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Original Research Article

Moniliosis of Seminiferous Fruit in the Gardens of Uzbekistan

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Abstract: The article analyses the increase of moniliosis disease in seminiferous fruit trees in the gardens of the Republic of Uzbekistan, caused damage, spread of disease in the plains, foothills and mountainous areas, plantation of resistant varieties of seminiferous fruit trees against this disease, and sets out control measures.
Keywords: moniliosis, temperature, humidity.

INTRODUCTION:

In agriculture, in horticulture sector of Uzbekistan, gardening is a major and profitable type of work. Due to the fact that the soil of the country is different, depending on the weather conditions, there are all convenient opportunities for the cultivation of different varieties of fruits.

Taking into account the drastic change of weather of the Republic, air temperature in the mountain, foothill and lowland areas, and the relative humidity of the air, depending on the terrain, there is a strong need to establish and improve the production of agricultural technologies for the cultivation of fruit in these areas.

During the last 20 years moniliosis disease in seminiferous fruit trees in the gardens of the Republic ofUzbekistan began to widely spread across the country. However, careful study of the biology and ecology of pathogens makes it possible to organize measures to combat this phenomenon [1].

Implementation of measures to combat pathogens on fruit trees, generally in agriculture, at the time when they are most vulnerable is considered to be a very important event, thereby enabling to increase the effectiveness of the taken actions. In recent years, heavy rains lead to widespread spread of moniliosis disease in seminiferous fruit trees, in particularly, quince, apple, and pear trees and thereby cause great material damage to the national economy. Wide dissemination of moniliosis disease is not only a consequence of global climate change, but also, due to negligence ofpreviously cultivated gardens, disregard to phytosanitary regulations, as well as incomplete adherence to recommended measures on the use of agricultural technology [2].

The following research methods and materials have been used during the research, namely 5-point disease scale distribution and development invented by ChumakovE.A., fungicides testing according to method of KhojayevSh.T. and others [3,4].

RESULTS:

The study found that moniliosis disease in seminiferous fruit trees in the gardens of the Republic of Uzbekistan is caused due to monilial blight and fruit rot and cause great damage to quince, apple, and pear trees. In the course of studies in the central regions of the country it has been established that quince, apple, and pear trees are prone to illness. MoniliacinereaBonard.F. mali (Wormald.) Harrison, Moniliacydoniae Schell., Moniliafructigena Pers., 3 types of pathogens have been identified, noted one category which strongly affects stone fruit crops Monilia Pers.,Moniliaceae has been established, one category of Hyphomycetales, and one class of Deuteromycets, unobservability of teleomorph period has been established as well.

In laboratory conditions, it has been established that under temperature 15–20 ^{o}C and humidity level above 90% monilial blight and fruit rot in seminiferous fruit trees develops very rapidly. During the analysis of the relevant materials collected from all regions concerning moniliosis disease in seminiferous fruit trees and dividing them into two classifications, it has been established that monilial blight and fruit rot in seminiferous fruit trees are most common in the foothill areas, where monilial blight is 45.5-93.5%, fruit rot

constitutes 12.0-46.0%. In mountainous areas, as well as in the plains this type of disease is less common, in mountain areas equals to 28.8-76.4% and 6.0-29.0%, on the plains 32. 3-82.7 and 8.0-30.4%.

The reason why moniliosis disease is more spread in the foothills, but less common in the mountainous and plain areas is due to the fact that the foothill areas have all necessary wet climatic conditions for the development of mushrooms which cause damage to the fruit trees. In other areas, that is, in mountainous areas the temperature is lower; humidity is less in the plains that ultimately reduces the likelihood of the rapid spread of the disease.

During comparison of the fruits with the aim to find out the most susceptible to moniliosis disease, it has been established that in these areas monilial blight is most common in quince (76.4-93.5%), relatively less common in pear (28.8-45.5%). Fruit rot is most marked in the pear (29. 0-46.0%) and relatively less common in quince (6.0-12.0%).

Actions against moniliosis disease are applicable during the natural resting of the trees, after branching roots, by treating them twice with 12-14 days' break. High efficient preparations such as Bordo Liquid, Ridomil Gold, and Impact Preparation have to be noted during treatment of tress against the disease (Table 1). That said, efficacy in flowers, leaves, fruits, Bordo Liquid option constitutes in apple 64.3-78.9, in pear 73.3-78.4%, quince 75.8-81.3 %, Ridomil Gold option in apple 83.8-86.6 %, in pear 84.0-84.5 %, quince 85.5-88.8 %,Impact Preparation option in apple 78.6-85.2 %, in pear 80.7-83.1 % and in quince 84.3-86.3 % (Fig 2).

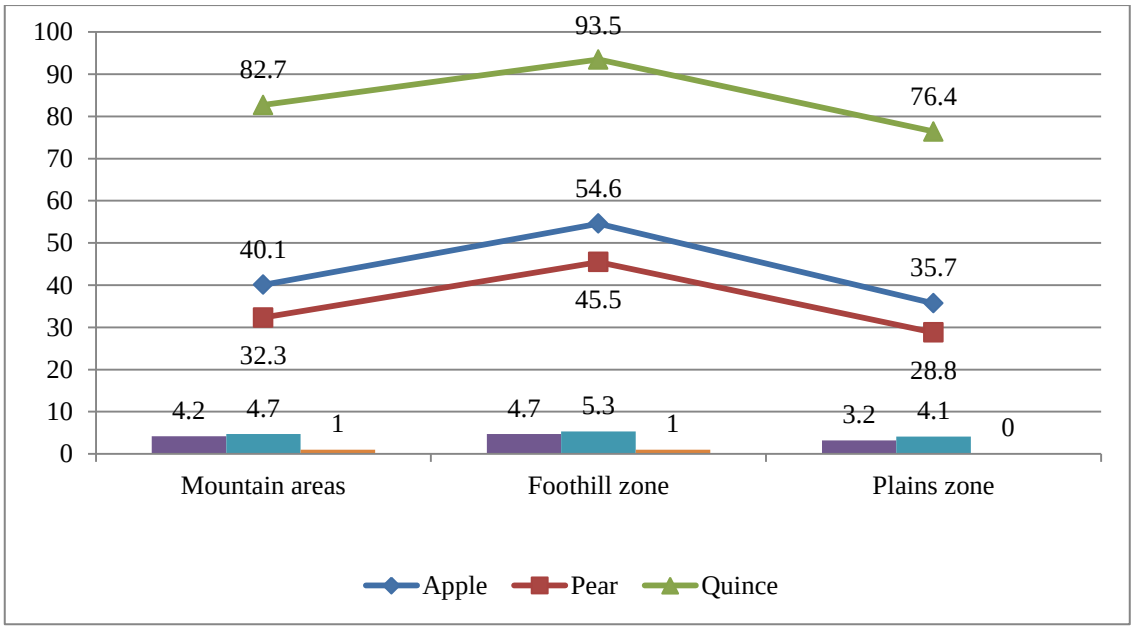

Fig 1:Spread monilial blight and fruit rot at different zones on the pome trees, %

Table 1: The effect of fungicides against the disease monilia on pome fruit trees

№	Options	Fungicides concentration, %	Tree disease,%																	
			Apple						Pear						Quince					
			in flowers		in leaves		in fruits		in flowers		in leaves		in fruits		in flowers		in leaves		in fruits	
			Disease spread	Development of the disease	Disease spread	Development of the disease	Disease spread	Development of the disease	Disease spread	Development of the disease	Disease spread	Development of the disease	Disease spread	Development of the disease	Disease spread	Development of the disease	Disease spread	Development of the disease	Disease spread	Development of the disease
1	Control	-	34.2	14.2	8.3	3.7	6.0	2.8	28.7	14.8	15.7	7.5	10.3	8.8	47.3	25.6	29.3	16.6	25.7	16.0
2	Bordo Liquid	1	6.5	3.0	2.2	1.1	2.2	1.1	7.5	3.2	3.7	2.0	4.3	2.3	11.4	6.2	6.9	3.4	5.4	3.0
3	Sulfate of copper	1	6.9	3.2	2.3	1.1	2.3	1.1	8.2	3.6	3.9	2.2	4.4	2.4	11.7	6.4	7.4	3.7	5.1	3.2
4	Sulfate of iron	1	14.3	6.8	5.0	2.3	3.7	1.8	14.1	7.0	9.0	4.8	7.0	3.8	19.7	10.8	15.0	9.1	13.0	8.0
5	Chlorine copper oxy	0.4	14.5	7.1	5.3	2.5	4.0	2.0	13.4	5.7	9.7	5.3	7.3	3.9	19.8	11.0	15.3	7.7	13.7	9.0
6	Topsin-M	0.15	15.2	8.2	6.7	3.2	5.3	2.7	14.5	7.6	11.3	6.1	8.3	4.8	21.7	11,9	14.3	7.2	12.7	14.0
7	Bayleton	0.04	15.0	7.9	6.3	3.1	5.0	2.6	14.5	7.4	10.7	5.7	8.3	4.5	21.2	11.7	15.3	7.5	17.3	12.0
8	Impact	0.02	5.4	2.1	2.0	0.7	1.7	0.6	6.8	2.5	3.5	1.4	3.8	1.7	7.6	3.8	4.4	2.6	3.9	2.2
9	Ridomil Gold	0.025	4.9	1.9	1.4	0.6	1.0	0.4	6.8	2.3	2.9	1.2	3.0	1.4	6.5	3.2	4.6	2.4	4.2	1.8

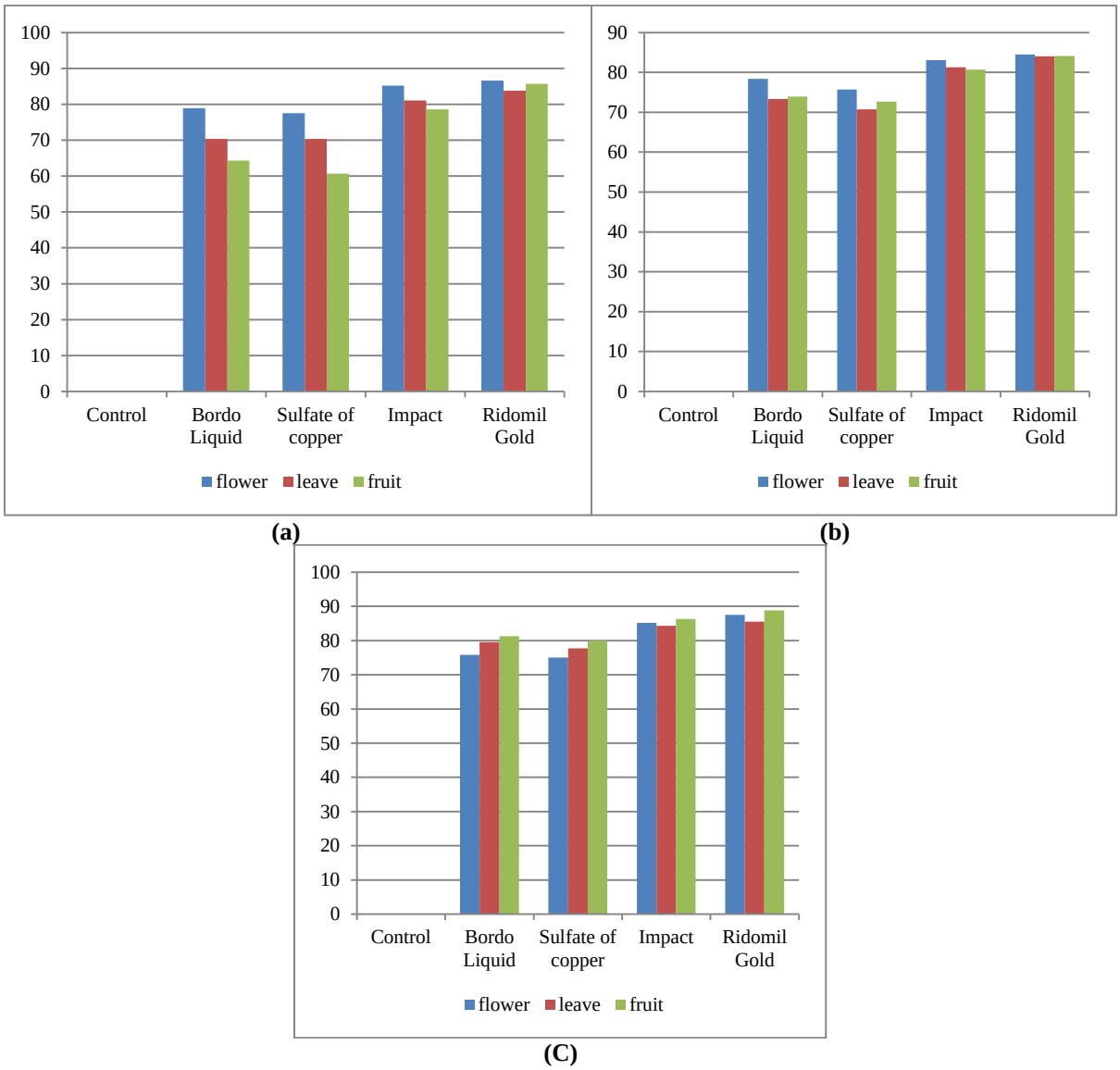

Fig 2: Biologically effective fungicides against the disease on the apple (a), pear (b) and quince (c).

CONCLUSION:

In laboratory conditions, it has been established that under temperature 15 – 20 C^{o} and humidity level above 90% monilial blight and fruit rot in seminiferous fruit trees develop very rapidly in the conditions of the Republic of Uzbekistan and such solutions as Bordo Liquid, Ridomil Gold 0.025 %, and Impact Preparation 0.02 % are excellent means against the disease.

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