

FRANKLINIELLA OCCIDENTALIS – CONTROLLING IN THE CUCUMBERS CROPS USING PHYSICO-MECHANICAL METHODS (YELLOW STICKY TRAPS)

Cristina ZEPACORADINI¹, Irina PETRESCU¹, Cerasela PETOLESCU¹, Ioan PĂLĂGEȘIU¹

¹ University of Agricultural Sciences and Veterinary Medicine of Banat Timișoara

Abstract

An important method used in monitoring and controlling Thysanoptera pest cucumber crops in protected areas is physical-mechanical control method by using yellow sticky traps.

Identification of thrips species directly on the trap is very difficult. Some species can be identified in this way including californian thrips, *Frankliniella occidentalis*. Yellow sticky traps attract a large number of adults and can be used directly in controlling or monitoring this pest population.

In culture of cucumber in protected areas, the number of individuals collected varied very much, both reading and the traps, as can be seen that the highest number of samples/cm² was identified on trap no. 2 and the lowest number was recorded on trap no. 4, where the number of individuals captured was about half less than the trap no. 2

On yellow sticky traps, the first reading was recorded an average of 87.81 samples/cm², on the second reading has been a number of 71.43 samples/cm² and the last reading the number of copies collected was 75.31 samples/cm².

Following research it was found that the greatest number of individuals/ trap was collected from the trap no. 2 (95 152 individuals/ trap) and the lowest number of individuals was collected from the trap no. 4 (56 848 individuals/ trap). The culture of cucumber, the average number samples/cm² on yellow sticky traps was 78.18 individuals/cm².

The optimal moment of trapping, and testing of insecticides and methods of effective control and cleaner, colored sticky traps can be used in realizing an orientative system of integrated controlling of the pests and illnesses at the vegetable crop from the protected spaces.

Key words: *Frankliniella occidentalis*, greenhouses, controlling pest, yellow sticky traps.

After the investigations made on material and international plan resulted that thrips were major pests of vegetable and flowers cultivated in protected spaces because surface from a greenhouse, producing great damages. Thus, it was necessary to know the pests density, the best moment to apply the treatments, and also more efficient methods of controlling.

In production conditions was signaled an important attack caused by thrips at the vegetable greenhouses to Agricultural Society Agro.-Dor, Dorobanti, Arad district. It was observed that thysanoptera had the biggest balance in producing some damages influencing on quality and quantity of vegetables production.

It was used a modality in unpolluted controlling of pests and that means the usage of yellow adhesive traps that being a method of physico-mechanical controlling of thysanoptera pests from protected spaces of cucumbers crop.

The physico-mechanical measures presented the advantage that didn't need expensive controlling measures. In the conditions environment that made in the greenhouses, the accumulation and preserving in the soil of some pests was indispensable.

The investigations concerning the thysanoptera controlling with the help of coloured adhesive traps were made by Prokopy, Owens (1978, 1983) cited by Pearsall, Myers (2001); Lewis (1959); Kirk (1984); Brodsgaard (1989); Gillespie, Vernon (1990); Teulon, Penman (1992); Vernon, Gillespie (1995); Deutscher Gartenbau (50/1990); Schmidt, Frey (1995) etc.

MATERIAL AND METHOD

A method used in controlling and monitoring thysanoptera pests from cucumbers crops of protected spaces was the method of physico-mechanical controlling through the usage of yellow adhesive-traps.

This method of controlling was used in the experiences from the greenhouses of Agricultural Society Agro.-Dor., Dorobanți from the experimental year 2008.

The yellow traps were placed in the cucumbers crop (*fig. 1.*) at a distance of 25 cm face to the plant, 75 cm distance between plants; it were placed two traps at 100 ml.

To monitorize the pests it was used the following materials: yellow adhesive traps of Csalomon type (*fig. 2.*), 10 db SZINb, MTA, Budapest etc.



Figure 1 Cucumbers greenhouse Agricultural Society Agro.-Dor., Dorobanți locality, Arad district

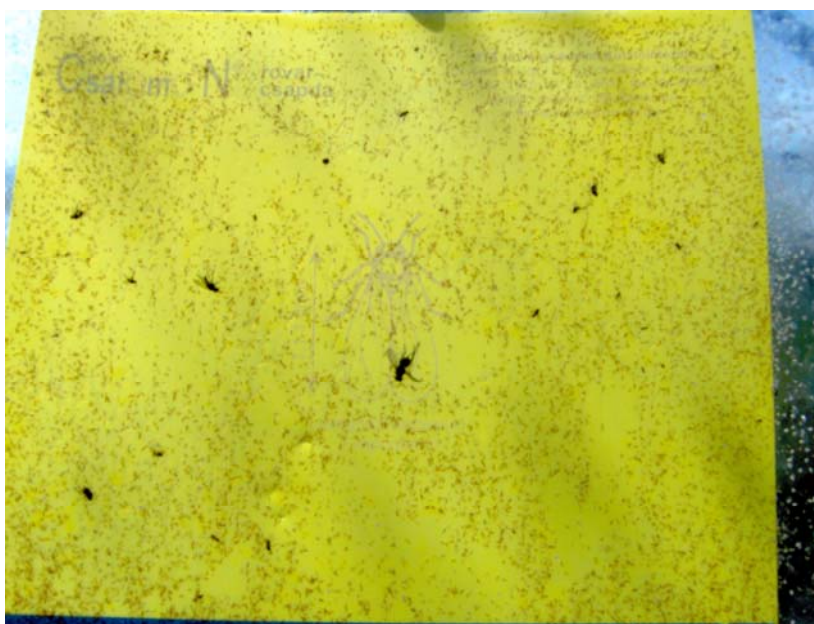


Figure 2 Trap of yellow colour type Csalomon, 10 db SZINb used for thysanoptera pests controlling in protected spaces

Investigations for thysanoptera controlling in protected spaces with the help of blue and yellow traps were made during the period 10 Jun - 01 July 2008.

RESULTS AND DISCUSSIONS

Yellow sticky traps were placed in the cucumbers crop in 10 Jun 2008. The first reading made after seven days, in date of 17 Jun 2008.

At the first reading the number of samples/cm² oscillated from an average of 50,25

samples/cm² on trap no. 4 to an average of 123,0 samples/cm² on trap no. 2; on trap no. 1 it was found 84,0 samples/cm², and on trap no. 3 discovered 94,0 samples/cm² (table 1).

From figure 2 it could observe that the biggest number of samples/cm² was identified on trap no. 2, and the smallest number was registered on trap no. 4, where the captured number of them was approximate half smaller than on trap no. 2.

Table 1

Monitorizarea *Frankliniella occidentalis* monitorization from cucumbers crop with the help of yellow sticky traps, Ist reading, 17.06.2008

Trap no. 1		Trap no. 2		Trap no. 3		Trap no. 4	
samples no. /cm ²				samples no. /cm ²			
R ₁	59	R ₁	113	R ₁	105	R ₁	86
R ₂	61	R ₂	51	R ₂	159	R ₂	33
R ₃	55	R ₃	201	R ₃	60	R ₃	46
R ₄	161	R ₄	127	R ₄	52	R ₄	36
Total	336	Total	492	Total	376	Total	201
Average	84,0	Average	123,0	Average	94,0	Average	50,25



Figure 3 *Frankliniella occidentalis* number of samples/cm², yellow traps, cucumbers, Ist reading, Dorobanți, 2008

From table 2 it determined that at the second reading the number of samples/cm² varied between 209 species/cm² and 346 species/cm², that means from an average of 52,25 samples/cm² to an average of 86,5 samples/cm².

At the second reading from yellow traps of tomatoes crop the biggest number of samples/cm² it was observed on trap no. 2, and the smallest number of samples/cm² it was observed on trap no. 4. (fig. 3.).

Table 2

***Frankliniella occidentalis* monitorization from cucumbers crop with the help of yellow sticky traps, IInd reading, 24.06.2008**

Trap no. 1		Trap no. 2		Trap no. 3		Trap no. 4	
samples no./cm ²				samples no./cm ²			
R ₁	54	R ₁	98	R ₁	47	R ₁	77
R ₂	93	R ₂	71	R ₂	59	R ₂	42
R ₃	122	R ₃	84	R ₃	71	R ₃	39
R ₄	76	R ₄	93	R ₄	66	R ₄	51
Total	345	Total	346	Total	243	Total	209
Average	86,25	Average	86,5	Average	60,75	Average	52,25



Figure 4 *Frankliniella occidentalis* number of species/cm², yellow traps, cucumbers, IInd reading, Dorobanți, 2008

Table 3

Frankliniella occidentalis monitorization from the cucumbers crop with the help of yellow sticky traps, IIIrd reading, 01.07.2008

Trap no. 1		Trap no. 2		Trap no. 3		Trap no. 4	
samples no. /cm ²				samples no. /cm ²			
R ₁	24	R ₁	119	R ₁	59	R ₁	66
R ₂	40	R ₂	113	R ₂	89	R ₂	71
R ₃	21	R ₃	110	R ₃	94	R ₃	90
R ₄	19	R ₄	72	R ₄	107	R ₄	111
Total	104	Total	414	Total	349	Total	338
Average	26,00	Average	103,5	Average	87,25	Average	84,50

From table 3 it determined in average the biggest number of samples/cm² collected on trap no. 2 (103,5 samples/cm²), and the smallest number of samples/cm² collected on trap no. 1 (26 samples/cm²).

In the cucumbers crop, on yellow traps, at the first reading registered in average a number of 87,81 samples/cm², at the second reading

registered a number of 71,43 samples/cm², and at the last reading the number of collected samples was 75,31 species/cm² (table 4).

From figure 4 it could observe that the biggest number of species was collected on trap no.2 at the first reading, and the smallest number of species was collected on trap no. 1 at the third reading.

Table 4

Frankliniella occidentalis from the cucumbers crop with the help of yellow sticky traps, 2008

Traps	samples no. /cm ²		
	I st reading	II nd reading	III rd reading
Trap no. 1	84,0	86,25	26,00
Trap no. 2	123,0	86,5	103,5
Trap no. 3	94,0	60,75	87,25
Trap no. 4	50,25	52,25	84,50
Average	87,81	71,43	75,31

Table 5

Frankliniella occidentalis on the surface of yellow trap at the three readings, 2008

Traps	Readings			Total samples/trap
	I	II	III	
Trap no. 1	25 536	26 220	7 904	59 660
Trap no. 2	37 392	26 296	31 464	95 152
Trap no. 3	28 576	18 468	26 524	73 568
Trap no. 4	15 276	15 884	25 688	56 848

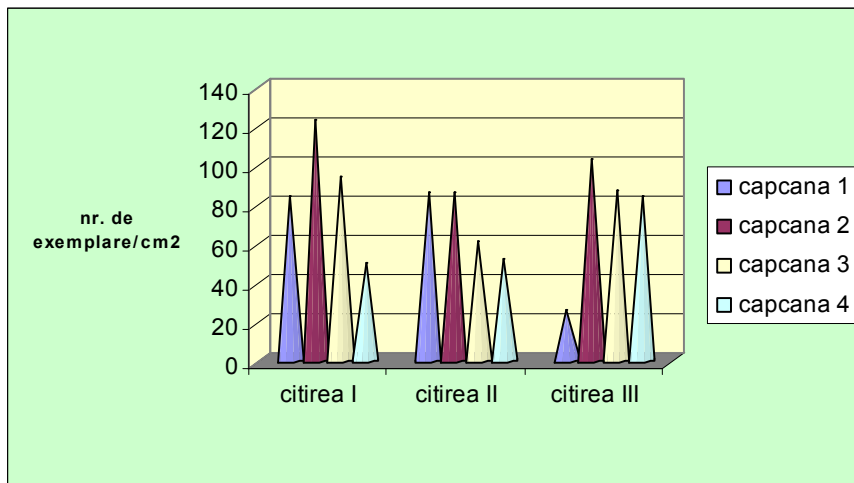


Figure 5 *Frankliniella occidentalis* number of species variation at the three readings, yellow traps, 2008

From table 4 it was observed the biggest number of specie/ trap was collected on trap no. 2 (95 152 species/ trap), and the smallest number of collected species was on trap no. 4 (56 848 species/ trap). In the cucumbers crop, 2008, the number of collected species varied enough, both on reading and on traps; thus the

biggest number of collected species/trap was at the first reading on trap no. 2, and the smallest number of collected species was on trap no. 1 at the third reading. (fig. 5).

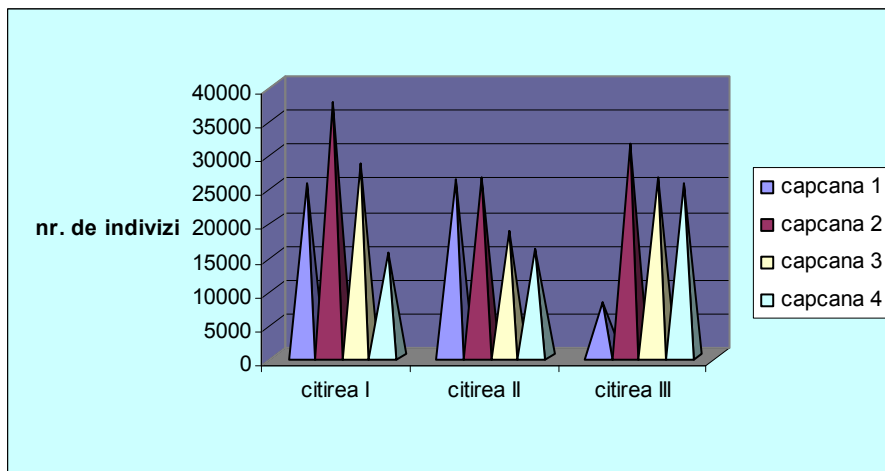


Figure 6 *Frankliniella occidentalis* total number species collected on the surface of yellow trap, cucumbers, 2008

CONCLUSIONS

In cucumbers crop, of year 2008, the number of species/cm², in average was 78,18 species/cm² on yellow traps.

In the cucumbers crop of 2008, on yellow traps, at the first reading registered in average a number of 87,81 species/cm², at the second reading registered a number of 71,43 species/cm², and at the last reading the number of collected species was 75,31 species/cm².

In the cucumbers crop it was determined that the biggest number of species/ trap was collected on trap no. 2, and the smallest number of collected species was on trap no. 4. In the cucumbers crop, 2008, the collected species number varied enough in function of reading; thus the biggest number of collected species/trap was at the first reading, and the smallest number of collected species was at the third reading.

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