SOME ASPECTS OF POPULATION CONTROL *MELIGHETES AENEUS* IN WINTER RAPESEED UNDER AGRICULTURAL NE BĂRĂGAN AREA

UNELE ASPECTE PRIVIND CONTROLUL POPULAȚIEI *MELIGETHES AENEUS* ÎN CULTURA DE RAPIȚĂ DE TOAMNĂ ÎN CONDIȚIILE AREALULUI AGRICOL BĂRĂGANUL DE NORD- EST

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Abstract. *Meligethes aeneus is one of the most dangerous pests of rape, the agricultural area Bărăganul de nord-est, accounting for 25 % of this crop pests. There are significant differences between different mode of action of insecticides according to the active substances entering their composition, their mode of action of this pest on the frequency and efficacy of protection substances Melighetes aeneus, particularly the damaging culture of winter rape*
Key words: *Meligethes aeneus,* insecticide, frequency, efficacy.

Rezumat *Meligethes aeneus este unul din cei mai periculoşi dãunãtori ai rapiței, din arealul agricol Bărăganul de nord, cu o pondere de peste 25 % din populația dãunãtorilor acestei culturi. Sunt deosebiri semnificative între modul de acțiune a diferitelor insecticide in funcție de substanțele active care intră în componență lor vizând modul de acțiune a acestora asupra dăunătorului privind frecventa şi eficaciarea substanțelor de protecție în combaterea Meligethes aeneus.*
Cuvinte cheie *:* *Meligethes aeneus,* insecticide, frecvență, eficacitate

INTRODUCTION

Winter rape is attacked by a large number of insect pests (Alford et al., 2003; Trotuş, 2009, Popov, 2006, 2007,*). Meligethes aeneus Fab*. (*Coleoptera, Nitidulidae*) is a major pest throughout both Europe and in Romania in large areas growing winter rape (Alford et al., 2003; Rîşnoveanu, 2010).

The trend in the management of this pest that can affect over 35%, and in some years resulting in compromised culture, application of insecticides with minimal effect on the environment constitutes an important part in achieving high yields, stable and quality of winter rape in the Baraganul de nord-est. (Rîşnoveanu, 2010; Buzdugan, 2011)

MATERIAL AND METHOD

Researches were executed during 2004-2011 in the agricultural area Baraganul de nord-est. In this period, observations and determinations were made on the collection and identification of pests of rapeseed crops.

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To prevent attack of *Meligethes aeneus* to experience a range of insecticides with minimal impact on the environment:

- systemic (tialoprid 480 g / l and thiametoxam 25%)
- non-systemic (alpha-cipermetrin and deltacipermetrin 50 g / l

Observations and measurements were made on untreated variant frequency pests and the ones that have been applied insecticides mentioned above. Efficacy of insecticides was determined using Abott's formula

Scientific data obtained were calculated and statistically analyzed using analysis of variance, compared mutiple (Newman Keuls), regressions and correlations (statistical package SAS / SAT, PASW)

RESULTS AND DICUSSIONS

Analyzing harmful species during growth and development of winter rape spring shows that *Meligethes aeneus* occupies the largest share, 28.4%, of total 3456 individuals / m² a major pest of this crop, producing great damage, especially in period buds united, flourished and pods formation (fig. 1)

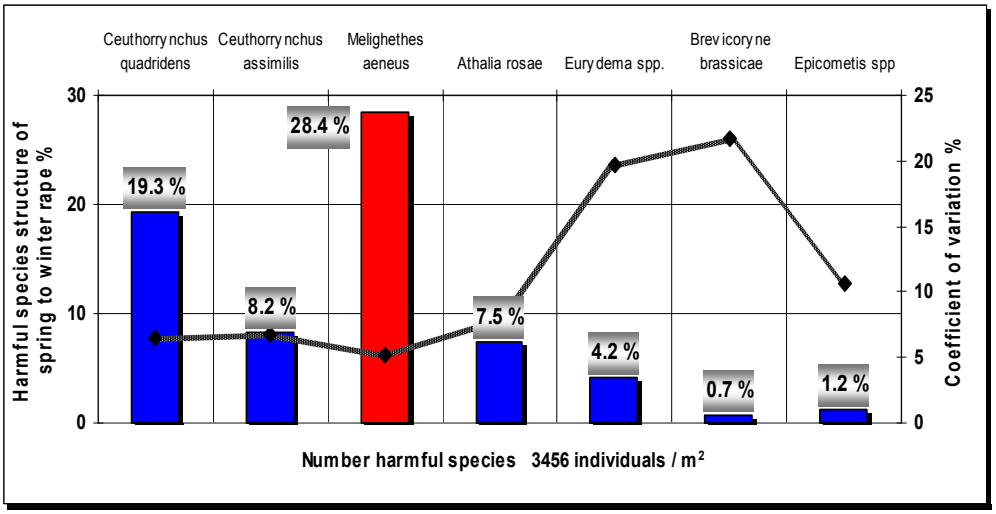

Fig. 1 - Structure spring pest population of winter rape

In effectively combating this dangerous pest great importance is the choice of mode of action insecticide and its translocation in the plant to monitor its population, by maintaining it below economically damaging or total destruction.

Thus in figure 2, that *Meligethes aeneus* is significantly reduced frequency of application of insecticides, regardless of mode of action and translocation of 50.9%.

Systemic insecticides in the same context leads the 9.1% statistical level in the frequency of this pest while having the smallest variation of the effect the research period 7.2% (insignificant)

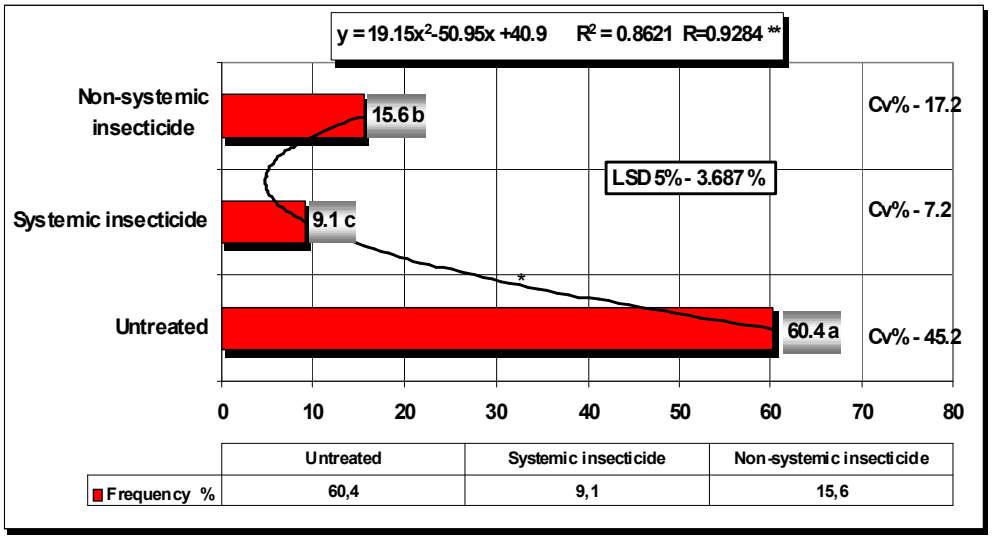

Fig. 2 - Influence the mode of action and translocation of insecticides on frequency *Meligethes aeneus*

In terms of efficacy of these insecticides (fig. 3) is found primarily a significant increase (0.9875 ***), regardless of its mode of action and their tanslocare the plant, reaching 97.2%.

Systemic insecticides rank first with a significance level of *Meligethes aeneus* efficacy of 95.6%, with a coefficient of variation of their effect, insignificant 8.7%.

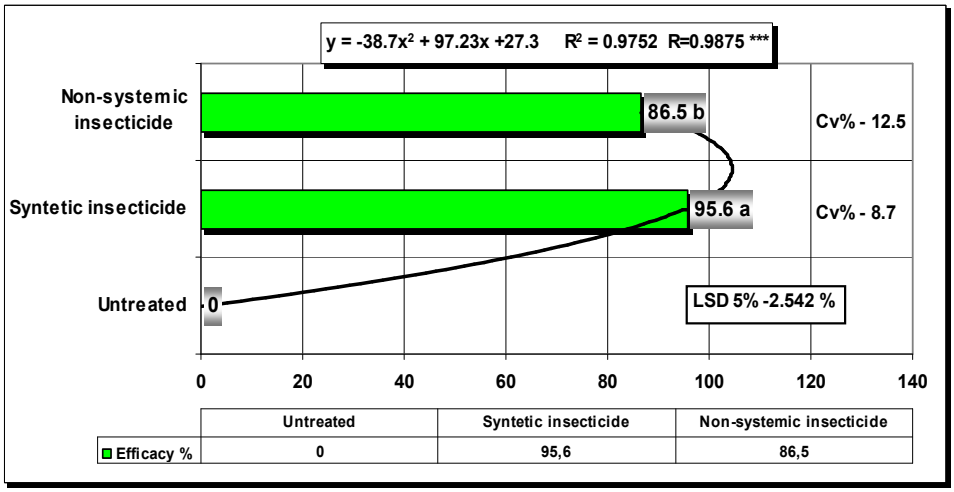

Fig. 3 - Efficacy mode of action and translocation of insecticides on *Meligethes aeneus*

In regard to systemic acting insecticide efficacy (fig.4.) shows that regardless of insecticides considered these results in significant control (R = 0.9938 ***) of 97,6%.

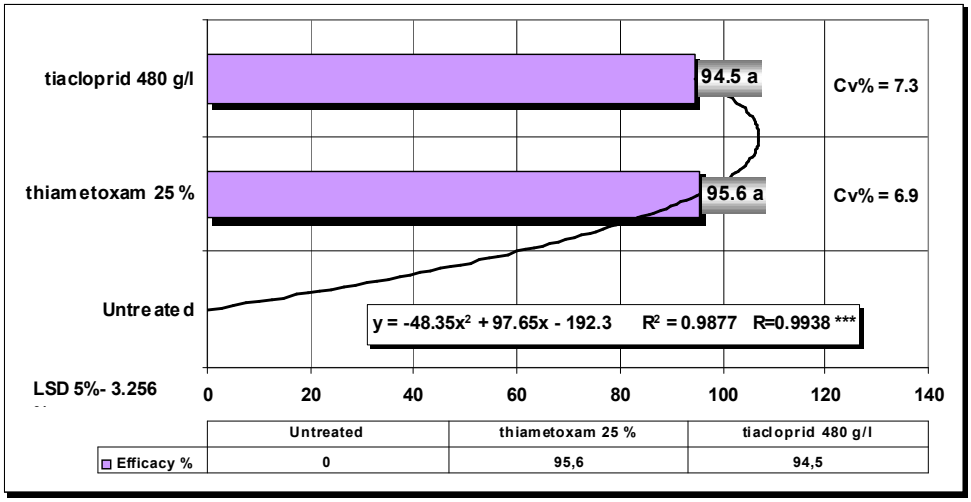

Fig. 4 - Efficacy of systemic insecticides on *Meligethes aeneus*

If non-systemic insecticide effectiveness was less than 89.1% regardless of the substances tested for protection combat of Meligethes aeneus the winter rape culture (fig. 5). It also shows that deltametrin 50 g/l lead to greater effectiveness in combat the *Meligethes aeneus*, to 88.9%, being on the first level of significance.

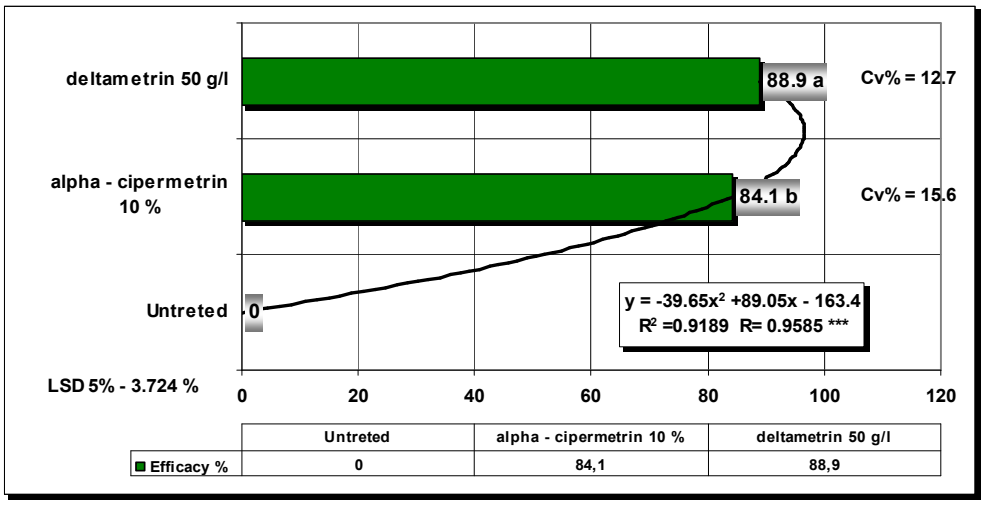

Fig. 5 - Efficacy systemic insecticides on *Meligethes aeneus*

At the same time there is a significant variation 12.7% in time the effect of this very damaging pest of rape culture

Figure 6 shows that regardless of mode of action and translocation of the insecticides tested significantly reduced the frequency of this pest is (R = 0.893 *) with 53.4%

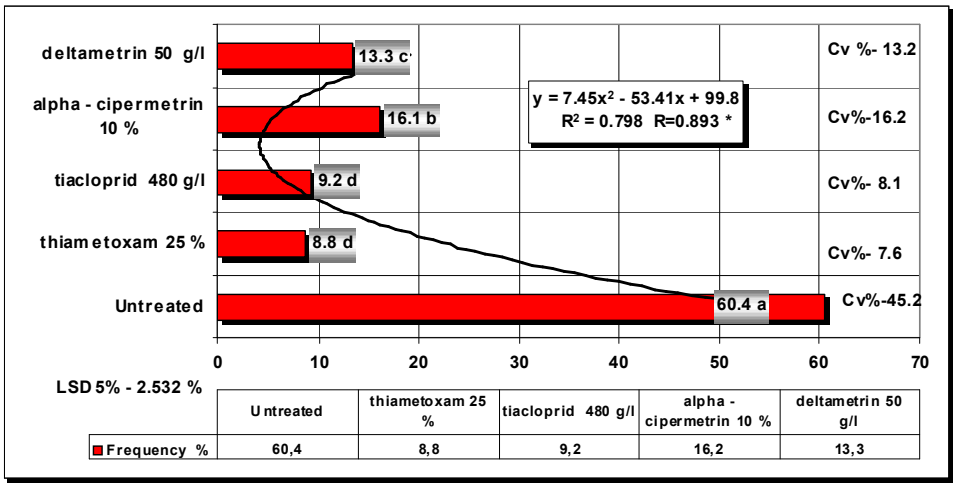

Fig. 6 - Influence of insecticides on the frequency of *Meligethes aeneus*

On the first level of significance is situated systemic insecticides thiametoxam 25% and thiacloprid480 g / l with a frequency of *Meligethes aeneus* between 8.8-9.2% compared with untreated version where its frequency reaches the 60.4%

On the second level of meaning is situated deltametrin 50 g / l to determine a frequency of 13.3% of this pest with significant variation coefficient 13.2%

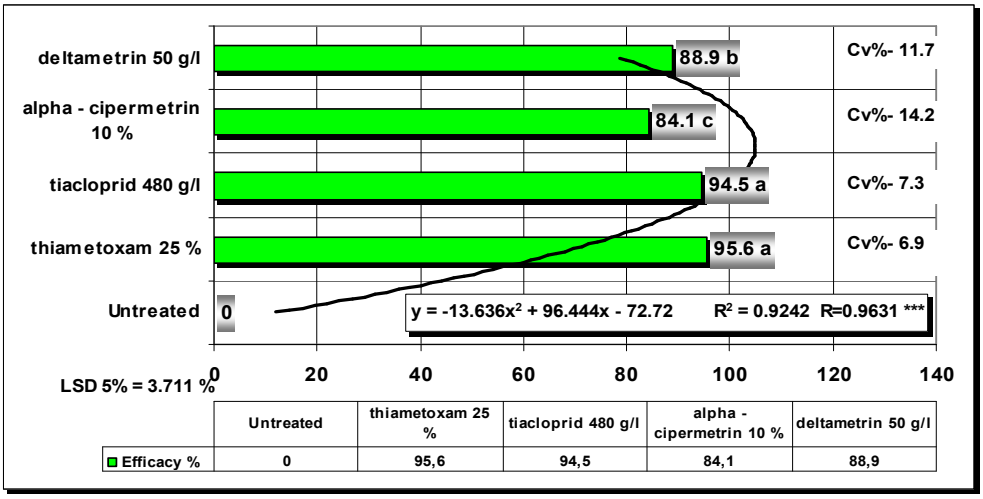

Fig. 7 - Efficacy insecticides on *Meligethes aeneus*

In regard to effectiveness of insecticides with different modes of action and translocation in plants they are found to cause a significant increase (R = 0.9631 ***) to combat the 96.44% of *Meligethes aeneus* (fig. 7)

The first level of effectiveness of insecticides to combat this pest is situated thiametoxam 25% and thiacloprid 480 g/l with an efficacy of 94.5-95.6% and its variation in time of 6.9-7.3%.

Deltametrin 50 g/l is located on the second level of significance in pest control efficacy of 88.9%, but with a variation of 11.7% of them.

CONCLUSIONS

1. *Meligethes aeneus* is a major pest of winter rape in the agricultural area Baraganul de nord-est.

2. Mode of action and translocation of insecticides is essential in combating *Meligethes aeneus*.

3. Systemic insecticides thiametoxam 25% and thiacloprid 480 g/l are found to be most effective in combating of *Meligethes aeneus* the efficiency between 94.5-95.6%.

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