vakhshk valley of Tadzhikistan. The infection rate of the young growth varied from 5-16%. By mid-August it was recorded that 16-20% of the plants in the former Nurgan-Tyubinsk Rayon were diseased.

In Maryysk rayon of Turkmen SSR the total number of plants affected by Fusarium wilt did not exceed 1% as compared to 27% in 1963. This was due to the fact that the infected areas were planted with the Soviet cotton variety 13⁸-f which is resistant to the disease. In Ashkhabad oblast Fusarium wilt was discovered on an area of 20 hectares with a total of 14% of affected plants.

A milder or more moderate development of Fusarium wilt may be expected in 1965-1966 due to the expansion of the areas planted with varieties of cotton resistant to the disease. At the same time an increase of Verticillium wilt apparently may occur.