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THE ROLE OF IMMUNOSTIMULANTS IN INCREASING THE RESISTANCE OF COTTON TO GUMMOSIS

R. O. Atoeva
G. A. Goziyeva,
S. S Bakayeva
Bukhara State University
r.o.atoyeva@buxdu.uz

Abstract
In this article, information about the role of the immunostimulants Fitovak and Zerox on the gummosis disease of the cotton plant. The obtained results showed that Zerox immunostimulant played an important role in increasing the resistance of cotton to gummosis compared to Fitovak immunostimulant.

Keywords: Bukhara-10, Zerox, Fitovak, gummosis, disease, biological efficiency.

Introduction

Immunostimulants and stimulants protect plants from biotic and abiotic influences, reduce stress-causing reactive oxygen species, activate the antioxidant defense system in them, or create an immune system in plants by increasing salicylic acid compounds [1]; [2], [3].

To give plants resistance to diseases, one of the important factors is the use of various immunostimulants in order to form resistant forms [4]. Here is one such immunostimulant - the drug Zerox of universal and contact action, containing 3000 mg/l of silver ions. Silver ions at a concentration of 3000 mg/l contained in this preparation are the first to penetrate the membranes of fungi and bacteria parasitizing the plant and destroy them. Secondly, by interacting with plant receptors and enzymes, it produces high levels of oxygen in the plant cell and creates systemic immunity against various pathogens in the plant body.

With gummosis, fluid leaks out as a result of melting of the skin parenchyma in the internal tissue of the tuber. To recognize this disease, it is necessary to know the relationship between the fruit of the “host plant” (cotton) and the “parasite” [5].

Studies have been conducted on the effect of this drug on gummosis disease of the cotton variety Bukhara-10 under field conditions.

Research Methodology

To determine the effectiveness of the drugs applied to the seeds during the research, diseases of root rot and gummosis were determined in sprouted seedlings according to the Manners scale and calculated using the Abbott formula [6].

In order to clarify the spectrum of action of the drug, research work was carried out in the conditions of moderately saline soils of the pilot farm of PSUAITI "Bukhara". As a result, it was established what dose (1.0-2.0-3.0 l/ha) of the Zerox immunostimulant provides high resistance to gummosis. According to the experimental system, all options for using the Zerox immunostimulant were compared with the standard immunostimulant (Fitovak 200 ml/t, ml/ha) and the control option (drinking water).

Analysis and Results

In the years under study, before planting seeds in the same sowing season, there was a lot of precipitation, which somewhat delayed the timing of planting seeds, but due to the low amount of precipitation after sowing and dry and hot air temperatures, the number of infections of cotton seedlings with gummosis in all variants was significantly less , and in experimental variants it was practically not observed. Even in the control variants, the symptoms of this disease were very mild (Table 1).

Table 1 Influence of immunostimulants in increasing the resistance of cotton to gummosis

№	Name of the drug	The number of seedlings	Incidence of gummosis disease by years during the growing seasons of cotton				
			on gummosis disease				
			2018	2019	2020	an average of three years	БС,%
			The number of infected sprouts in 90m2 after the drug was applied during the ripening period, pcs				
1	Control	80-90	5	6	3	4,7	0
2	Control	100-110	6	7	5	6,0	0
3	Control	120-130	6	8	7	7,0	0
4	Fitovak-200 ml/t; l/ha	80-90	0	0	0	0,0	100,0
5	Fitovak-200 ml/t; l/ha	100-110	0	1	0	0,3	93,6
6	Fitovak-200 ml/t; l/ha	120-130	0	2	1	1,0	85,7
7	Zerox 1 l/t, l/ha	80-90	0	0	0	0,0	100,0
8	Zerox 1 l/t, l/ha	100-110	0	1	0	0,3	93,6
9	Zerox 1 l/t, l/ha	120-130	0	2	1	1,0	85,7
10	Zerox 2 l/t, l/ha	80-90	0	0	0	0,0	100,0
11	Zerox 2 l/t, l/ha	100-110	0	0	0	0,0	100,0
12	Zerox 2 l/t, l/ha	120-130	0	0	0	0,0	100,0
13	Zerox 3 l/t, l/ha	80-90	0	0	0	0,0	100,0
14	Zerox 3 l/t, l/ha	100-110	0	0	0	0,0	100,0
15	Zerox 3 l/t, l/ha	120-130	0	0	0	0,0	100,0

According to the scientific results obtained, it was established that the number of infected seedlings was less in areas (90 m^2) of the tested options during the period of 2-4 true leaves, in options with in the number seedling of 80-90 thousand plant/ha compared to other seedling thicknesses.

Control, standard and Zerox 1-2-3 l/t, where, when the cotton ripened, in the number seedling of 80-90 thousand hectares; 1-2-3 l/ha + surfactant 0.15 l/ha were used in options 1-4-7-10-13, after using the drug the average number of infected seedlings over three years: 4.7-0.0-0, 0-0.0-0.0 units, the number of seedlings infected with gummosis in these variants with a standing density of 100-110 thousand hectares, respectively: 6-0.3-0.3-0.0-0.0 units, in those variants with a in the number seedlings of 100-110 thousand hectares, the number of infected seedlings was: 7-1.0-1.0-0.0-0.0 pcs.

Thus, according to the scientific results obtained over 3 years, during the initial and ripening periods of cotton, with a standing density of 80-90 thousand hectares, the Zerox preparation is applied at the rate of 2 l/t per 1 hectare. for seedlings and 2 l/ha + surfactant 0.15 l/during the cotton growing season. In the 10th option, the highest BS by phase was 100 - 100%.

From the period of 2-4 leaves of cotton to the ripening period, the parameters for the prevention of gummosis disease on an area of 90 m^2 are 80-90 thousand plant/ha of in the number seedling and 1-3 l/t of Zerox. Options using rates of 1-3 l/ha + surfactant 0.15 l/ha showed intermediate results.

Depending on the increase in the number of the seedlings in the standard and Zerox 1l/ha norms, a decrease in the optimal the number seedlings was observed by 14.3-14.3% in the BS ripening phase compared to the options where the number of the seedlings was left at the norm and norm duration was used.

Conclusion

Another of the most effective ways to increase the resistance of cotton to gummosis is to depilate the seeds and treat them with Zerox at a rate of 2 l/t before planting and 2 l/ha + surfactant 0.15 l. /ha during the period of plant growth - foliar feeding.

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