

Impact of light source on distribution of greenhouse whiteflies *Trialeurodes* spp. (Hemiptera: Aleyrodidae) on tomatoes in greenhouses

Nowadays, vegetable growing in greenhouses during the cold and dark winter seasons is an integral part of agriculture. To ensure better plant growth and production various artificial light sources are used. Lately, beside the other light sources light emitting diodes are introduced in greenhouse systems, as they are safer, easier to control digitally and are cooler than high-pressure sodium vapor lamps.

In greenhouses not only plants can thrive on favourable conditions, various pests also flourish. Light is one of the most important factors in the insect life. Light can promote or disturb insect development and life cycles. Whiteflies *Trialeurodes* spp. (Hemiptera: Aleyrodidae) are known to feed on many plant species, including agriculturally important ones. In favourable conditions whiteflies can rapidly reproduce and cause vast plant damage. Whiteflies feed on plant fluids, and infested leaves may lose vigor, become yellow and may drop prematurely. In case of severe infestation plants can be destroyed. Whiteflies must eat large quantities of dilute sap in order to obtain the necessary nutrients. The liquid and excess sugar ends up being excreted as shiny, sticky honeydew on plant surface that may lead to black sooty mold that grows on the foliage. Still what harms plants the most is a whitefly's ability to transfer plant viruses, as they can transmit more than 100 viruses.

To clear up possible impacts of light source on development of one of the most harmful greenhouse pests – greenhouse whiteflies current experiments in the frames of the project “Investigation of innovative solutions and new method development for efficiency and quality increase in Latvian greenhouse sector [IRIS]” were undertaken. The study was performed in the polycarbonate greenhouse of Faculty of Agriculture of the University of Life Sciences and Technologies of Latvia. Three additional light sources were used: LED COB Helle Top LED 280 luminary, induction lamps and high-pressure sodium vapor lamps Helle Magna. Four varieties of tomatoes were grown under 16 hour photoperiod. Adult whiteflies were recorded by means of yellow sticky traps placed near tomatoes. Traps were monitored every 2 weeks. Whitefly's nymphs were recorded on tomato leaves in the same time. Differences in distribution of whiteflies among three light sources were observed.

Acknowledgements. Investigation was supported by Latvian Rural Development Program 2014-2020 “Cooperation”, call 16.1 project Nr. 19-00-A01612-000010.

Primary authors: JUCEVIČA, Edite; SALMANE, Ineta

Presenter: JUCEVIČA, Edite