

Tobacco Diseases and Measures to Protect Against Them

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ABSTRACT

The article highlights the biological characteristics of the causative agent of tobacco seedlings - black root rot. The methods of combating them and the economic efficiency of methods of control on the hotbed of tobacco are given.

KEYWORDS: *Black root rot seedlings, tobacco, breeding grounds, foundation, carbation, sterilization.*

Introduction. Tobacco is one of the most profitable crops, and the farms of the Urgut district of the Samarkand region are highly specialized in this area. Tobacco varieties are grown in the region, which provide valuable aromatic and skeletal raw materials for industry. The natural conditions of the region are very favorable not only for the cultivation of high-quality tobacco, but also for the development of various plant diseases. Therefore, fungal diseases are very common in nursery and field seedlings of tobacco [1].

In the conditions of Uzbekistan in tobacco nurseries, the types of pathogens of seedling diseases and the fight against them have been studied very little.

Materials and results of the study. When checking tobacco nurseries on farms, it was found that in some farms 30-45% of plants in nurseries are affected by root rot. Along with other root rot diseases, black root rot is also common in nurseries. Tobacco is damaged by black root rot at all stages of plant development. Due to the appearance of dark mycelium on the affected plant organs, the roots of infected seedlings become dark or black. The disease begins from the second row of the root system and spreads to the center of the root.

Black root rot is caused by *Thielaviopsis basicola Ferr.* and belongs to the group of immature fungi similar to hyphomycetes, belongs to the genus *Thielaviopsis* [3,4].

According to our data, the minimum temperature for the development of fungi is 9-11⁰C, the comfortable temperature is 17-19⁰C, the maximum temperature is 28-30⁰C, at temperatures above 30⁰C, fungi stop developing.

The causative agent of the fungus *Th. Basicola Ferr.* hibernates in the soil in the form of clomidaspores and grows in spring, hyphae penetrate the root system and damage the plant. As a result of many years of observations, it has been established that the initial appearance of the disease and its further development are directly related to weather conditions. For example, in 2018, the disease outbreak occurred on April 25, when the average air temperature was 11.3 ⁰C and the relative humidity was 65%. An increase in air temperature in May (18.6 ⁰C) and precipitation caused the spread of black root rot disease. In 2019, black root rot appeared in nurseries on April 5th. Its early appearance was caused by a sharp increase in air temperature (18.7 ⁰C). In 2020, black root rot appeared in tobacco nurseries in the first half of April and developed strongly in the second half of May with an increase in air temperature (16.0 ⁰C).

Thus, tobacco black root rot fungi begin to develop at air temperatures above 10 ⁰C and soil temperatures above 14 ⁰C. The disease is activated at an air temperature of 16-18 ⁰C. The main factors in the development of the disease are air and soil temperature.

In the farms of the Urgut region, it is recommended to sow seeds early in tobacco nurseries

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and grow them mainly in film nurseries, where the temperature and humidity of air and soil can be regulated to a certain extent. But in open nurseries that are not covered with a film, there is no such possibility. Therefore, it was noted that seedlings in open nurseries have a high rate of infection with fungal diseases.

The nutrient mixture used in the tobacco nursery was neutralized with various fungicides against the disease. In this case, the nutrient mixture used in the nursery was sterilized with foundationazole (50% n.c) and carbionic fungicides. After sowing the seeds in the nursery, 1.5 g of the drug is dissolved in 2 liters of water and the nutrient mixture is scattered over 1 m² of the nursery. In the next variant, the nutrient mixture was scattered in heaps, dissolving 1 g of the preparation in 50 liters of water per 1 m of the nutrient mixture.

The soil of the nursery was treated with a 2% solution of carbation. The flow rate was set at the level of 5-8 liters per 1 m². Sterilization (neutralization) of the nutrient mixture was carried out by heating according to the method of S. B. Grushevoy [2] at a temperature of 100 °C for 30 minutes. In the control variant, the nutrient mixture was not processed in any way. Information on the incidence of black root rot and seedling rot with various methods of nutrient mixture sterilization is presented in the table. It has been established that the emergence of seedlings from the nursery is closely related to their damage by black root rot.

table

Influence of methods of sterilization of nutrient mixtures on diseases of seedlings with rot

Sterilization method	Seedling rot		Disease, %	The degree of development of the disease, %
	from 1 m ² things	to control, %		
Nursery formula: Fundazol	3112	188,6	19,9	1,1
Carbation	2617	158,6	47,2	3,6
With the help of heat	2741	166,1	42,3	4,3
Control	1650	100,0	68,5	7,5

When the nutrient mixture was treated with foundationazole, the seedlings were less affected by black root rot (the disease development rate was 1.1%). In the treatment with carbation, the rate of development of the disease was close to the control variant (rate of development 3.6%). The quality of seedlings was almost the same in all variants. At the same time, in the control variant, seedlings after the disease became very sparse, and the large feeding area of the remaining seedlings ensured their good development.

The cost of 1000 seedlings is 1.22 thousand soums when the seedling is treated with foundationazole. Given that the energy intensity of Izmir tobacco is 300,000 units per hectare, we see that a significant increase in efficiency was achieved compared to the control variant.

Conclusions. Black root rot is a common fungal disease in tobacco nurseries and its development depends on air and soil temperatures, favorable air and soil temperatures to initiate its development are above 10 °C and 14 °C respectively. The disease is very active at an air temperature of 16-18 °C.

The method of sterilizing the nutrient mixture with fungicides in nurseries has been confirmed to be effective against tobacco black root rot. At the same time, the drug Fundazol turned out to be highly effective (the development rate was 1.1%, which is 7 times lower than the control).

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