Control of swede midge on organic CSA-farms

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Swede midge (Contarinia nasturtii) has become a problematic pest on small-scale organic farms in the Belgian regions Antwerp and Flemish Brabant. In recent years farmers suffered economic losses to the extent that it threatens the entire cabbage production on the farm. Farmers of the CSA-Network work according the principle of 'community supported agriculture' and grow multiple crucifer crops.

Aim of the Operational Group

- start a monitoring on farms where previous history of damage;
- establish an effective and feasible management strategy in line with the CSA farming system;
- raise the awareness within the whole grower's network on the pest issue.

Monitor population abundance and timing

Pherobank BV (NL) synthesized three pheromone compounds and formulated an optimal blend in ready-for-use lures. These are applied in transparent delta traps for swede midge specific monitoring.

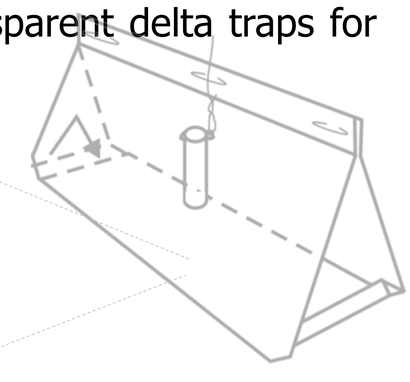

Fig.1: adult swede midge male on the sticky bottom plate of the trap

During the growing season of 2019, Inagro monitored swede midge on five CSA-farms and one plant breeder. On all farms swede midge presence was confirmed and on 3 sites high levels of adults were noted. On these sites damage on cabbage plants was found in accordance with the trap catches.

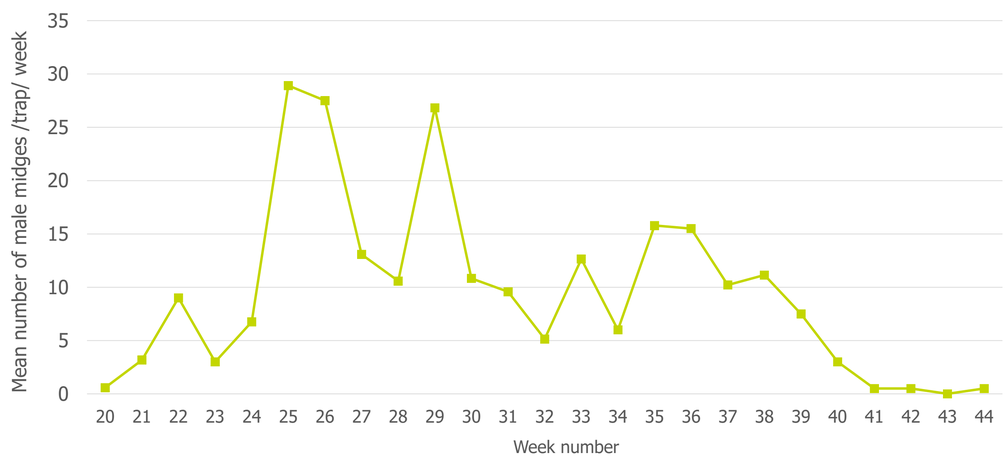

Fig.2: Mean number of swede midges on 5 Flemish farms in 2019

The figure shows the phenology of the swede midge population with adults emerging in May and four overlapping generations developing during the summer until the beginning of October. The monitoring will be continued in 2020.

Evaluation of plant damage

Samples of infested plants were collected to check for the presence of larvae inside growing tips.

Fig.3: Damage symptoms on broccoli plants - swollen leaf axis, multiple shoots, blind heads and brown scarring – and the larvae feeding in groups inside growing tips of broccoli (under binocular)

Optimize netting as control strategy

Two types of insect nets, a knitted net with a mesh size of 0.8 x 1 mm and a woven net of 0.6 x 0.66 mm mesh size, both of light weight (ca. 45 g/m²) (Howitec Netting BV, NL) were tested in the growth chamber as well as on-farm.

Fig. 4: Testing of the nets on-farm (left) with uncovered broccoli plants as control; and in the growth chamber (right) with an emerged midge in a small container covered with 0.6 x 0.6 mesh

Conclusions after the 1st project year 2019

- Both tested insect nets provide effective control of swede midge and reduce economic damage in the field. The mesh size of 0.6 x 0.6 mm blocks swede midge for 100% while 0.8 x 1 mm mesh size may pass midges to a limited extent.
- Monitoring helps to determine the necessary guidelines for an efficient crop cover strategy.

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