INTRODUCTION

In the last decade Tovarnik (Croatia) suffer from climate changes. Caused by this new weather conditions (drier), the sugar beet weevil (Bothynodera punctiventris Germ.) (Coleoptera: Curculionidae) appears regularly in the last five years causing serious damages to sugar beet crops. Overwintering adults cause damage by feeding on sugar-beet seedlings (Sekulić et al., 1997) and due to specific insect feeding habits, morphological traits and low sensibility to insecticides, insecticide treatments did not show necessary effect on weevil suppression. Mass trapping of beet weevils using aggregation pheromones is reported as an possible short-term strategy for weevil control on a newly planted sugar beet fields (Toth et al., 2002; Sivčev et al., 2006; Tomašen et al., 2007). However, long-term strategy shall be aimed to the reduction of the pest population in a wide area and to keeping pests far away from newly planted sugar beet fields. This shall reduce the need for insecticide applications what is in accordance with the principles of IPM. Faculty of Agricultural and the Croatian Science Foundation and European union through Instrument for Pre-Accession Assistance (IPA) initiated a project “Technology transfer in sugar beet production: improvements in pest control following the principles of integrated pest management” aiming to solve this problem.

RESULTS AND DISCUSSION

2012

- The spring population on all previous year sugar beet fields was in marked area was 2,321,844 beetles (83,506/ha of old sugar beet field)

- 158,641 were caged on pheromone traps during the season which makes 6.83% of spring population

- The autumn population in marked area was estimated on 27,899,400 weevils (82,081 weevils/ha of old sugar beet field)

2013

- Spring population was estimated on 12,689,000 weevils (54,178 weevils/ha of old sugar beet field)

- During the vegetation we captured 2,067,483 beetles what makes reduction of 83.7% of autumn and 63.1% of spring population

- Due to the small area of sugar beet fields planted in 2013 (5.19 ha) autumn population was low, 91,600 weevils (18,744 weevils/ha of old sugar beet field)

2014

- According to spring soil survey there was a population of about 239,100 weevils on old sugar beet fields (89,417 weevils/ha of old sugar beet fields)

- 29 April we captured 3,523 individuals in the marked area. This makes reduction 49.8% comparing to autumn and 91.8% comparing to spring population

CONCLUSIONS

- Due to the low efficiency and small number of available active ingredients for sugar beet weevil control, this pests could become a limiting factor in the production of sugar beet.

- Mass trapping by aggregation pheromones has not only short-term goal, to control pests in a field or a season. It is aimed to reduce the population of pests in a particular area for a long-term.

- During years of heavy attack as it was 2012, 2013 and 2014 in the marked area, mass trapping wasn’t efficient enough to completely avoid the insecticide application. Comparing to the sugar beet fields outside the marked area, the number of insecticide applications has been reduced and total damages (need for re-sowing) were avoided.

- However, the infestation was postponed and the population reduction is accomplished in 2014 comparing to 2012 in the marked area.

- To achieve greater population reduction, the number of traps should be increased and the trap distribution should be rearranged in the following years.

REFERENCES