



Aphid-arresting beet varieties to manage beet yellows disease ?

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What is yellows disease?

Sugar beet yellows is a viral disease transmitted to sugar beet mainly by the aphid *Myzus persicae*. A small number of aphids carrying one of the four viruses responsible for beet yellows is enough to infect a field. Yield losses can be significant, reaching 30% nationally in 2020.

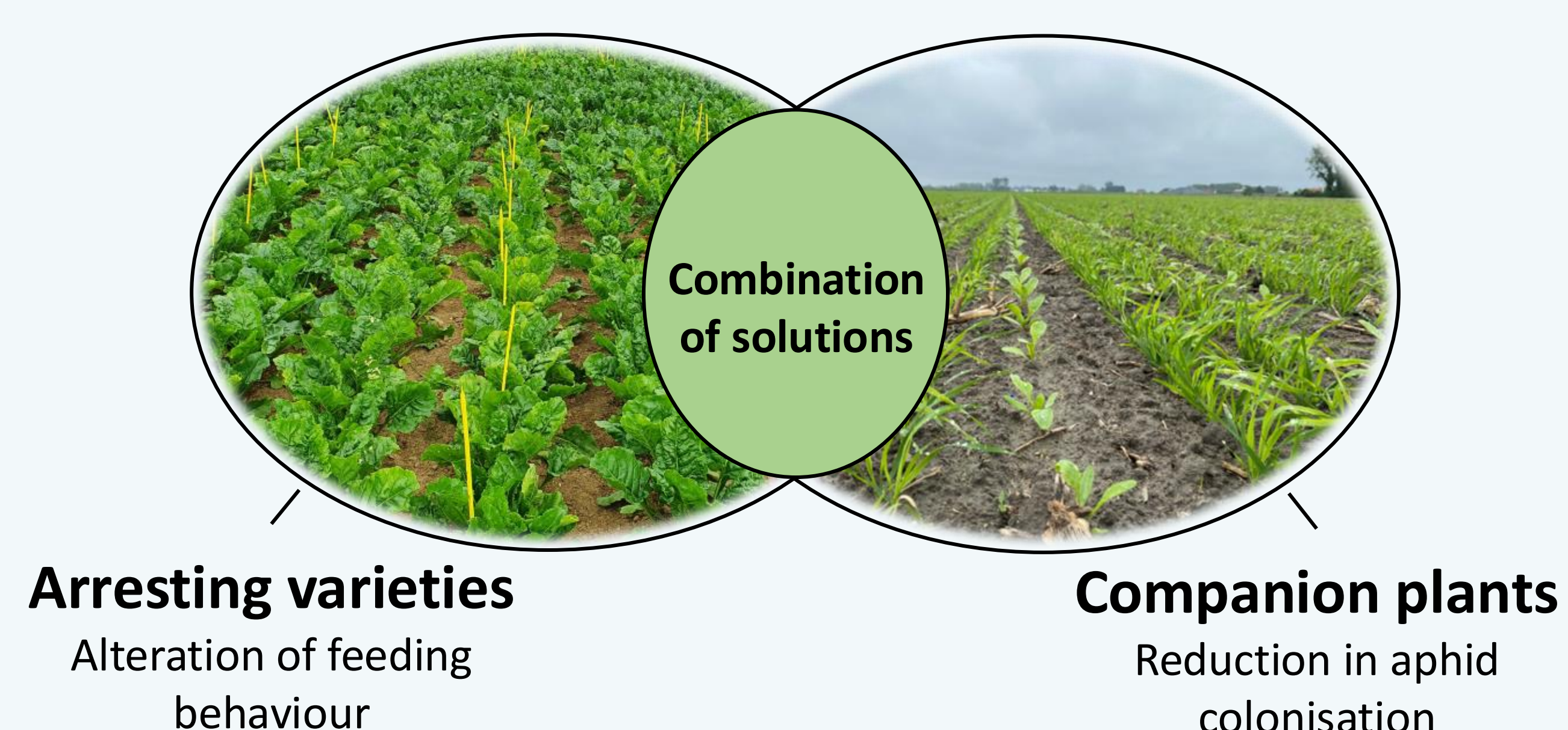


Myzus persicae

Symptoms :
Sugar beet plants showing yellowing in large circular patches.

What control solutions are being tested?

The identification of alternative control solutions to neonicotinoids is a major challenge for the long-term sustainability of the sugar beet industry.

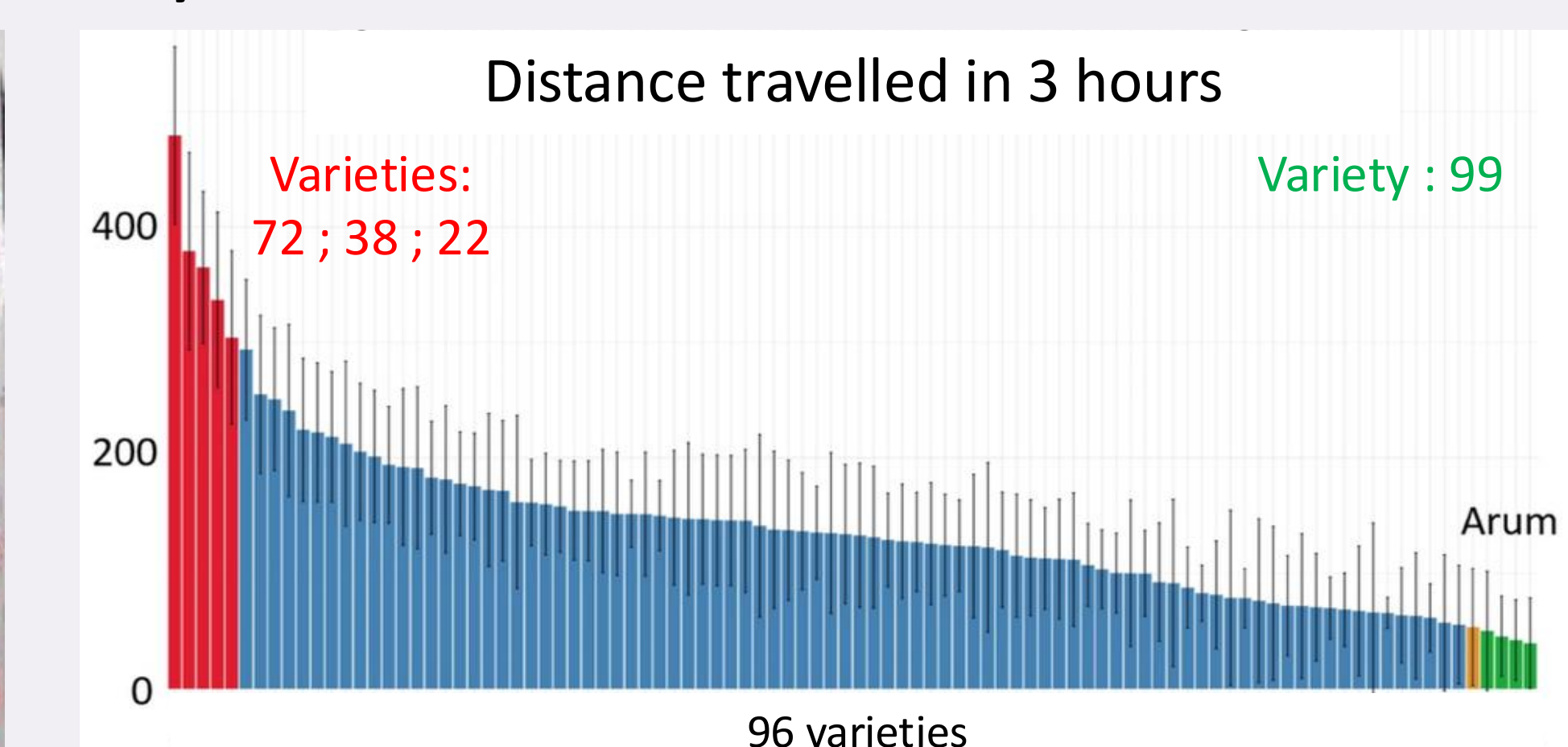


Combining these two solutions could provide a double effect on aphid vector behaviour, affecting both sugar beet attractiveness and virus transmission by aphids.

Does the combination of varieties and companion plants modify the behaviour of *Myzus persicae* and reduce viral transmission of sugar beet yellows disease?

Identification of varieties?

Variety selection is carried out in the laboratory using an original high-throughput video phenotyping method, electropenetrography, choice tests, and virus transmission assays. Around one hundred sugar beet varieties were analysed.

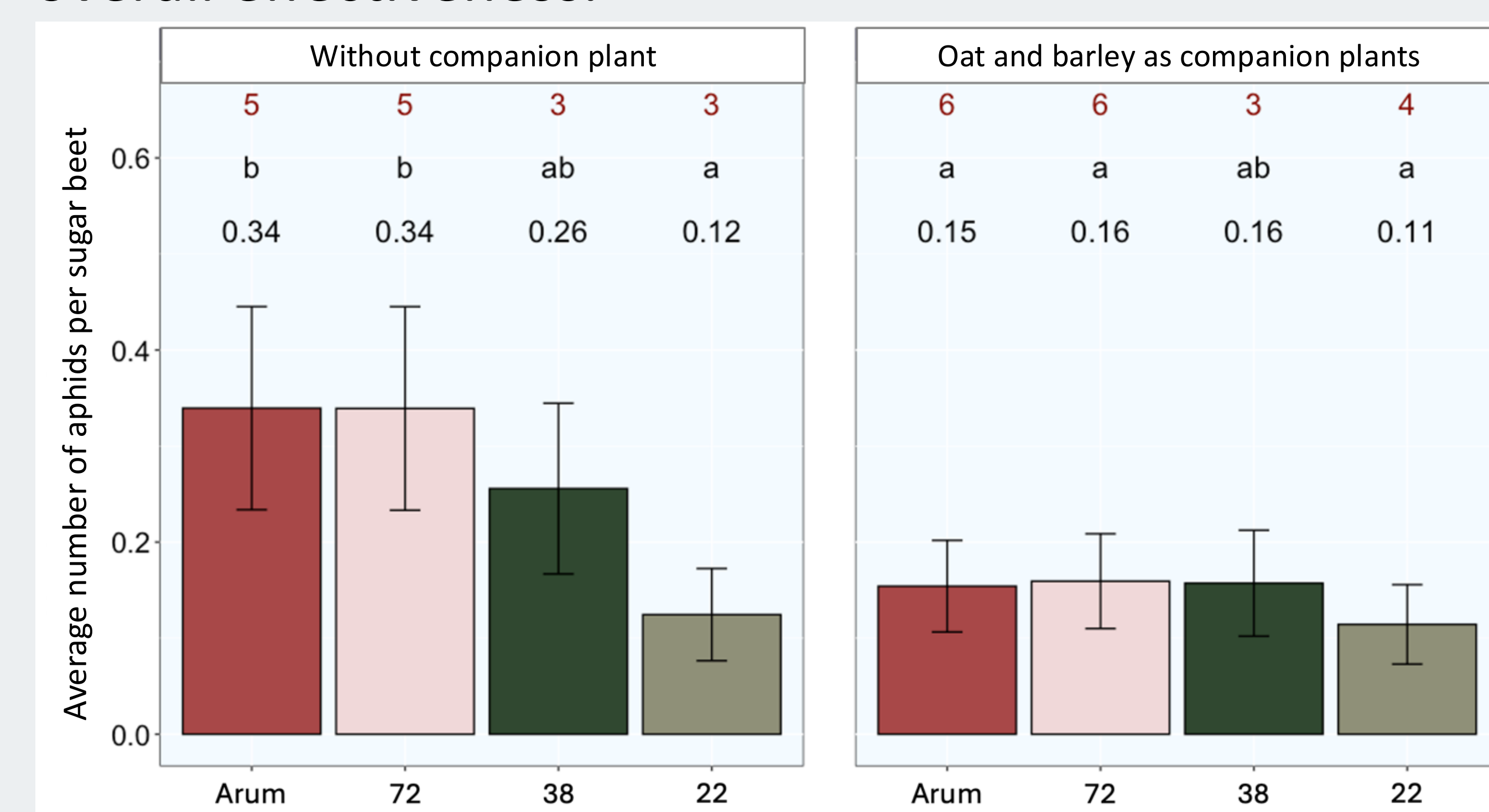


Video phenotyping plate for assessing aphid locomotor behaviour

The identification of volatile organic compounds (VOCs) and non-volatile metabolites that affect aphid behaviour will be carried out to explore new potential solutions at the end of the project.

Field assessment

Six field trials were conducted in 2025 on farmers' fields. Although aphid populations were low, variety 22 and the service plant showed promise in reducing aphid presence on sugar beet. These results will be further validated in 2026, and the strategy will be combined with conventional aphicides to evaluate its overall effectiveness.



Number of trials (in red) and mean number of aphids (in black)