



AHDB-funded trials on flea beetle control in brassicas

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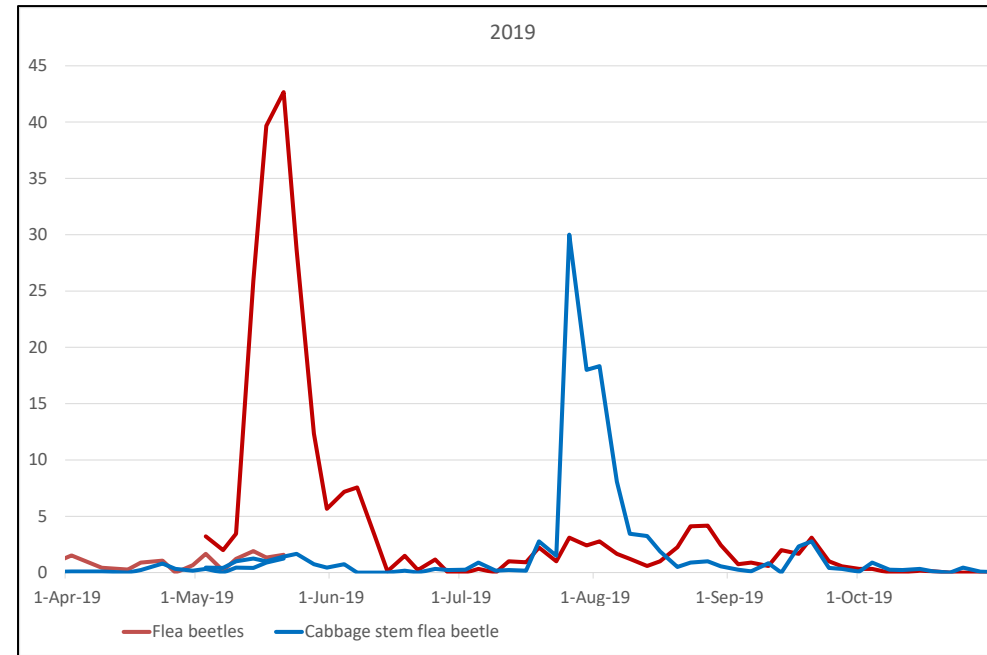
AHDB



Flea beetles

Flea beetles – *Phyllotreta* species

- **8** species feed on brassicaceous crops and weeds - tend to be considered together.
- Older literature says that the period of greatest activity is **10th April – 20th May** – but damage appears to occur over a longer period now.
- Huge infestation at Wellesbourne in early August 2022.

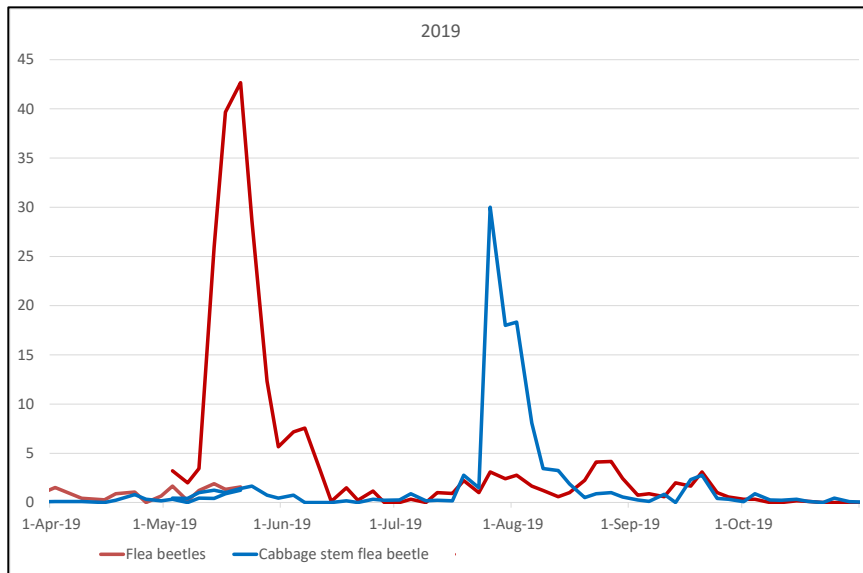
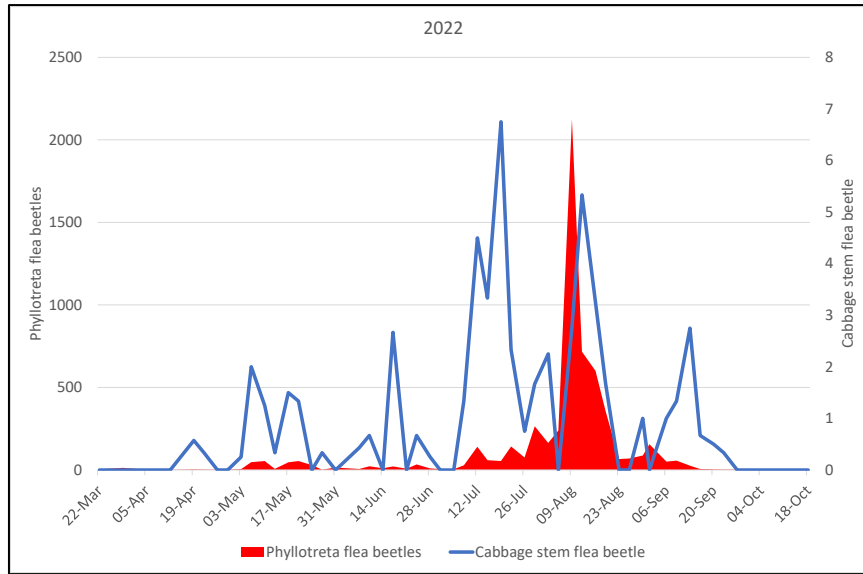


Cabbage stem flea beetle

- Since withdrawal of neonicotinoid seed treatments has been major pest of oil seed rape (OSR)
- Not sure what impact this has had on background population
- Captured in suction traps



Flea beetles 2022 - Wellesbourne



ROTHAMSTED RESEARCH Insect Survey

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Issue 25
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ROTHAMSTED RESEARCH

This is a report on the presence of certain agriculturally important insects caught in the Rothamsted suction-trap network that are not reported on the Aphid Bulletin. Comments are given on qualitative changes in populations when caught in high numbers.

Field reports on pest insects in your area would be gratefully received and can be sent to: alex.greenslade@rothamsted.ac.uk.

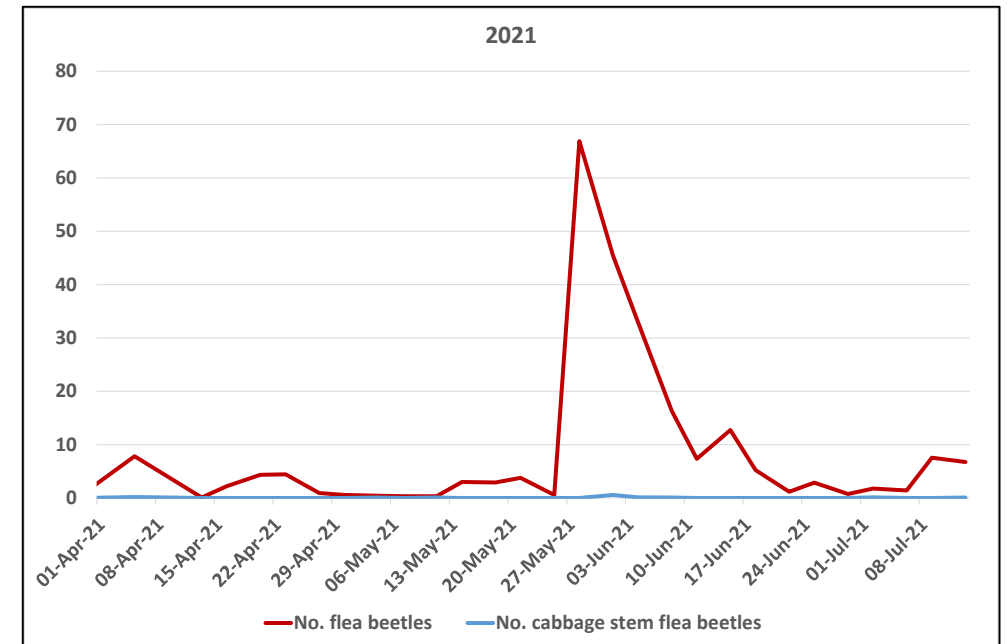
Cabbage stem flea beetle (*Psylliodes chrysocephala*) was recorded from all sites except Silwood Park this week and reached double figures at Hereford and Wellesbourne. There were large numbers of **lacewings** (Neuroptera) from Broom's Barn, Rothamsted and Silwood Park. The other species reported upon were mainly found in single figures. **Spotted-wing drosophila** (*Drosophila suzukii*) was found from eight sites this week.

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SCEPTREplus trial 2021 – Wellesbourne

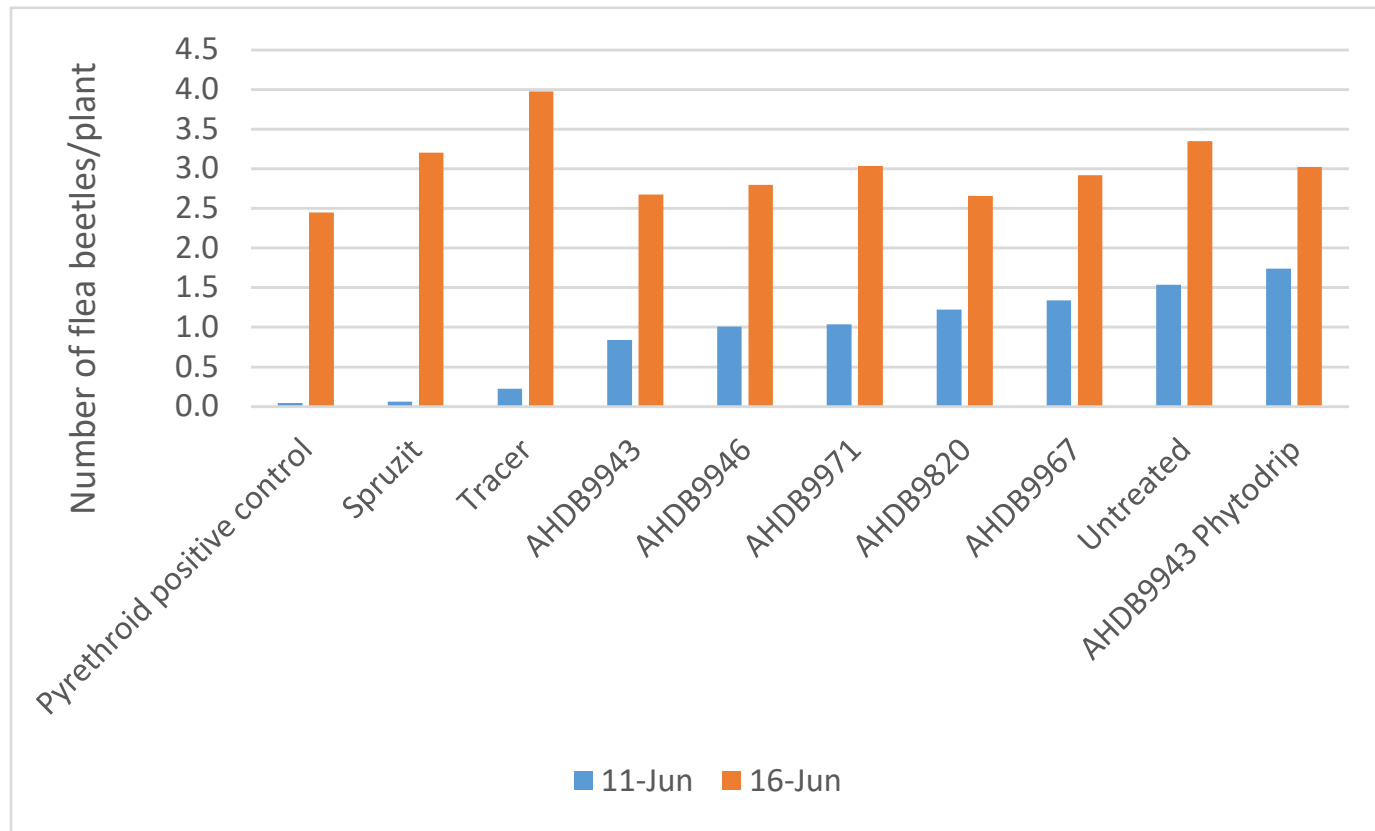
Phyllotreta species

Pak Choi: sown 24 April and planted 19 May





Beetle counts after second spray on 11th June



- Adults susceptible to pyrethroids and Tracer
- Issue is short persistence of contact treatments



Cabbage stem flea beetle (CSFB)



[©Udo Schmidt](#)



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Cabbage stem flea beetle

- Susceptible horticultural crops include spring greens/Pak Choi – few insecticides approved
- CSFB is resistant to pyrethroids in many areas
- Much ongoing work on management in OSR – funded by AHDB and others
- Taking a broad approach – IPM strategy
- Emphasis on yield rather than physical appearance of plant





Life cycle

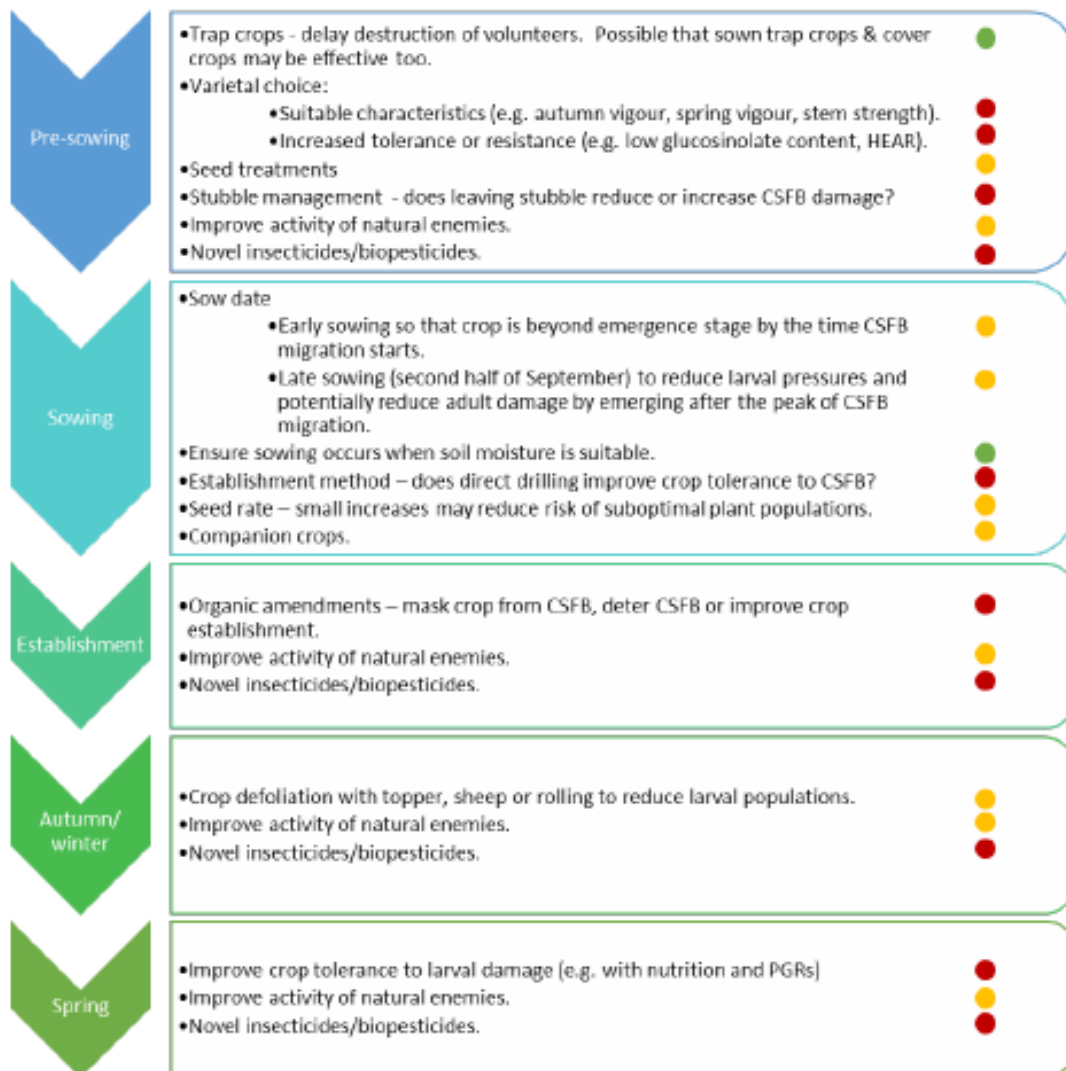
- Adults emerge from pupae and feed on foliage (Jun–Jul).
- Adults ‘rest’ in moist, sheltered places (Aug).
- **Adults migrate into crops, feed on leaves and mate (Aug–Sep).**
- Adults lay eggs and feed on leaves (Sep–Dec).
- Eggs hatch and larvae feed, if temperatures are 3°C or warmer (Oct–Feb).
- Larvae feed on main stem behind the growing point (Mar–Apr).
- Larvae drop to the soil and pupate (May).

- OSR sowing date key! Crops drilled between mid-August and mid-September tend to be at greatest risk from adult CSFB, especially those drilled from the end of August to early September, due to alignment between beetle migration peak and the most susceptible crop growth stages.



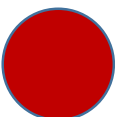
- Trap crops may help – have used volunteer OSR – large areas needed but may protect from mid-August – also turnip rape tried.

- Companion crops may also have potential

- UK and EU-funded work focuses on non-insecticidal approaches



Potential components of an IPM strategy for cabbage stem flea beetle

- 
Reliable control – possibly with some further research needed
- 
Moderate control with further research needed
- 
Control not proven and significant further research needed



Research on biopesticides

- Harper Adams – Claire Hoarau PhD
- Lab trials – promise from:
 - Nematode – *Heterorhabditis* spp.
 - Fungal biopesticide – *Beauveria bassiana*
 - FLiPPER
- Field trial in 2021 – not conclusive
- Second field trial in 2022



AHDB trial 2022 – main target was cabbage stem flea beetle on Pak Choi

- 8 treatments
- Untreated control
- 5 conventional insecticides
- 2 biopesticides

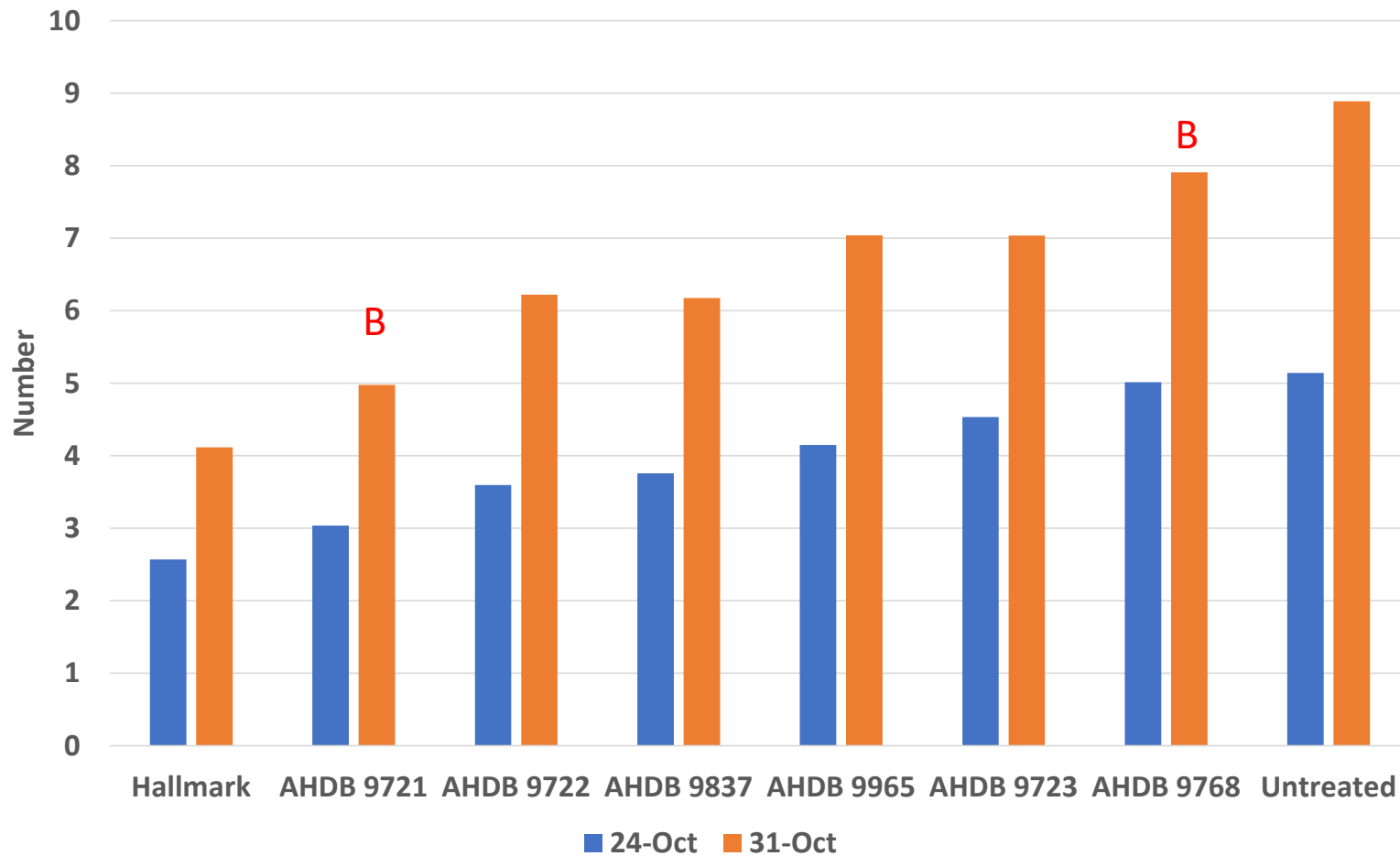


PhD 'Investigating insecticide resistance in UK populations of the cabbage stem flea beetle, *Psylliodes chrysocephala*'

Caitlin Willis

Screened a wide range of conventional insecticides

Numer of feeding holes per leaf

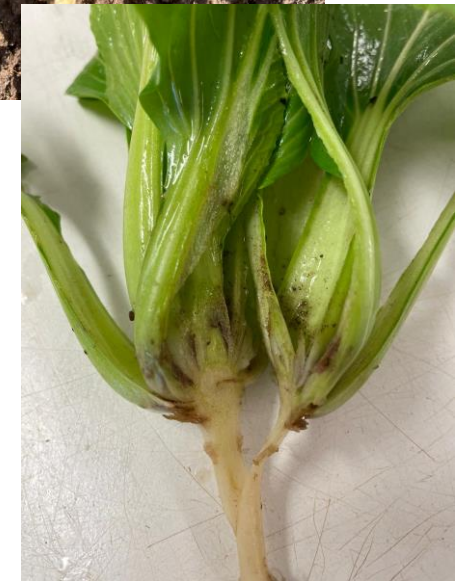
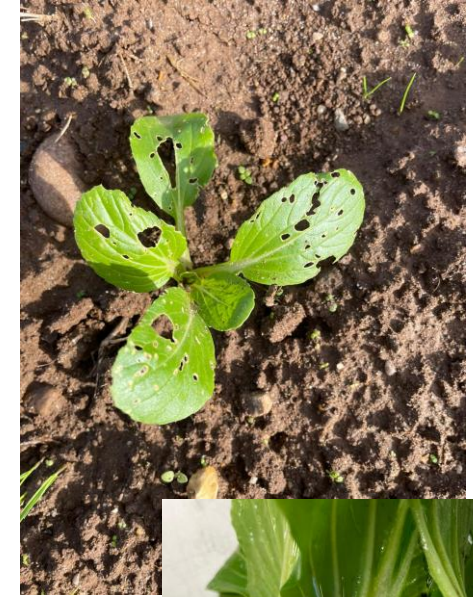
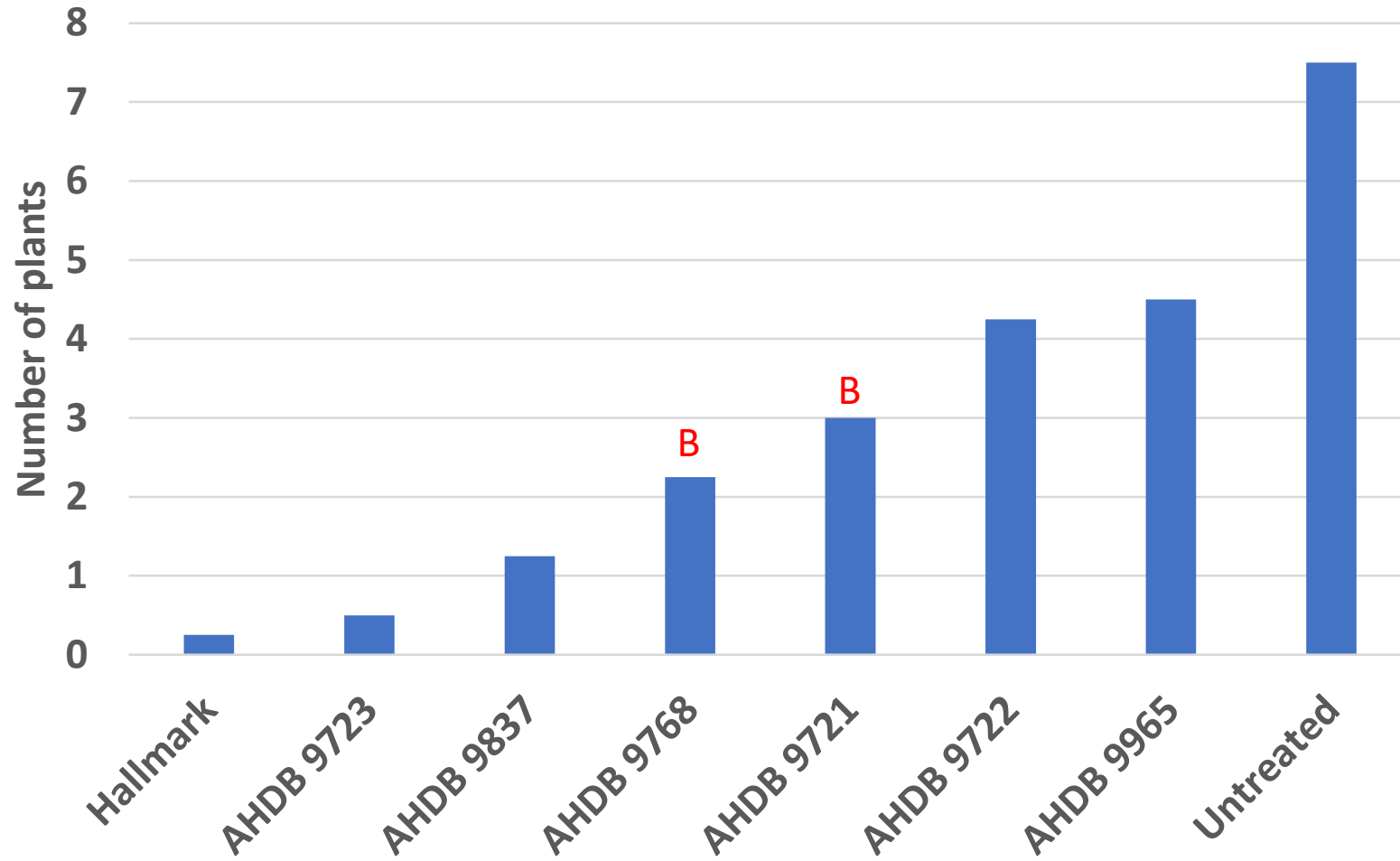


Pak Choi raised in 308 Hassy trays and transplanted on 11 October.

Treatments applied as sprays when the first signs of damage observed on 17 October and again one week later.

Leaf damage assessed by counting holes in 20 plants per plot one and two weeks after spraying.

Number of plants with heavy damage (internal damage) out of 20 on 28 November





Thank you:

- AHDB team
- British Growers Association and Crop Associations
- Andy Richardson, Carl Sharp
- Peter Waldoock, John Chapman and growers
- Agrochemical/biopesticide and seed companies
- Our team at Wellesbourne

