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A STUDY OF NON-CHEMICAL CONTROL METHODS AGAINST MULBERRY MOTH

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Abstract:

The agro-technical method of protection against pests allows controlling mulberry trees by making them resistant, without spending direct funds on their protection. To do this, first of all, it is necessary to meet the needs of trees in relation to the ground. That is, the area around the roots should be free of weeds, mineral and organic fertilizers at the root, and sufficient moisture should ensure that the trees grow vigorously and are resistant to various injuries and diseases.

Keywords: Mulberry Moth, Agrotechnical Control Method, Root System, Mineral Fertilizers, Decoy Belt, Butterfly, Mushroom, Larva, Tree Bark, Insecticide, Application Period.

INTRODUCTION

Methods of non-chemical control of mulberry moths include agrotechnical, mechanical and biological control and means. The agrotechnical method allows controlling mulberry trees by making them resistant, without spending direct funds on their protection. To do this, first of all, it is necessary to meet the needs of trees in relation to the ground. That is, the area around the roots should be free of weeds, mineral and organic fertilizers at the root, and sufficient moisture should ensure that the trees grow vigorously and are resistant to various injuries and diseases.

A series of mechanical measures include cutting and burning dried twigs and trees; cleaning tree trunks, moving bark and pores, as well as the use of "deceptive" belts. Like the worms of other leaf-binding butterflies (apple worms, etc.), Mulberry butterfly worms also feed on the fungus in various shelters of the tree (partly on the leaf itself) to become fungi when they grow up. For this purpose, the bulk of the worms move down the tree and reach their target under the bark and elsewhere. The "deceptive" belt you come across on the way is also a good condition and inspires. A "deceptive" belt is a rough material that is tied to the thick branches or main stems of trees. This material can be different (hemp, cotton, artificial materials). The most important thing is to allow the worm to crawl into the belt. There is a condition that must be met when using a "deceptive" belt. Even so - the worm that tries to get under it and turn into a mushroom must be killed. Otherwise, we can see the opposite effect, that is, if the worm swells and the butterfly fly away, we will create conditions for more pests. There are 3 ways to kill worms in the "cheat" belt. In one, the belts are often (once every 5-6 days) removed and dipped in boiling water and re-tied.

In the second, an insecticide is used. In this case, once every 1.5-2 months, the belt is removed, immersed in any effective insecticide solution, and after shaking it is tied back to the tree trunk.

In this method, the worm that enters under the belt is exposed to the insecticide and, of course, the butterfly does not fly out.

The third method, previously recommended by J.Berdiev and Sh.T.Khodjaev (2000) against apple worms, is an improvement of the "deceptive" belt. In this case, the trunk of the tree is wrapped over a belt (0.5–1 m above the ground) with a special wire sieve with holes 1.5–2 mm, the two edges of which are tied without tight squeezing. The wire is wrapped in a cloth convenient for worm fungus-swelling.

As a result, the worm that enters the wire sieve for spinning successfully turns into a spongy and then a butterfly, but cannot fly out of the wire. There are 2nd and 3rd positive aspects of the issue. That is, in addition to killing the butterfly, various small-winged entomophagous (braconid, ixneumonid) that are cousins in the bodies of worms and fungi can easily fly out. And third, it is possible to predict the offspring of a pest based on the number of dead butterflies. We have tried all three methods for several years on farms in the Tashlak district of the Fergana region. Summarizing the results obtained, we can say that the use of belts in all three ways does not completely protect the trees from the moth. Protecting mulberries in this way requires a certain amount of money and attention, and it may not be economically justified, but it is useful in protecting some orchards and ornamental trees. It is harmless and may not require chemical protection.

Naturally, the species of mulberry moth (MM) cousins and their effectiveness are increasing. This is due to the fact that the mulberry moth enters every agrobiocenosis and biotope, where it adapts and is a member of the inter-

feeding chain with local species. Therefore, the longer the species enters, the more species (entomophagous and zoophagous) are adapted to it, and the more productive it is (Jumanov, 1995; Niyazov, 1982).
An example of this is our monitoring in recent years. From our selected inspections in Andijan, Fergana and Surkhandarya in August-September 2007-2009 and 2017-2018, it became clear that in the Surkhandarya region, where the mulberry moth has long been prevalent, its neighbours are more widespread and effective. For example, poachers were found to naturally infect 7-9% of worms in the Fergana region, 9-13% in the Andijan region, and 26-57% in the Surkhandarya region (Angor, Muzrabad districts). The prevalence and efficiency of ixneumonids, golden-eyed bees and bees (Vespidae family) from feathery insects are also higher in Surkhandarya. In addition, sparrows from vertebrates have also landed more mulberries in the region, becoming a fierce enemy of the mulberry moth. In general, the density of mulberry moths is now seriously affected by entomophagous insects and vertebrates. In the future, mulberry moths will also appear, which can contribute to their effectiveness. However, for now, the practical significance of the above information is not very high. The reason is the strength of the mulberry moth seed; its rate of reproduction increases to 4-5-6 generations, making it very difficult to regain it. Therefore, we have studied in depth whether Trichogramma, poaching, and goldfish, which are propagated in bio laboratories, have an effect against mulberry moth.
At the same time, 100% efficiency was obtained when the Trichogramma (T. pintoi) was in the ratio of 1:5 to 1:20, and the bracon was in the ratio 1: 5 to 1:30 under laboratory conditions. Based on the evidence obtained in the laboratory, we conducted a practical experiment. In August 2008 (during the development of the 4th generation of the pest), a field experiment consisting of 4 variants was conducted, in which the Trichogramma multiplied in the local bio laboratory was applied 3 times (0.5; 0.7 and 1.0 g/ha) 3 times to the allotted fields. distributed. In each variant, there were 160–170 (0.5 ha) trees arranged individually around the field. The Trichogramma, which provided high efficiency under laboratory conditions, showed that it could not give satisfactory results in field conditions against mulberry moth. According to the number (density) of the pest worms, the thickest distributed pest (1.0 g / ha) showed a biological effect of 21-27% for 15 days. The density of the worms did not differ much from the control option. Therefore, we found the results unsatisfactory and found that the Trichogramma intended for distribution in low-growing plants could not be used in mulberry trees. It may be expedient to conduct research in this area with a yellow Trichogramma intended for use in trees (Dyachenko, Frantsevich, 1978). At present, the leader of the biological control of mulberry moth using natural means is probably the bracon (Bracon hebetor Say), because, firstly, under natural conditions, mulberry moths are most often infected with this cousin, and secondly, this is reflected in our special research. In addition, other researchers have reported this (Irisboev et al., 2001).
In 2009, a practical experiment was conducted on mulberries in the field areas of the Kokand base point, where the poacher was 1: 5; We tested by spreading on mulberry trees in a ratio of 1:10 and 1:15. The experiment was conducted in August, during a period of rapid development of the 4th generation of the pest.

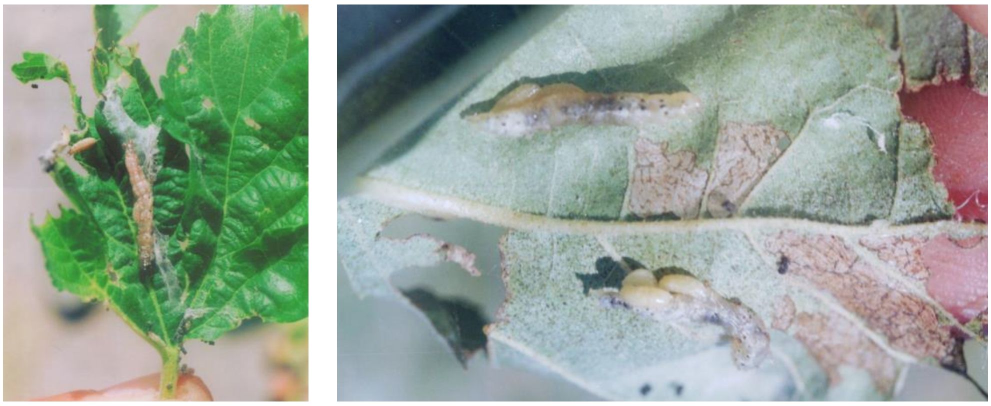

Figure 1. Mock butterfly larvae that feed on mulberry worms

CONCLUSION

It can be concluded from the results that a satisfactory effect against the mulberry moth can be obtained when the bracon pest propagated in bio laboratories is used in practice. The rate of consumption of pest in use depends on the pre-counting of mulberry moth worms, 3 times 1: 5 against each generation; It can be used in a ratio of 1:10 and 1:15 (5 days apart) or 2 times: 1: 5 and 1:10 ratio (10 days apart). In both methods, the effect obtained when protected by poaching depends on the density of the pest, and if it is strongly developed, a completely satisfactory effect cannot be obtained. Even if the density of the pest is low compared to control, it remains at a dangerous level for the tree. For the most part, the bracon, which was used at a time when the previous generations of mulberry moths were developing in small numbers, may provide fewer pest numbers and eliminate the need for chemical control in 4-5 generations. In other words. 1. The use of Braconus against mulberry moth should be started not during the IV-V generations of the pest, but in the II-III generations. At the same time, the rate of development of mulberry moths slows down and does not increase in the IV-V-VI generations, there is no need for special protective measures.

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