



## **MAIN PESTS OF TOBACCO AND METHODS TO LIMIT THEIR HARMFUL IN UZBEKISTAN**

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<b>Received:</b> 1 <sup>th</sup> April 2021 <b>Accepted:</b> 14 <sup>th</sup> April 2021 <b>Published:</b> 30 <sup>th</sup> April 2021	The article presents long-term data on the pests' research in the tobacco agrobiocenosis, their influence on the tobacco yield and quality. It has been developed the fundamentals of integrated pest management.
<b>Keywords:</b> Cotton bollworm, tobacco thrips, peach aphid, integrated control, productivity, quality.	

### **INTRODUCTION.**

In the tobacco agrobiocenoses of Uzbekistan, a steady process increase in the number of dangerous phytophages is observed. At the same time, mass outbreaks of pests' reproduction, causing multimillion-dollar losses are observed almost every year. They on tobacco plantations often exceed the threshold and reach the level corresponding to an emergency.

Developing effective safe ways of the pests' containment when growing crops is one of the main green tobacco protection system elements. Rational systems of protective measures and their planning are determined by the phytosanitary tobacco state and tobacco crop rotation. At the same time, the main indicators are the distribution and harmfulness degree of the main tobacco phytophages. Phytophages not only reduce the yield, but also sharply deteriorate the tobacco quality. Pests damage on average 20-25% plants, with massive damage it reaches more than 50% [1,3,5,6].

### **RESEARCH METHODOLOGY.**

Harmfulness monitoring of tobacco pests was carried out every decade of the growing season on Urgut district farms of Samarkand region of Uzbekistan. Observations and entomological calculations were carried out according to V. Yakhontov, G. Ya. Bei-Bienko, A. A. Zakhvatkin, S. A. Murodov's method, the pests' density according to Sh.T. Khozhaev method.

### **RESEARCH RESULTS.**

Research of the agrobiocenosis and entomocenosis formation process on tobacco plantations allows you to identify the main tobacco development periods with a specific and specialized complex of pests inherent in each of them.

On tobacco plantations from terrestrial phytophages sucking and leaf-eating insects are very widespread. The most dangerous pests of tobacco are tobacco thrips *Thrips tabaci Lind.* and peach aphid *Myzodes persicae Sulz.* In addition, cotton bollworm is found in tobacco fields *Helicoverpa (Heliiothis) armigera Hbn.*, which negatively affects the yield, the quality of not only the leaf, but also the seed material.

As you know, cotton bollworm is one of the polyphagous pests. In some years, during mass reproduction, the pest causes significant damage to tobacco growing.

So, at the beginning of tobacco plants flowering, cotton bollworm damages more than 80% fruit elements. Even in October, pest damage is observed. In Urgut district conditions of Samarkand region in some years the number of caterpillars reached 8-12 pcs/plant, which was 7-8 times higher than the economic threshold of harmfulness, while the damage to plants reached 80-90%.

In recent years, in Urgut district of Samarkand region of Uzbekistan increased area under vegetable crops (tomato, pepper, eggplant, chickpeas) and corn, which are the main food plants of this pest. Therefore, since 2016, the cotton bollworm harmfulness on tobacco plantations in the region has noticeably increased. The annual loss of leaf yield caused by pests' ranges from 10 to 40%. In some years, cotton bollworm completely destroys tobacco seed

production. Often, when harvesting inflorescences, caterpillars remain in the capsules, which continue to damage the seeds in warehouses until threshing.

Peach aphid *Myzodes persicae* (fam. Aphids - *Aphididae*) damages more than 500 plant species belonging to 30 families. Large colonies are found in tobacco fields bordering on orchards, where it hibernates and initially develops. In Urgut district conditions of the Samarkand region, the life expectancy of the insect is 22-26 days. Fertility is 30-90 larvae. With a strong aphids' colonization, the tobacco yield decreases by 25-30% and the tobacco quality deteriorates by more than 50% [2].

Peach aphid is a carrier of tobacco viral diseases. To infect plants with the Y-potato virus, it is enough to eat on tobacco for just a few seconds.

Tobacco thrips *Thrips tabaci* – hibernates in the upper soil layer and under plant debris in the adult phase. It begins to appear on plants when the air temperature is above 10°C. The thrips development cycle (egg-imago) is 15-20 days. In the conditions of Uzbekistan, thrips can have from 6 to 8 generations.

Tobacco thrips damages tobacco seedlings and transplanted plants in the field, feeding on the leaves juice, at the same time, the leaves become brittle, which reduces the chemical and technological qualities of the raw materials. In addition, tobacco thrips is a carrier of tomato bronzing viruses.

Studies have shown that in the tobacco region conditions of Uzbekistan, 10-15 specimens per one tobacco plant are set as a threshold value.

As a result of many research and development years, an environmentally friendly system for protecting tobacco from pests has been developed. It includes bio-rational technologies and safe biological, prophylactic and low-hazard chemicals. Alternative methods of pest containment include organizational and economic, agrotechnical, mechanical and biological measures.

Out of the agricultural techniques that ensure the trophic links rupture and prevent the pests include development: effective crop rotation in crop rotation; introduction of catch crops; rational use of mineral fertilizers; optimal terms and schemes for planting tobacco; efficient use of irrigation water; timely and high-quality soil cultivation; carrying out erasure, edging and pinching of tobacco.

The biological method of fighting tobacco sucking pests is based on the use of predatory insects, lacewing (*Chrysopa carnea Steph*) and poaching (*Bracon telengai*) [2].

We have established a high insecticidal activity against sucking pests of an aqueous extract of tobacco waste, onions, garlic and plantain root.

It should be noted that the recommended measures are only the ecologized system part of tobacco protection from harmful organisms and it is advisable to use them in combination with various chemical agents. On tobacco plantations of Urgut district of Samarkand region for a number of years to reduce the harmfulness of tobacco pests, insecticides of various chemical classes were tested and recommended for production: confidor 20% **к.э** – consumption rate 0,20 l/ga; lanney 20L c.n - consumption rate 2.0 kg/ha; benzophosphate 30% **с.п** consumption rate 2,5 kg/ha. These drugs did not have a phytotoxic effect on the tobacco plant.

### CONCLUSION.

Phytophages are widespread in the tobacco agrobiocenosis: cotton bollworm - *Helicoverpa* (Heliopsis) *armigera* Hbn., peach aphid- *Myzodes persicae* and tobacco thrips - *Thrips tabaci*, the latter are carriers of viral and mycoplasma diseases. It was revealed that these pests are actual phytophages for tobacco in Uzbekistan. Their harmfulness is manifested in the growth and development retardation of plants, a decrease in yield and a deterioration in the raw tobacco and seeds quality.

The developed system for controlling the number of tobacco pests includes the system implementation of agrotechnical and preventive measures, the use of biological and low-hazard chemical plant protection products.

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