

## PEST INSECTS AT TOBACCO (*NICOTIANA TABACUM* L.) IN STRUMICA REGION, REPUBLIC OF MACEDONIA

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### Abstract

The studies that were conducted in 2011 and 2012 about the pest insects at tobacco, at four localities in Strumica region, showed that the most important insect pests that cause damage to tobacco leaves are: the green peach aphid – *Myzus persicae* Sulz. (Homoptera: Aphididae), the onion trips – *Thrips tabaci* Lind. (Thysanoptera: Thripidae) and the tobacco flea beetle – *Epitrix hirtipennis* Melsh. (Coleoptera: Chrysomelidae).

In both years of research the greatest number showed *Myzus persicae* Sulz. and the lowest, *Epitrix hirtipennis* Melsh.

In both years of research the green peach aphid is the most represented in the locality Nova Maala, while the lowest incidence in both years showed in the locality Kosturino.

The onion trips (*Thrips tabaci* Lind) in 2011 and 2012 is the most represented in the locality Ilovica, and the lowest number representation, in both years of investigation, shows in the locality Radichevo.

The tobacco flea beetle (*Epitrix hirtipennis* Melsh.), in both years of testing, as the most numerous is registered in the locality Kosturino, while the lowest numbers shows in the locality Nova Maala.

**Key words:** tobacco, pests, *Myzus persicae* Sulz., *Thrips tabaci* Lind., *Epitrix hirtipennis* Melsh.

### INTRODUCTION

Tobacco (*Nicotiana tabacum* L.) is a good with collective properties of leaves as follows: morphological, physical, visual, tasting and chemical, that have the same or similar use values . In Macedonia oriental type of tobacco is grown. Oriental type tobacco is involved in the creation of a percentage of national income.

In the Strumica region tobacco is grown in places where the soils are poorer with organic material (light sandy soils, deluvium, red soils), especially in places that are located at the base of some of the surrounding mountains.

Depending on the location and conditions (temperature, rainfall) each year in tobacco pests are found with more or less representation. Many pests reduce tobacco use value of raw material, reduce the quality of tobacco leaf or completely destroy tobacco plant.

As a target for research we have set to record pests in different areas of cultivation of tobacco in the Strumica region and to show their qualitative and quantitative composition.

## MATERIAL AND METHODS

The researches were conducted in 2011 and 2012, at oriental tobacco type. Usual agro-technical measures, including the use of fertilizers and pesticides, were applied during tobacco vegetation. The research for determining the pest insects were performed with appropriate methods in field and laboratory conditions.

### Field studies

The tests were performed in tobacco production localities. The localities included in this research are: Radicevo, Nova Maala, Ilovica and Kosturino. The research is made during in the vegetation of tobacco, at plots size of 0.1 ha each.

The determination of presence of harmful insects at tobacco was conducted in the period from 15<sup>th</sup> of June to 15<sup>th</sup> of September, in both studied years, at an interval of ten days.

50 plants of each plot, chosen diagonally, are fully reviewed. The insects that are present in tobacco plants of each review separately are collected in appropriate laboratory glasses and conserved in 75% alcohol.

### Laboratory studies

In the laboratory are performed triage and examination under a microscope and binocular to the material collected from the field. During the triage of material, all species are allocated. Determination of the studied species is performed in Laboratory of Entomology in Strumica, at the Department of Plant Protection and Environment, Faculty of Agriculture, “Goce Delchev” University – Stip.

## RESULTS AND DISCUSSION

There are a lot of pests on tobacco, but for our research we collect only pest insects that are present in most and that have made visible symptoms of damage on tobacco leaves, like: the green peach aphid – *Myzus persicae* Sulz. (Homoptera: Aphididae), the onion thrips – *Thrips tabaci* Lind. (Thysanoptera: Thripidae) and the tobacco flea beetle – *Epitrix hirtipennis* Melsh. (Coleoptera: Chrysomelidae). Quantitative analysis showed that the number of pests present in different locations is different, but in both years of research the greatest number showed *M. persicae* Sulz. and the lowest, *E. hirtipennis* Melsh. In 2011 (Table 1) the green peach aphid was the most represent in locality Nova Maala, with 1562 individuals, while the lowest representation showed in locality Kosturino, with 952 individuals. The most numerous representation of *T. tabaci* L., in 2011 (Table 1), is registered in the locality Ilovica with 523 individuals, while the lowest number representation of onion thrips is registered in locality Radicevo, with 365 individuals. *E. hirtipennis* Melsh., in 2011 (Table 1), has the largest representation in the locality Kosturino, with 102 individuals, and the smallest representation in locality Nova Maala, with 68 individuals.

In the second year of the research, *M. persicae* Sulz. was the most represent in locality Nova Mala, with 1786 individuals caught (Table 2). Lowest incidence of green peach aphid is registered in the locality Kosturino, with 876 individuals caught. The tobacco thrips (*T. Tabaci* L.) in 2012 has the greatest representation in the locality Ilovica, with 397 individuals caught, and the smallest representation is registered in the locality Radicevo, with 287 individuals caught (Table 2). The tobacco flea beetle (*E. hirtipennis* Melsh.) with the most numerous representation

Table 1. Number of pest insect individuals represented by localities in 2011

Species	Locality			
	Radicevo	Nova Maala	Ilovica	Kosturino
<i>M. persicae</i> Sulz.	1023	1562	1325	952
<i>T. tabaci</i> L.	365	453	523	384
<i>E.hirtipennis</i> Melsh.	89	68	78	102

Table 2. Number of pest insect individuals represented by localities in 2012

Species	Locality			
	Radicevo	Nova Maala	Ilovica	Kosturino
<i>M. persicae</i> Sulz.	1069	1786	1402	876
<i>T. tabaci</i> L.	287	329	397	384
<i>E.hirtipennis</i> Melsh.	85	63	84	112

is registered in locality Kosturino, with 112 individuals caught, and the smallest representation was observed in locality Nova Maala (Table 2).

## CONCLUSIONS

Based on the results, we can conclude the following:

– The most important insect pests that cause damage to tobacco leaves are: the green peach aphid – *Myzus persicae* Sulz. (Homoptera: Aphididae), the onion trips – *Thrips tabaci* Lind. (Thysanoptera: Thripidae) and the tobacco flea beetle – *Epitrix hirtipennis* Melsh. (Coleoptera: Chrysomelidae).

– In both years of research the greatest number showed *Myzus persicae* Sulz. and the lowest, *Epitrix hirtipennis* Melsh.

– In both years of research the green peach aphid is the most represented in the locality Nova Maala (1562 and 1786 respectively), while the lowest incidence in both years showed in the locality Kosturino (952 and 876 respectively).

– The onion trips (*Thrips tabaci* Lind) in 2011 and 2012 are the most represented in the locality Ilovica (523 and 397 respectively), and the lowest number representation, in both years of investigation, shows in the locality Radicevo (365 and 287 respectively).

– The tobacco flea beetle (*Epitrix hirtipennis* Melsh.), in both years of testing, as the most numerous is registered in the locality Kosturino (102 and 112 respectively), while the lowest numbers shows in the locality Nova Maala (68 and 63 respectively).

– In both years of research all listed pests, the greatest and the smallest numbers show in the same localities.

## REFERENCES

- Григоров, С., 1965.** Листните въшки и борбата с тях. Земиздат, София
- Тодоровски, Б., 1965.** Лисна ваш (*Myzus persicae* Sulz.) на дувану и резултати  
упоредних огледа њеног сузбијања различитим пестицидима. Тутун, бр.  
7-8, Прилеп.
- Bleckman, R. L., Eastop, V. F., 1984.** Aphids on the world's crops: An  
identification and information guide, John Wiley & Sons, Ltd., Chichester,  
466 pp.
- Todorovski, B., Vasilev, Lj., 1974.** Prilog proučavanju biološke metode suzbijanja  
*Myzus persicae* Sulz. na duvanu. Agronomski glasnik, br. 9-12, Zagreb.