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ENVIRONMENTAL AND EFFECTIVE WAYS TO REGULATE THE NUMBER OF COTTON BOLLWORM ON TOBACCO AGROBIOCENOSIS

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Abstract:

The article presents data on the agrotechnical measures influence on the cotton bollworm harmfulness in tobacco agrobiocenosis in Uzbekistan.

Keywords: Key words: cotton bollworm, agrobiocenosis, tobacco, agricultural technology, harmfulness, efficiency.

INTRODUCTION.

In the agrobiocenosis of tobacco, there are various types of terrestrial phytophages throughout the growing season. Dangerous and main ground pest is cotton bollworm (*Helicoverpa (Heliothis) armigera* Hbn) on tobacco plantations of Urgut district of Samarkand region of Uzbekistan. In recent years, cotton bollworm has evolved from seed planting in production and is considered the most dangerous tobacco pests. Annual losses caused by cotton bollworm, average up to 30% yied, and with its massive reproduction, damage to plants can exceed 50%. At the same time, not only the yield decreases, but also the raw tobacco quality and seed products deteriorates [1,2,3].

RESEARCH METHODOLOGY.

The harmfulness monitoring of cotton bollworm was carried out every decade of the growing season on Urgut district farms of the Samarkand region. Spring counts of cotton bollworm started with the establishment of the air temperature 17-25 ^{o}C and warming up the soil to 12—14 ^{o}C (8-10 cm in depth). The population dynamics of the imago cotton bollworm was taken into account by "Delta" pheromone traps. A week before the expected summer, the pest was hung out one trap per surveyed field, at the rate of five traps per hectare. The traps were inspected once a week.

RESEARCH RESULTS AND DISCUSSION.

Cotton bollworm - Helicoverpa (Heliothis) armigera Hbn. belongs to the bollworm family - (Noctuidae), to the order of lepidopteran insects (Lepidoptera). The butterfly has 30-40 mm wingspan. The forewings coloration of most males is grayish-yellow, with a greenish tinge; a darker transverse band is located in the apical third of the wing. The hindwings are paler, with a brown stripe in front of the outer margin and a dark spot in the middle. Females are darker colored and have yellowish brown tints. The caterpillars are 30 - 45 mm long, covered with small pads, except for the chest shield. The head is yellowish with spots, the thoracic shield with a dark marble pattern. The butterflies' emergence in spring begins in the last decade of April or early May and continues until mid-June. The emergence timing of butterflies depends on the diapause depth of the wintering pupae, the temperature and humidity regime during the winter, and also on the spring temperatures. The flight begins when the soil warms up to 12-13°C to 8-10 cm depth or at an air temperature of 18-22 °C [4,5,6].

The agronomic measures system against cotton bollworm includes tillage, crop rotation and plant care, right through to harvest. After planting tobacco seedlings in the field, the soil should be in a loose state all the time. This is achieved by high-quality planting and inter-row soil cultivation. Usually it is 2-3 cultivations with loosening in rows and weeds destruction. Since the first generation of cotton bollworm does not harm tobacco, but develops mainly on weeds, they must be destroyed from the germination moment, preventing development and rooting. Hand weeding with the soil loosening in the rows should be done after cultivation in the aisles. It is also necessary to carry out a light hilling of the plants during the last hand weeding. Due to this, all the weeds that have sprung up in the row are covered with a soil layer and die. In the experiments, the first inter-row cultivation with loosening in the rows was carried out at the optimal time, i.e., 10 days (June 9) after planting tobacco in the field. The second cultivation carried out in time and three manual weeding allowed a significant reduction in the pest number. The number of cotton

bollworm caterpillars in this field was 0.6 spec./plant. In another experimental field, cultivation was delayed for three weeks due to unstable weather conditions, and was carried out only on June 15, and naturally increased to 1.1 spec./plants. In the experimental field, the first inter-row cultivation was carried out on the 13th day (June 2) after planting, then - manual weeding and the second cultivation - 13 days (June 18) after the first with two subsequent manual weeding. This ensured the timely weeds destruction, contributed to the better rooting of tobacco and its growth processes acceleration. The number of cotton bollworm caterpillars in this field did not exceed ETH and amounted to 0.5 spec./plant. The tobacco was planted on the field 5 days later than the established date (May 28). The first inter-row cultivation with one hand weeding was carried out 11 days (June 9) after the tobacco planting. Due to prolonged and heavy rainfall at the end of May, the second cultivation dates were missed and it was carried out only three weeks after the first. As a result, the tobacco field was heavily infested and the pest population was 0.9 spec./plant.

The best predecessor and efficient crop rotation are among the agricultural practices that ensure the trophic links breakdown and hinder the cotton bollworm development. Plants that are immune to tobacco pests are the best precursors. For tobacco, these are cereal crops. They are harvested early, and therefore there is a great opportunity for successful weed control. The cereal predecessors' advantage in tobacco crop rotation is also that the ground pests' characteristic of tobacco is not cereals characteristic. The use of one method does not bring sufficiently high results, so we have developed a system of safe methods and preparations for protecting tobacco from cotton bollworm.

CONCLUSION.

In production conditions, a system for protecting tobacco from cotton bollworm was tested - the pest pheromonitoring, mandatory compliance with agrotechnical measures (hand weeding, phytosanitary predecessor, bait culture, pinching, caring). So, the protective measures developed and tested by us against cotton bollworm have significantly improved the protection system of tobacco plantings.

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