OBSERVATIONS REGARDING THE EFFICACY OF PYRINEX 25 CS PRODUCT TO FIGHT AGAINST *DIABROTICA VIRGIFERA VIRGIFERA* LE CONTE SPECIES FROM MAIZE CROPS

OBSERVAȚII CU PRIVIRE LA EFICACITATEA PRODUSULUI PYRINEX 25 CS ÎN COMBATEREA SPECIEI *DIABROTICA VIRGIFERA VIRGIFERA* LE CONTE DIN CULTURILE DE PORUMB

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Abstract. *Experiments were made at INCDA Fundulea and Agricultural Research and Development of the ASAS resorts, where there were applied 1-2 treatments in a corn crop during the growing season.The treatments were applied when there was a warning, during the sign of panicle, having a density over 10 adults/square m, density determined after performing the survey and 7 adults/yellow trap nonspecific/day. In all stationary of testing, the efficiency was very good, with values between 89.4% and 90.7% at a dose of use of 1.5 l/ha of commercial product. At the untreated subject, the efficiency values were between 12.3% and 27.6% and the average in the three stationary were 19.5%. No recorded of phytotoxicity phenomena affecting crop.*
Key words: maize, vegetation treatment, efficacy.

Rezumat. *Experienţele au fost făcute la INCDA Fundulea şi la Staţiunile de Cercetare-Dezvoltare Agricolă din cadrul ASAS, într-o cultură de porumb în care s-au aplicat 1-2 tratamente în cursul perioadei de vegetaţie. Referitor la momentul aplicării tratamentelor, acesta s-a făcut la avertizare, în perioada de mătăsire- apariţia paniculului, la densităţi de peste 10 adulţi/m*^{2}*, densitate stabilită în urma efectuării de sondaje şi la 7 adulţi/capcană galbenă nespecifică/zi. În toate staţionarele de experimentare, eficacitatea a fost foarte bună, având valori cuprinse între 89,4 % şi 90,7 %, la o doză de utilizare de 1,5 l/ha de produs comercial. La martorul netratat, valorile eficacităţii au fost cuprinse între 12,3 % şi 27,6 % iar media în cele 3 staţionare a fost de 19,5 %. Nu s-au înregistrat fenomene de fitotoxicitate care să afecteze culturile.*
Cuvinte cheie: porumb; tratament în vegetaţie; eficacitate.

INTRODUCTION

The maize is originally from Central America, cultivated today in many regions of the world as a food, industrial and forage plant, it represents together with the wheat 80% of cereal production.

According to Rosca, 2003 and 2007 in the maize crops from Romania, cause damages the polyphagia pests such as: mole cricket (*Gryllotalpa* spp.), white worms (*Scarabaeidae*), wire worms (*Elateridae*), caterpillars of ground

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(*Noctuidae*), black worms (*Tipulidae*), slugs (*Limacidae*) and gnawers (*Cricetidae*). The seeds and the embryos are attacked by *Harpalus distinguendus* Duftsch. (the seeds bug). The plants just raised are attacked by *Pentodon idiota* Hb. (the black beetle), *Microtus* spp., *Citellus* spp. (mice, ground squirrels), *Oscinella frit* L. (the black fly of oats), *Chaetocnema aridula* Gyll. (black flea cereals), *Tanymecus dilaticollis* Gyll., *Agrotis segetum* Schiff. (eagle crops), *Diabrotica virgifera virgifera* Le Conte (western corn wormroots) etc. It is also known the attack of some pests on the roots, being quoted as pests, the nematodes or the aphid *Tetraneura ulmi* L. (pink lice of the gramineae roots) etc. During the period of formation of grains or ripening, the maize it is also attacked by *Sitotroga cerealella* Oliv. (moth cereals), *Apamea sordens* Hfn. (eagle wheat grains) etc.

In the present paper are presented some aspects related with the pest *Diabrotica virgifera virgifera* Le Conte- western corn wormroots.

MATERIAL AND METHOD

In 2011 have been made tests of the Pyrinex 25 CS product in combating the species *Diabrotica virgifera virgifera Le Conte* from maize crops, having as active substance chlorpyrifos product 250 g/l, conditioning form CS, the producing company is Makhtesim Agan and the experimentation place is INCDA Fundulea and the Agriculture Development Research Stations from the network ASAS, namely: SCDA Lovrin, Grabați and Turda.

The location of the experience was made in the form of randomized blocks containing six repetitions, the parcel size is about 100 m². It have been applied 1-2 treatments between July 29th – August 7th using a dose of 1,5 l/ha. We mention that the climatic conditions in the year of experimentations favorized the evolution of *Diabrotica virgifera virgifera Le Conte* pest, the observation date beeing at 24-48 hours after the application of the treatment.

Concerning the moment of the treatment application, this was done at warning, in the silk period - the appearance of panicle, at densities of more than 10 adults/m², density determined after performing surveys and at 7 adults/ yellow nonspecific trap/day. The assessments of the results were made by comparison in those 3 stations, making also their average but in comparison with the untreated control.

RESULTS AND DISCUSSIONS

Short presentation of the biology and ecology of the pest. Bărbulescu (2000) based on an extensive specialized literature makes an excellent summary of the biology and ecology of the pest showing that the species *Diabrotica virgifera virgifera* Le Conte has both in USA, in the maize belt, and in Yugoslavia, Hungary and in Romania the same biology (Grozea, 2000). The pest has one generation/year, winters in the egg stage in,eggs that could be found from the middle of July until the end of June from the next year (about 10 months). Gentle winters, without precipitations and strong winds, weeds and vegetable remains favor the survival of eggs. The hatching of eggs and the occurrence of larva starts at the middle of May and ends at the beginning of August. The first pupas appear at the end of June and can be found until the end of August, when appear the adults. The adults are present in the

maize crops from August until October. The mass appearance is registered starting with the middle of July and continues in August. They are more active 2-3 hours before sunrise and 2-3 hours before sunset. The first adults that are mating are found at 7 days from the appearance. The laying eggs begin at the middle of July and reaches maximum values in August. A female can lay 400-1087 eggs, especially at the base of maize plant and in the cracks soil, to the depth of 35 cm, the majority up to 15 cm. For the normal development, in order to cross the period of, are necessary two weeks with temperatures above 11ºC. The laying eggs take place almost exclusively in maize crops. The exposure of eggs immediately after laying at a cold period, without a pre-cooling prior period is harmful for eggs, the survival decrease with the long exposure at -5ºC and is about 50% in conditions of 7 days at -10ºC, the egg being destroyed at -15ºC or lower.

The fight against pest is based on application of chemical method. In practice, are applied soil insecticides to combat larva, but most of the insecticides applied during seeding are preventive, without knowing the density of the pest, not fully combat the pest, annually from treated fields at sowing or at the first breeding, appear adults that spread in crop.

The fight against adults is performed only in certain years or when is followed the combat of the pest on large areas, being based on monitoring, knowing the biology of the pest and economic threshold of damage (PED).

In this paper are presented some experimental results in combating the adults of *Diabrotica virgifera virgifera* Le Conte species. The moment of application the treatment, was on warning, in the silk period - the appearance of panicle, at densities of more than 10 adults/m², density determined after performing surveys and at 7 adults/ yellow nonspecific trap/day.

The assessments of the results were made by comparison in those 3 stations, making also their average but in comparison with the untreated control.

In table 1 are presented the data obtained for combating the adults of *Diabrotica virgifera virgifera* Le Conte (western worm of maize) in maize crops with the Pyrinex 25 CS product, based on bifenthrin, by splashing in vegetation.

Analyzing the data from the table, it is found that Pyrinex 25 CS product applied in dose of 1,5 l/ha, has determined a high efficacy, in all the 3 experimental points – Lovrin (County Timiș), Grabați (County Caraș Severin) and Turda (County Cluj). On average, the efficacy was 89,4%, in terms of medium densities of 19,5 adults/m². In those 3 stations the situations is: at Lovrin, the efficacy was 90,7%, being the highest one, at Grabați, the efficacy was 87,9%, was the lowest, and at Turda the efficacy was 89,4% beeing between the other two amounts, the highest one and the lowest one. The highest density of the adults of *Diabrotica virgifera virgifera* Le Conte species was recorded at Grabați, 27,6 adults/m², in average followed by Lovrinmwith 18,5 adults/m² and Turda, were was registered the lowesr density of adults – 12,3 adults/m².

It can be appreciated that, through the treatment applied with the Pyrinex 25 CS product it has been assured high level of protection against the attack of

adults of *Diabrotica virgifera virgifera*, in maize crops, fact conferment by the results obtained in batch verification, in terms of productions.

There were no registered phytotoxic phenomenons.

Table 1

The efficacy of Pyrinex 25 CS product in fight against *Diabrotica virgifera virgifera* Le Conte species

Version	Dose	Efficacy %			
		Lovrin	Grabați	Turda	Average
Pyrinex 25 CS	1,5 l/ha	90,7	87,9	89,4	89,4
Untreated(specimens/m^2)		18,5	27,6	12,3	19,5

CONCLUSIONS

1. The experiments made at INCDA Fundulea and at at the Agriculture Development Research Stations part of the ASAS, in a maize crop where were applied 1-2 treatments during the vegetation period.

2. The moment of application of treatments, this was made on warning, in silk period- the appearance of panicle, at densities of more than 10 adults/m², density determined after performing surveys and at 7 adults/ yellow nonspecific trap/day.

3. In all the experimental stations, the efficacy was very good, with values between 89,4% and 90,7%, at a dose utilization of 1,5 l/ha of commercial product.

4. At the untreated control, the values of the efficacy were between 12,3% and 27,6%, and the average in those 3 stations was 19,5%.

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