Pest monitoring in the cultivation of tomatoes under cover in Poland and the Netherlands

Aleksandra Raut, aleksandra.raut@up.poznan.pl
Beata Borowiak-Sobkowiak, beata.borowiak@up.poznan.pl
Department of Entomology and Environmental Protection, Poznan University of Life Science, Dąbrowskiego 159, 60-594 Poznań, Poland

INTRODUCTION

The most important pests in the cultivation of greenhouse tomatoes in Europe include stinging and sucking insects, caterpillars of butterflies, predatory bugs and mites.

Up to several years, attacks of insects from southern Europe have been observed, which have become dangerous pests of crops under cover, such as the tomato leaf miner moth *Tuta absoluta* and*Nesidiocoris tenuis*. Paradoxically, under EU directives, new active substances are withdrawn at the same time, thus the pesticide market is shrinking.

MATHERIALS AND METHODES

The research concerned the cultivation of tomatoes under cover, in the Netherlands the red Merlice F1 variety and in Poland the raspberry variety Tomimaru Muchoo F1.
In order to diagnose the species found in Poland and the Netherlands, pests were monitored in the 2018-2020 growing seasons that is, from summer to spring of the following year, because the crops were illuminated. The pests were caught on yellow sticky plaques and pheromone traps during weekly monitoring.

Pest monitoring - yellow sticky board and pheromone trap with pheromone

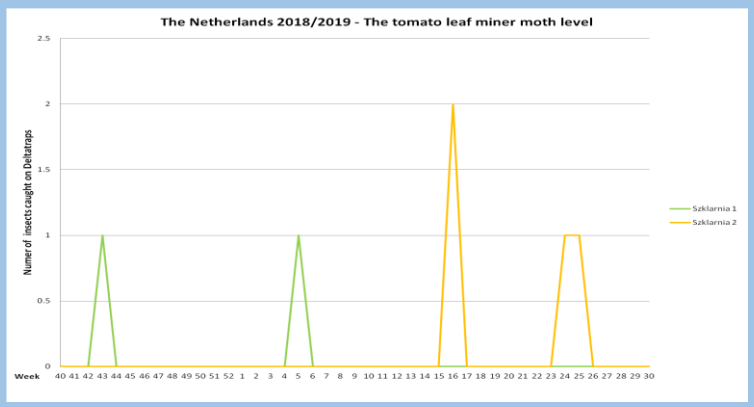


Figure 1. Level of tomatoe leaf miner moth in two greenhouses in The Netherlands.

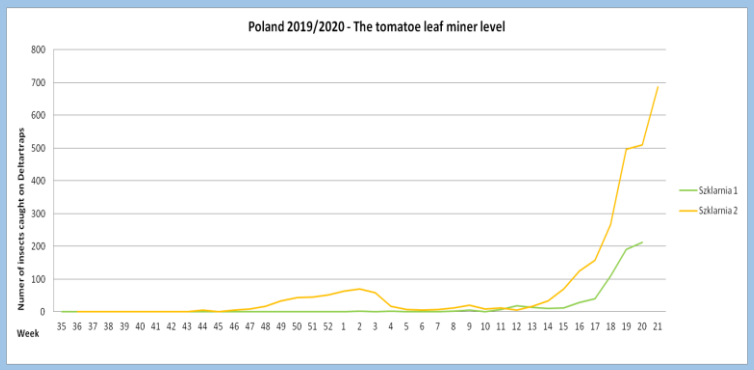
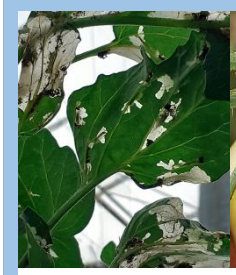


Figure 2. Level of tomatoe leaf miner in two greenhouses in Poland.

RESULTS

There were differences in the pest species composition in both countries. Although the vetting was aimed at identifying the presence of the tomato leaf miner, it turned out that the Netherlands was dominated by *Chrysodeixis chalcites* and *Nesidiocoris tenuis*, which until recently were a biological weapon in the fight against the moth. In Poland, the greatest threat to tomato cultivation turned out to be the tomato leaf miner and the tomato rust mite *Aculops lycopersici*.
Among the insects caught in yellow traps in both countries, the greenhouse whitefly *Trialeurodes vaporariorum* constituted the largest population.

Nesidiocoris tenuis and one of the leaflets damaged



Tuta absoluta tomato leaf miner moth - feeding ground under the stalk in the unripe fruit and leaves with visible mines caused by the larvae

Aculops lycopersici tomato rust mite - adults under the microscope and fruit damage

DISSCUSION

The performed task allowed for drawing two main conclusions: the pest species occurring in the Netherlands in 2018, have never been recorded in Poland before. Monitoring from 2020 showed the first occurrence of these species also in this country.

The second conclusion was the difference in the colonization of tomato leaf miner on both tomato cultivars:
On the red variety Merlice F1, the infestation of the tuta was below the economic harmfulness threshold and no damage to the fruit was detected during the entire growing season (**Figure 1**).
On the raspberry variety Tomimaru Muchoo F1, the colonization of the T. absoluta started to increase in spring and reached its climax in the summer, before the crop was liquidated (**Figure 2**). Very high damage to plants and fruits was observed, the population was above the threshold of economic harmfulness. The producer recorded commercial losses.