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ESTABLISHING OF NUMBER AND LOCATION OF DEPOSITED EGGS OF CEREAL LEAF BEETLE (Coleoptera, Chrysomelidae: *Lema melanopus* L.) IN SMALL GRAINS

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ABSTRACT. Number and location of deposited eggs of cereal leaf beetle (Coleoptera, Chrysomelidae: *Lema melanopus* L.) were studied in five genotypes of different species of winter small grains: three genotype of wheat (Evropa 90, Srbijanka and Vel), triticale (Knjaz cultivar) and barley (Jagodinac cultivar). Fecundity of female in average was between 80.5 and 134.0 laid eggs. Estimation of number and location of deposited eggs of beetle showed differences among genotypes. The highest number of deposited eggs was in wheat Vel cultivar and the lowest one in barley Jagodinac cultivar. Also, differences was registered considering number of eggs of cereal leaf beetle on different leaves of analyzed plants. The highest number of deposited eggs was established on the third leaf (169.8).

INTRODUCTION

Cereal leaf beetle (CLB) represents the most important pest of wheat in many countries. *L. melanopus* has univoltive life cycle per year and adults and usually mated and laid eggs from April to June. After addition of nutrition (STEIDL et *al.*, 1979) and repeated copulation, female lays eggs on the face of leaf of host plant (W e l l s o, 1978).

WILSON and SHADE (1967) indicated that adults of CLB showed the most affinity to erectofile position of leaves and female the most often places eggs at the plants with higher contents of sucrose (KON et *al.*, 1978). The same authors reported female places more eggs on the above and succulent leaves, likely, because of presence of positive phototaxism. It behave is very important for CLB because of decreasing competition for nutrition among adults and progenies and place of eclosia larvae, near to succulent or the most succulent (WELLSO and CRESS, 1973). PANELLA et *al.* (1974) found that plant tissue with higher contents of hidrophyle components was more attractive for CLB.

One female, in average, places between 100 and 150 eggs. In correlation with temperature and host plant it could be more (TEOFILOVIĆ, 1969). Daily rhythm of female is 7-16 placed eggs. It depends from temperature. The most favorable host plant is barley, than oat, wheat, while rye is the most unfavorable. Negative influence of host plant is manifested through decreasing number of deposited eggs.

BENEDIK (1974) and POLJAKOV (1975) (according to: ČAMPRAG, 1980) and HEYER (1979) suggested one egg per plant represent critical number of CLB. In this case is necessary undertake protection of small grains.

The aim of this work was establishing number and oviposition of CLB confined with five blades of different cultivar of wheat barley and triticale.

MATERIAL AND METHODS

Experiment carried out on the experimental field of Center for small grains in Kragujevac, during 1997 and 1998.

The number and oviposition of CLB analyzed on five genotypes of three species of winter small grains: three genotypes of wheat (Evropa 90, Srbijanka and Vel), triticale (Knjaz cultivar) and barley (Jagodinac cultivar). Each cultivar was planted in pot (radius 20 cm), in three repetitions. Eight plants were grown per pot and used for analysis. During the winter plants were grown in glasshouse. During the spring time, one plant per pot was isolated with globe of lamp which cowered by till. The one female and one pair of male was carried in globe of lamp. After repeated coppulation and placed eggs, the globes of lamp was removed and number of placed eggs on both side of leaves established (Fig. 1). The number of unreproduced eggs on leaves after eclosion of larvae was established.

Fig. 1: Plants in nodule stage

RESULTS AND DISCUSSION

During examined period fecundity of female was estimated. Fecundity of female in average was 80,5 placed eggs in wheat Evropa 90 cultivar and 134,0 placed eggs in Vel. These results are in agreement with results TEOFILOVIĆ (1969). He established in average 100-150 placed eggs by one female. Average number of nonreproducible eggs varied from 25,7 in barley cultivar Jagodinac to 54,7 in triticale Knjaz cultivar (Graf. 1a).

According to the total number of placed eggs, the highest impact of placed eggs on face of leaf had Vel cultivar (91,27%) what is opposite to result of KOLAROVA (1988) who reported that Vel cultivar was resistant to the CLB because of hairiness. Srbijanka cultivar characterized high percent of number of placed eggs on both side in correlation with the total number of deposited eggs. Remain analyzed cultivars had approximately similar number of eggs on both side of leaf. In relation to total number of deposited eggs, the highest percentage unreproducible eggs on both side of leaves of triticale Knjaz cultivar (47,07%) was established. Wheat cultivars Evropa 90 and Srbijanka had high average percentage impact of number of unreproductive eggs on both side of leaves (45,96% and 42,99% respectively) in relation to total number of placed eggs. The Jagodinac and Vel cultivars characterized by significantly lower number of unreproductible eggs in relation to total number of placed eggs (Graf. 1a).

The highest number of placed eggs was established on the third leaf (169,8 eggs), than on the second leaf (157,1 eggs) and on the fourth leaf (109,1 eggs). The lowest number of placed eggs was registered on the fifth leaf (50,6 eggs). This differences by number of laid eggs of beetle could be consequence of better adaptability, and morphophysiological characters of cultivar plant.

The highest total number of placed eggs was on the second leaf of Europe 90 cultivar (41,0) and Vel (47,0), on third leaf in barley Jagodinac cultivar (31,5) and triticale Knjaz cultivar (43,8) and on fourth leaf in wheat Srbijanka cultivar (36,0). On the first leaf, number of laid eggs was very similar for all examined genotypes (Graf. 1b-f).

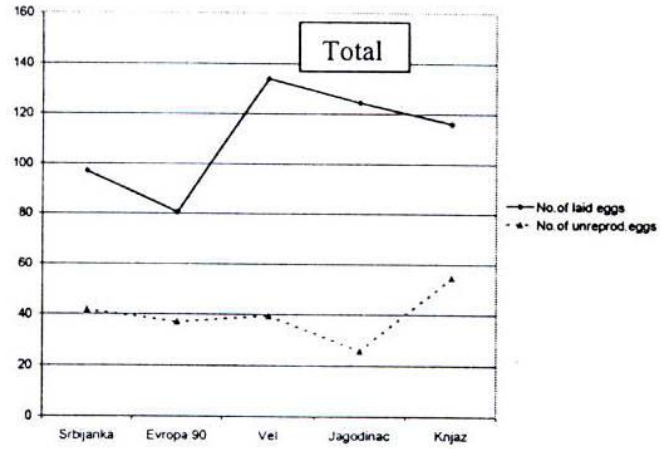
After eclosion, the larvae moved on remain seven plants which grown in same pot which have not been host plant for feeding of adults and for oviposition of eggs of cereal leaf beetle.

CONCLUSIONS

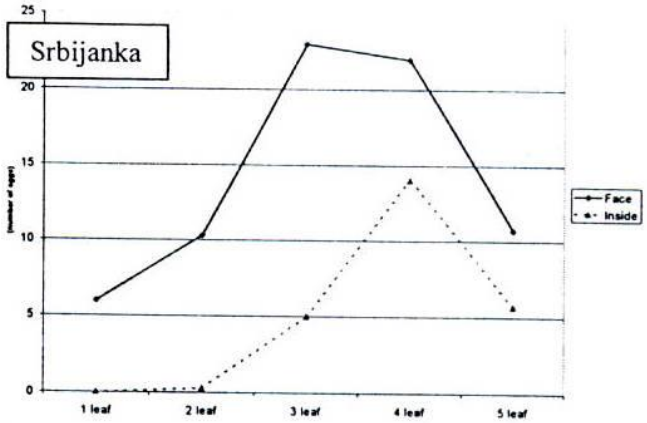
Analysis of number and location of oviposition of beetle showed that there are differences among analyzed cultivars. The highest number of deposed eggs was on wheat cultivar Vel and the lowest in wheat cultivar Evropa 90. The highest number of unreproductive eggs was established on triticale Knjaz cultivar and the lowest one on barley Jagodinac cultivar.

The highest number of deposed eggs was established on the third and fourth leaf. No one cultivar have maximal number of placed eggs on flag leaf.

According to results led us to conclude that Evropa 90 wheat cultivar have more resistens than other genotypes of small grains.



a)



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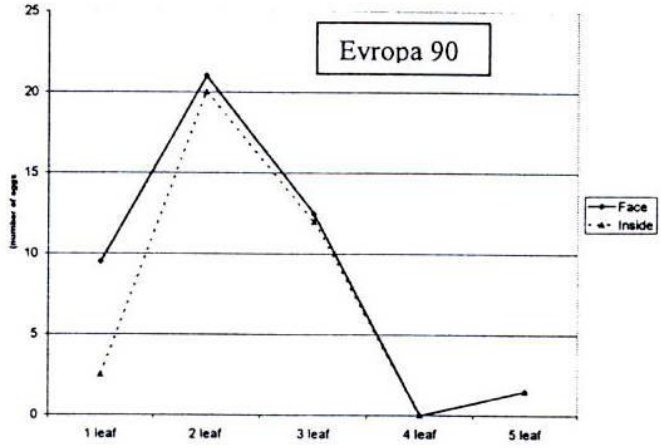
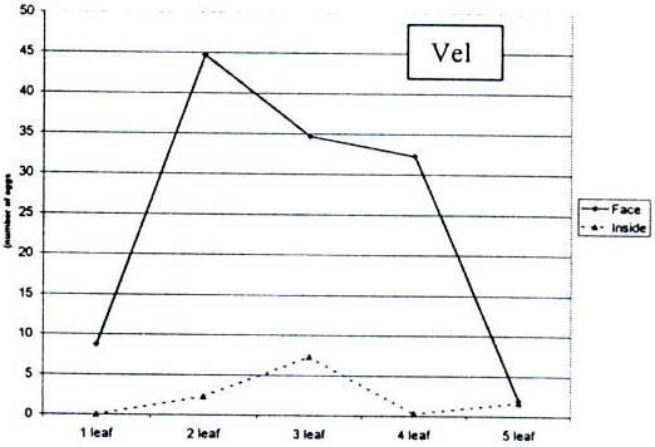
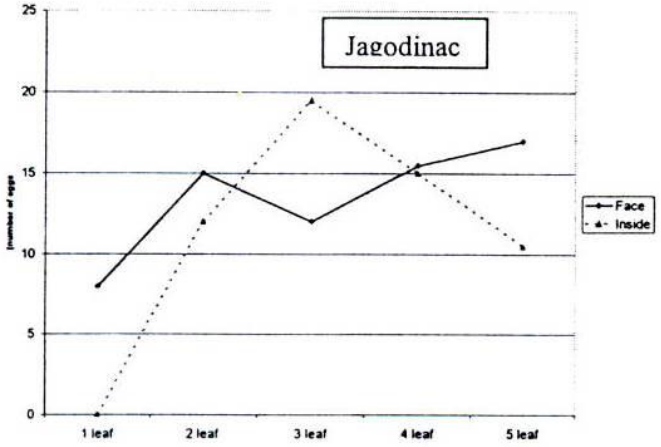


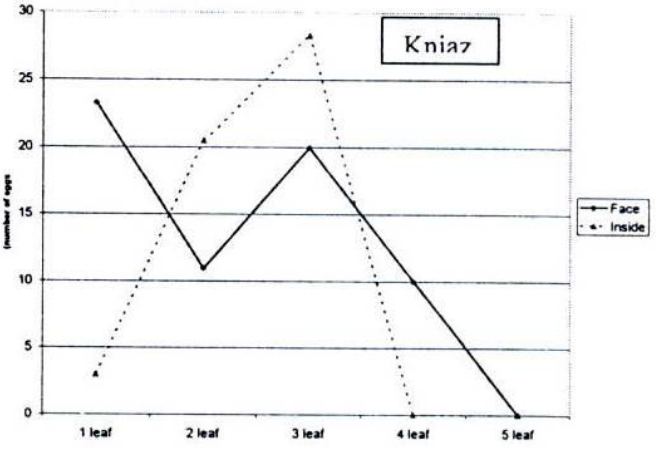
c)



d)



e)



f)

Graph. 1: a) Total number of laid eggs and unreproductible eggs in examined cultivar, b) Number of laid eggs on both side of leaves in wheat cultivar Srbijanka, c) Number of laid eggs on both side of leaves in wheat cultivar Evropa 90, d) Number of laid eggs on both side of leaves in wheat cultivar Vel, e) Number of laid eggs on both side of leaves in barley cultivar Jagodinac, f) Number of laid eggs on both side of leaves in triticale cultivar Knjaz.

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