

## THE INFLUENCE OF METEOROLOGICAL CONDITIONS ON THE FLIGHT ACTIVITY OF *RHAGOLETIS CERASI* (L.) (DIPTERA: TEPHRITIDAE) IN THE SWEET CHERRY ORCHARD OF LATVIA STATE INSTITUTE OF FRUIT-GROWING

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European cherry fruit fly *Rhagoletis cerasi* (Diptera: Tephritidae) is one of the most economically important pest in the cherry orchards in Europe and also in Latvia. This fly mainly influences the yield of sweet cherries. Larvae of the cherry fruit fly may damage even 100% of the sweet cherry yield if plants haven't been protected. In our country farmers mainly protect the sweet cherry orchards with insecticides. In the immediate future farmers will have to use only the Integrated Plant Management (IPM) system. One of the main objectives of IPM is to reduce the usage of pesticides and their influence to the environment.

Application time and amount of insecticides and other plant protection methods are influenced by the development of the pest. To predict the flight activity of the pest it is necessary to make out the role of factors that influence the flight activity. Meteorological conditions are some of the factors that could influence the development of the pest.

The flight activity of *Rhagoletis cerasi* and factors that influence it are unclear in Latvia. The flight activity of this pest and the influence of meteorological conditions are variable in the European countries and in the different sweet cherry orchards.

The two year research of the influence of meteorological conditions on the flight activity of European cherry fruit fly was done in the one of the Latvia's collection of the sweet cherry varieties. This collection is located in the orchard of Latvia State Institute of Fruit-Growing. In 2010 and 2011 eight yellow sticky traps were used in the part A of the sweet cherry orchard and in 2011 six yellow sticky traps – in the part B of the sweet cherry orchard. Flies were counted on the yellow sticky traps from May to August by the 11 day interval in 2010 and from May to July once a week in 2011. Minimal, maximal and average air temperature and amount of precipitation were measured by Lufft portable weather station with interval of 30 minutes. Weather station is located in this orchard. To evaluate the influence of meteorological conditions on the flight activity of *Rhagoletis cerasi* the Pearson's correlation coefficients ( $\alpha=0.05$ ) were calculated between the flight activity of European cherry fruit fly and different parameters of weather.

Minimal, maximal and average air temperature and amount of precipitation didn't have significant influence ( $p>0.05$ ) on the flight activity of *Rhagoletis cerasi* in both years and both parts of the sweet cherry orchard. Counting of the flies on the yellow sticky traps every day would give more precise flight activity of European cherry fruit fly. It is possible that the precise flight activity could answer to the questions at which temperature and amount of precipitation fruit fly doesn't fly or which temperature stimulates the mass flying of the pest in Latvia.

The maximal flight activity of *Rhagoletis cerasi* was, when in the flight period the average air temperature was the lowest in 2011, but not in 2010. It is obvious that there are also some other factors, that influence the flight activity of the European cherry fruit fly. Some of them could be the biology of the fruit fly and their food plants.