

## THE ATTACK PRODUCED BY CALIFORNIAN THRIPS IN THE CUCUMBERS CROP FROM PROTECTED SPACES

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### Abstract

Cultures from greenhouses, which runs from midsummer until the coming cold season, is an optimal environment for the development of californian thrips, *Frankliniella occidentalis*.

Californian thrips attacked crops and untreated can suffer heavy losses, one of the biggest damage is recorded in the greenhouses cucumber crops. It considers that a number of 3.6 adults per flower cause damage to these crops.

On the attack of the californian thrips, *Frankliniella occidentalis*, we can say that this insect is one of the most common and important species that affect the quantity and quality of cucumber production in protected areas and are necessary effective measures to controlling it. In greenhouses cucumber crops were 80% loss of capacity due to attack by this pest.

Damage depends on the development of the plant in the attack moment and insect density.

Attacked and untreated cultures may be compromised, so it is very important to know which is the number of individuals *Frankliniella occidentalis* on plants in order to apply effective treatments that reduce pest population.

The culture of cucumbers, cycle II, the highest number of copies/ flower on experimental variants field before treatment varied between 11 and 14.

Economic threshold of pest in the cucumbers culture, cycle II was greatly exceeded (3-4 adults / flower).

In cucumber crop cycle II californian thrips population density was an average of 12.66 insects / flower.

Due to damage caused by this pest in cucumber crops in protected areas is necessary to know the pest density, optimum application time of treatment and most effective insecticides.

**Key words:** *Frankliniella occidentalis*, greenhouses, cucumbers, attack.

Some authors said that *Frankliniella occidentalis* was a wolverine pest that attacked over 500 of plants from 50 botanical families, from cultivated and spontaneous flora (Georgescu, 2006), the others authors said that *Frankliniella occidentalis* attacked 209 species of plants that appartained to 62 families, (Deutscher Gartenbau, 50/1990), and Roman, (1999, 2005b) and Perju (2004), affirmed that the californian thrips had cca. 240-244 plants host, both in spontaneous flora and in cultivated species.

The thrips fed through sticking and bleding of vegetal tissue but also with the pollen and flowers nectar, which made the floral elements droughity. The presence of insects on plants was easily identified through decoloration symptom of leaves and stuck tissues depression.

After a short time of its invasion in Europe, the californian thrips became the most astringent pest of cucumbers crop from the protected spaces.

When *Frankliniella occidentalis* populations were arose the adults found in a great number in the cucumbers flowers.

The attack on the floral organs of cucumbers produced deformations which depreciated then and

dimini shed the production. (Lewis, 1973, cited by Baniță, 2003).

In the cucumbers crop from protected spaces the attack produced very important commercial depreciations.

The whitish flechs, brownish ulterior that the thrips determined to flowers and fruits after feeding process, and also the virus commitment TSWV (Tomato Spotted Wilt Virus) with indeced tipical necrosis, all these aspects brought to economical value decreasing of greenhouses products.

After a short time of this new vector introduction in our country, to the cucumbers crops from greenhouses it appeared strong infections with TSWV. (Pop,1979).

That virus given in the greenhouses, to the vegetables in special at the cucumbers, causing important economical escapes. (Allen, Broadbent,1986; Daughtrey and colab.,1997).

That pest might cause productions escapes until 80% (Roman and colab., 2005a, 2005b; Georgescu, 2006).

The attack could be sometimes attended by traslucent secretions adherent to the substratum on

which it was developed in a secondary way the fumarine.

In the speciality literature from country and abroad were presented a series of works which represented the work methodology which could be aptud in the investigations case concerning the attack produced by thysanoptera, on the vegetable crop from protected spaces: Bailey F. (1940), Vasiliu-Oromulu (1993), (2002), (2002a), (2004), Pearsal Isobel and Myers Judith (2000),(2001).



Figure 1 The cucumbers greenhouse, II<sup>nd</sup> cycle of crop, Agricultural Society Agro.-Dor., Dorobanți locality, Arad district

It was produced the study of tisanoptera populations because these ones represented a group of pests with the biggest number of damages in the vegetable crop from Dorobanti with results directly on the cucumbers quality and quantity.

To study the thysanoptera populations from a point of one of the way of distribution and attack on the attacked organs, it was followed the following steps: the entomological material collecting, the thysanoptera preserving and preparing, the larva and adults stages determination, the statistical operations data.

For collecting, preparation, preservation and determination the collected material it were used the

## MATERIAL AND METHOD

For making investigations about the attack produced by tisanoptera in the year 2007, the experimental field were placed at Agricultural Society Agro.-Dor., from Dorobanti locality, Arad district.

The experience concerning the attack produced by thrips were realized in 3 repetitions and every repetition with a number of 10 plants in cucumbers case. (fig. 1.).

following materials: microscopes, binocular eyeglasses, simple eyeglass, lamellae, blades, preparation bristle, puicers, papers envelope, rulers, glass bagnettes, ether, acetic acid diluted 50%, distilled alcohol, Swann liquid, xilol, Canada balsam etc.

To analyze the thrips populations, from cucumbers crops, it were applied the shaking method of plant organs which presented samples to analyze.

The entomological material, shook in carrier bags from the cucumbers flowers both of apex plant and the middle part and the base part of that one (fig. 2.).



Figure 2 Samples crop for investigations concerning the Thysanoptera attack from cucumbers crop, II<sup>nd</sup> cycle

### RESULTS AND DISCUSSIONS

*Frankliniella occidentalis* could cause damage of 80% to the cucumbers crop from protected spaces.

Untreated and attacked crops could be compromised, that was very important to know the insects density on plants to invert with efficiently treatments which reduced the pest populations number.

From analyzed data of table 1, results that in the year 2007, in cucumbers crop, 2<sup>nd</sup> cycle, the highest number of samples/ flower on experimental field variants before the treatment oscillated between 11 and 15.

The most reduced average density was 12,00, and the highest was 14,00.

In cucumbers crop, II<sup>nd</sup> cycle, the number of samples/ flower was in average of 12,66 (fig. 3).

Table 1  
***Frankliniella occidentalis* populations density collected from cucumbers greenhouses, II<sup>nd</sup> cycle of crop, Before the treatment at Agricultural Society Agro.-Dor, Dorobanți**

Cropping date	Repetition	Number of adults / flower					
		V <sub>1</sub>	V <sub>2</sub>	V <sub>3</sub>	V <sub>4</sub>	V <sub>5</sub>	V <sub>6</sub>
14.09.2007	R I	12	13	14	12	11	12
	R II	12	12	15	15	12	12
	R III	14	11	13	13	13	12
	Average	12,66	12,00	14,00	13,33	12,00	12,00
							Σ=12,66

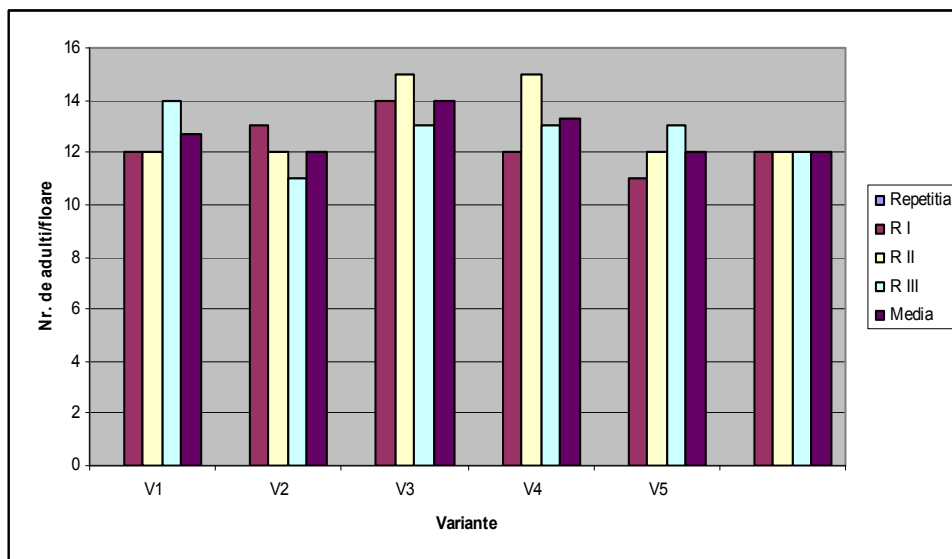


Figure 3 Thysanoptera number of samples/flower al pests from cucumbers crop, II<sup>nd</sup> cycle

The smallest number of *Frankliniella occidentalis* samples identified on variant number 2, the 3<sup>rd</sup> repetition and on the variant number 5, repetition 1.

The biggest number of species of californian thrips was identified on the variant number 4 and the variant number 5 in the second repetition.

The most reduced number of adults/flower was 11.00, and the highest number of adults/flower was 15.00.

The most reduced density was in average 12.00, and the highest was 14.00.

### CONCLUSIONS

In the year 2007, the economical stage of damage in californian thrips (*Frankliniella occidentalis*) of cucumbers crop from protected spaces blat (3 – 4 adults/ flower).

In cucumbers crop crop, 2<sup>nd</sup> cycle, 2007, populations density was in average 12.66 insects/flower.

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