

# Plants Helping Plants: Companion Plants For Aphid Control

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## Introduction

Virus yellows is a complex of three viruses, mainly transmitted by aphids, which can cause up to 50% reduction in sugar yield<sup>1,2</sup>. It is known from other crops that plants are less attacked by aphids when grown between other plants. Probably aphids have difficulties in finding the host plant, are more vulnerable to predators or lose viruses when companion plants or intercropping is used.

## Materials & methods

Alternative approaches to control aphids as virus vectors were tested. Field trials were set up in Belgium, Denmark, Germany and the Netherlands in 2021 with barley sown shortly before sugar beet. The barley plants emerged earlier and were aimed to expel or distract aphids coming in. In addition, one other alternative control method was examined at each location (other companion plants, straw mulch).

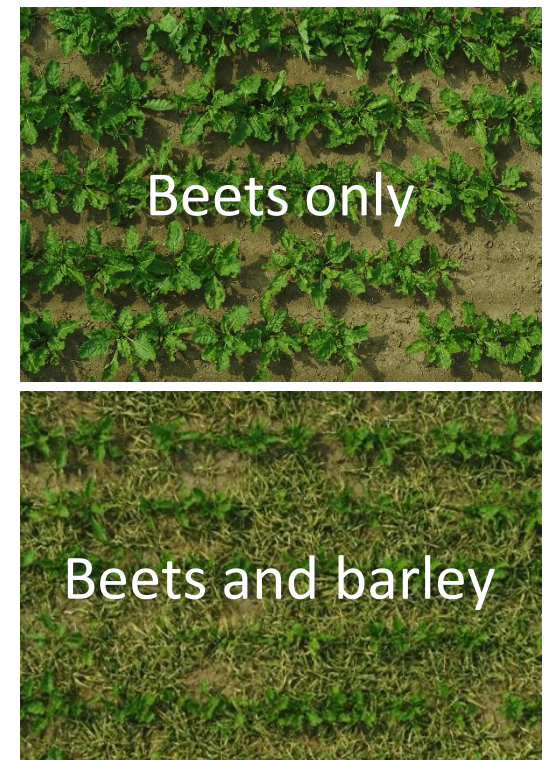


Fig. 1 Barley as companion plant in sugar beet.

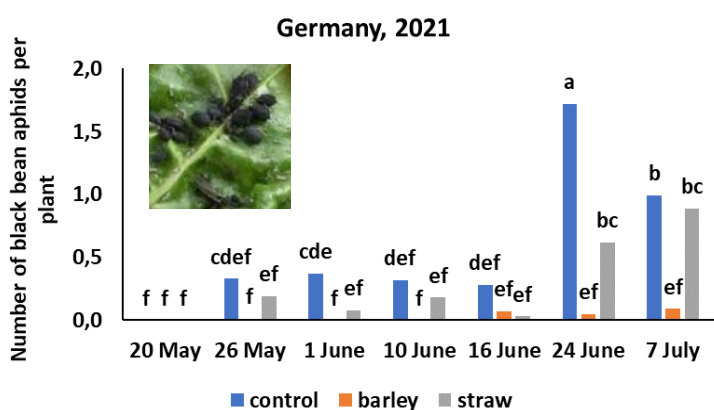


Fig. 2 Number of black bean aphids per plant.

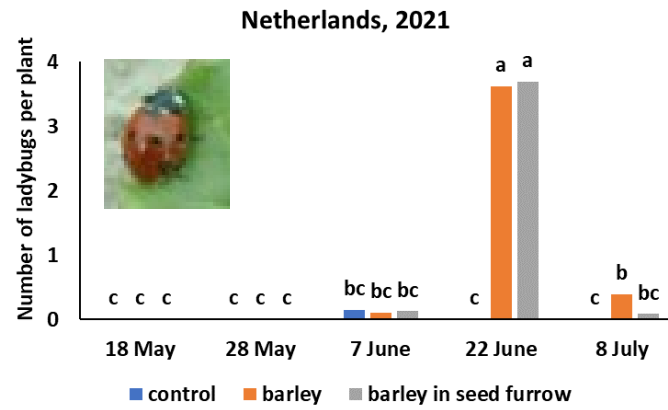


Fig. 4 Number of ladybugs per plant.

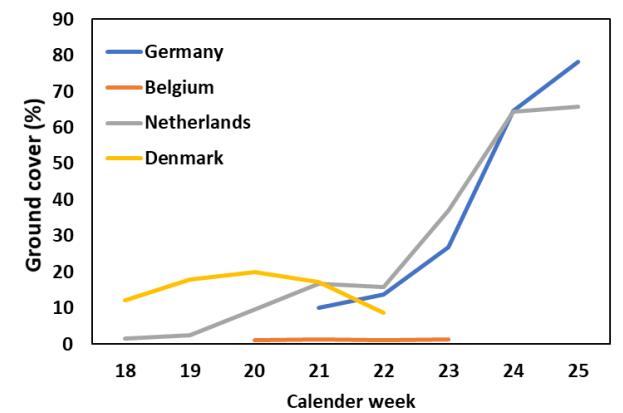


Fig. 6 Percentage of ground cover of barley at different locations.

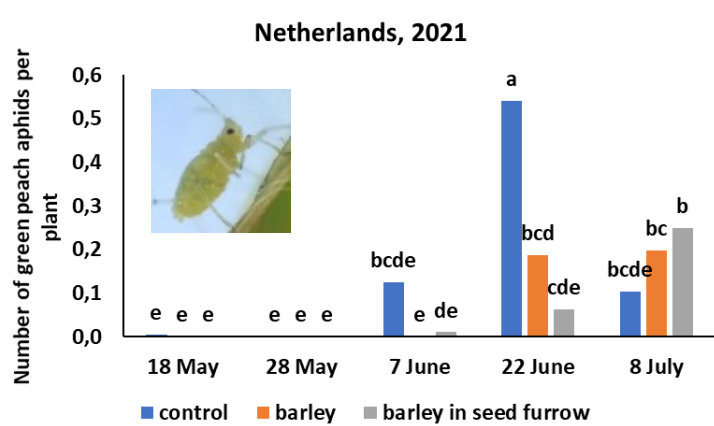


Fig. 3 Number of green peach aphids per plant.



Fig. 5 High incidence of ladybugs when barley was used as companion plant.

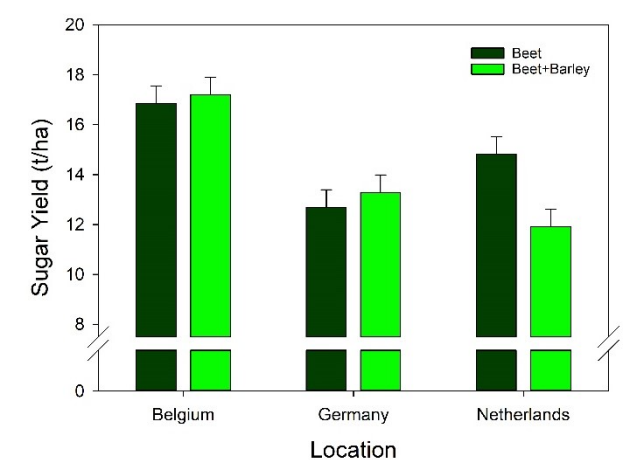


Fig. 7 Effect of barley as companion plant on sugar beet yield. Barley was destroyed late in Germany and the Netherlands.

## Results and Conclusions

First results of companion plants with barley between sugar beet show that:

- Establishment of barley did succeed in 2 out of 4 trials;
- Late destruction of barley can lead to high yield reduction in sugar beet;
- Incidence of insect pests was low in 2021 and therefore we must be careful with the first conclusions. Sugar beet mixed with barley:
  - might result in less green peach aphids (*Myzus persicae*) and black bean aphids (*Aphis fabae*). However, more other aphids, like grain aphids (*Sitobion avenae*) were found;
  - might have a positive effect on some of the natural enemies;
  - might have a variable effect on other pests: in some fields, thrips population was lower, while flea beetle populations were higher.

Trials are repeated in 2022.

## References

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