Determination of degree-day effective for cutworms for support system decision of chemical control in the sugar beet

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Abstract
The technological value of roots of sugar beet during the harvest is a basic criterion of their usefulness both at industrial targets as well as in storage. It is also influencing the quality and quantity of the sugar and other nutrients. The presence of pests on the usefulness affects on the developing leaves and roots to beet during their growth. Soil pests (cutworms) have very importance pest of root crops. Conducting the systematic monitoring of the pests is one of possibilities appearing of turnip moths on beet fields. It enables simultaneous observation of the development of pests, of appearance of harmful stages, and can help make a decision about of chemical treatment of the sugar beet. In the three-year experiment (2008-2010) the impact monitoring turnip moths were tested. The studies were carried out at thirteen places.

The aim of research was the connection attempt and usefulness advisory system in support decision on the chemical control on the based of two methods needs for the sugar industry. The first chemical treatments were applied according to the signaling methods. Second methods were applied according to phonological criterion i.e. on the based of the value of sums of effective temperatures or sums of heat accumulated appointed for cutworms. Observations on cutworm occurrence during vegetation season were done every 5-7 days. Moths were being caught with the light trap. In this destination with the Pfeifer & Langen Poland S.A sugar factory has been appointed zone monitoring pest. Then constructed advisory program is determining of the optimal chemical treatment.

Based on the obtained result, it can be stated that value of sums of heat – 501.1°C and sums of effective temperature – 230.0°C were determining for the developmental stages of cutworm. Namely when caterpillars achieved the stage were L2 –instars with significant achieving pursuance of researches. Improved method more precisely set the date of the treatment, it saved the time and labor intensity reduced the farmer, eliminating mistakes made in field.

On the base of obtained results it can be stated that updating methods of short-term forecasting can constitute the alternative in the integrated protection management against pest occurrence.

Key words: cutworms, monitoring, degree-days, sums of effective temperatures, advisory program