

Undersowing and intercropping for regulation of pest insects in white cabbage

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Horticultural crops are affected by a large number of different herbivorous insect species. Controlling those pests is becoming more and more difficult due to the increasingly smaller number of registered insecticides and development of resistance. Alternative measures for pest control are therefore gaining in importance.

Undersowing in vegetable crops can bring many advantages such as reduced erosion, heat protection and improved soil structure. In addition, phytosanitary advantages can be triggered: an undersowing strategy that is adapted to a specific cultivation system can reduce immigration and dispersal of pest insects by e.g. creating a physical barrier, hindering recognition of host plants by pests and promoting natural enemies.

Aim of the collaborative project “OptiUnder” is to develop an optimized undersowing system for white cabbage production. For this purpose, various plants are evaluated with regard to their potential effects on herbivorous insects.

In 2020, a randomized plot design was used as a set-up for a field trial investigating effects of a wheat undersowing alone, as well as combined with intercropping of the flowering plant *Lobularia maritima*.

Both systems were tested in white cabbage and compared to an untreated control and an insecticide control.

The results of this experiment are presented with regard to the abundance of pest insects, with focus on aphids and their natural enemies.

Results show that the influence of undersowing and intercropping is not consistent in the two common aphid species *Brevicoryne brassicae* and *Myzus persicae*. While both undersowing variants reduce numbers of *M. persicae*, the abundance of *B. brassicae* is only affected by insecticide application.

Intercropping with *L. maritima* results in a higher number of adult hoverfly visits. However, this effect is not reflected in numbers of hoverfly larvae on cabbage plants, which resembles the predatory developmental stage. This can possibly be traced back to rather small distances between plots of 2 m.

Furthermore, numbers and damage by cabbage flea beetles *Phyllotreta spp.* were strongly increased in plots with *L. maritima* intercropping. Therefore, integrating this plant species is not entirely suitable for production of cabbage and other Brassica crops.