Cultural management and monitoring of bean seed fly

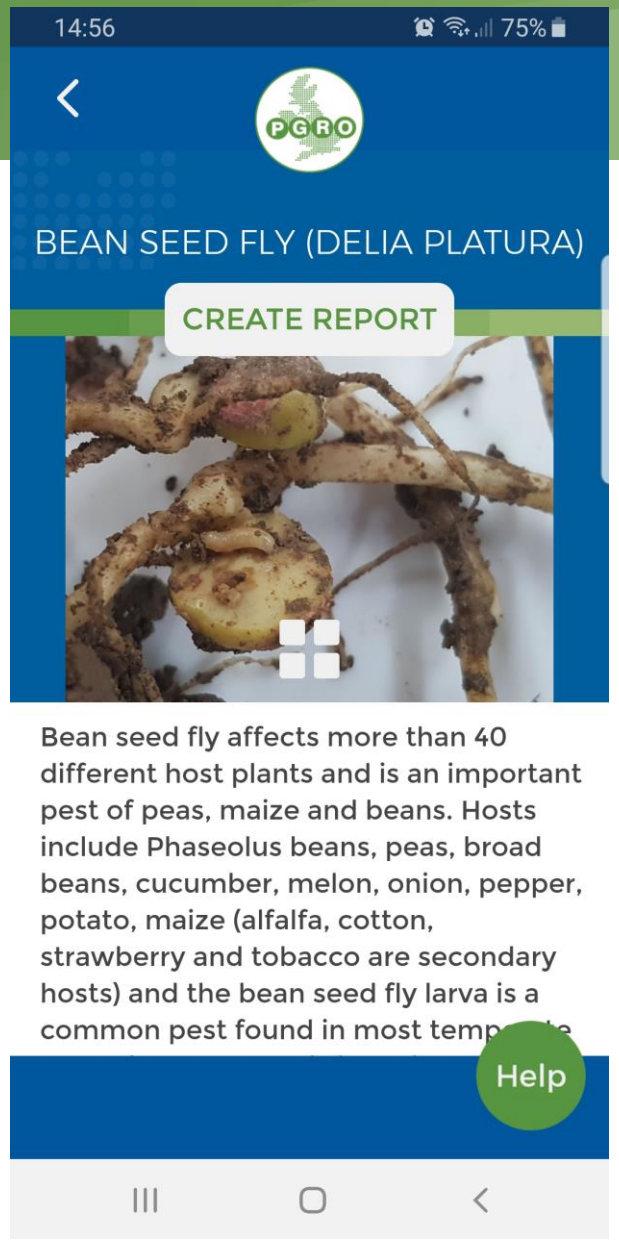
WARWICK
THE UNIVERSITY OF WARWICK

AHDB

Bean Seed fly (*Delia platura*)




- Wide host range, affecting over 40 plant species, distributed widely across the world
- Flies are often associated with soils containing high levels of organic material such as farmyard manure and plant debris
- They prefer recently cultivated soil
- Damage is seed and stem tunnelling by larvae
- Reduces establishment (up to 60% in worst cases) and plant growth



- The bean seed fly reporting app became available in March 2019 as part of the AHDB Horticultural Strategic Centre for Field Vegetables (FV462)

- For further information go to https://www.pgro.org/agronomy-app-tools/

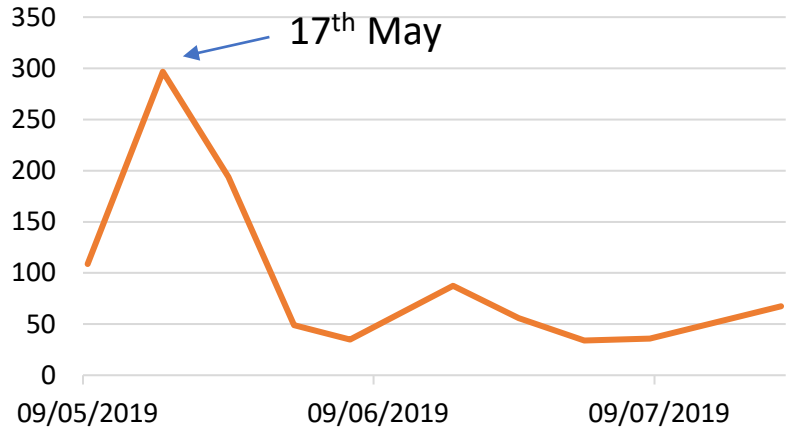
2019, 2020 and 2021 Survey in Yorkshire and Lincolnshire

- Attractant traps to monitor peak pest presence (27 sites 2019 to 2021)
- Sowing timing both general and related to period following cultivation
- Cultivation techniques – drill type/ direct drilling/ min-till/ drilling depth
- Foot rot risk in BSF damaged plants
- Preliminary look at nematodes for control (*Steinernema feltiae*) at field scale

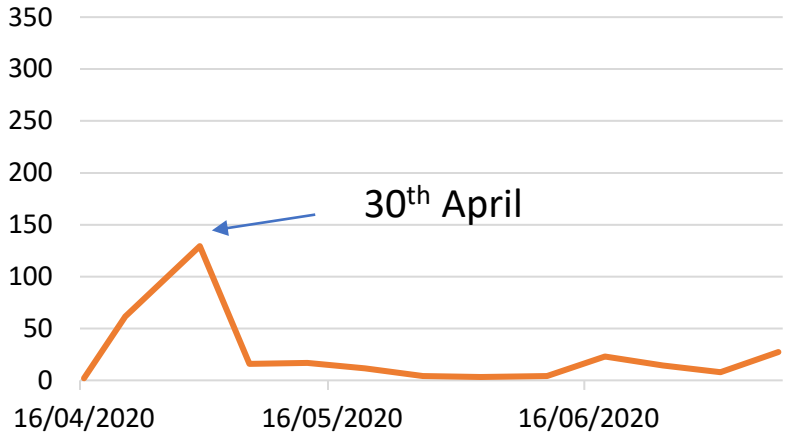
Monitoring

Swaythorpe GROWERS LTD.

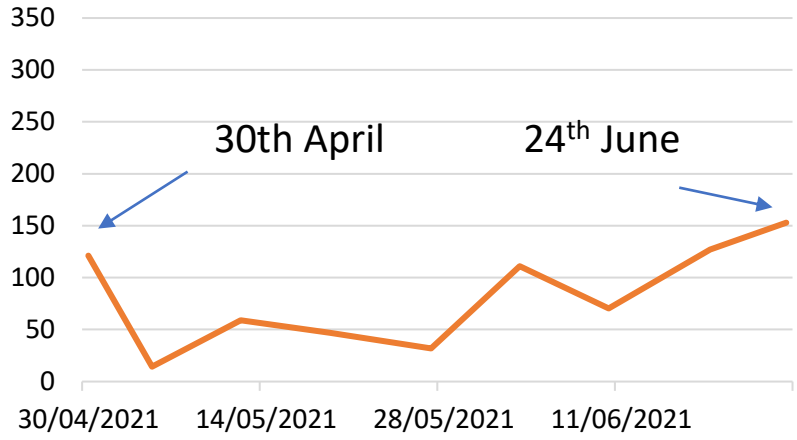
Yorkshire 2019 mean of 7 sites



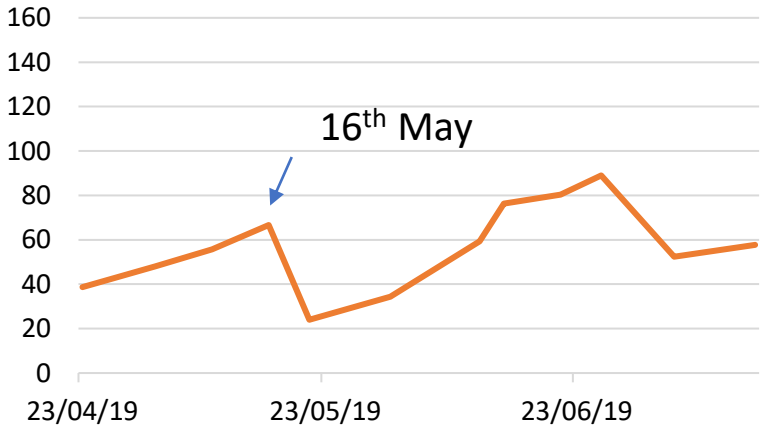
Yorkshire 2020 mean of 5 sites



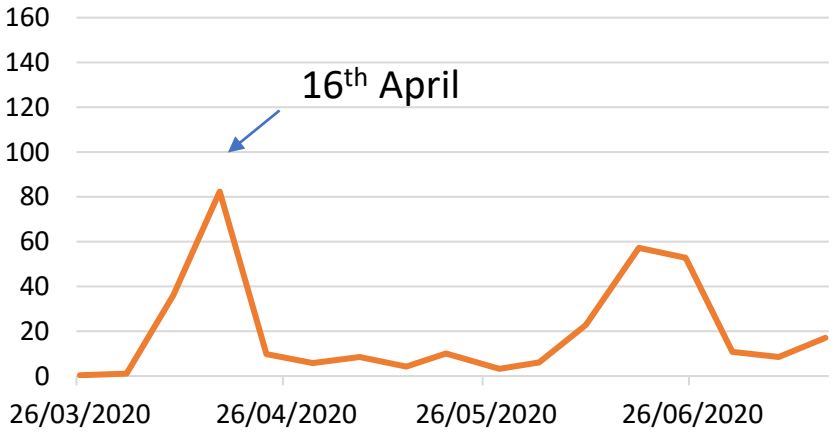
Yorkshire 2021 mean of 8 sites



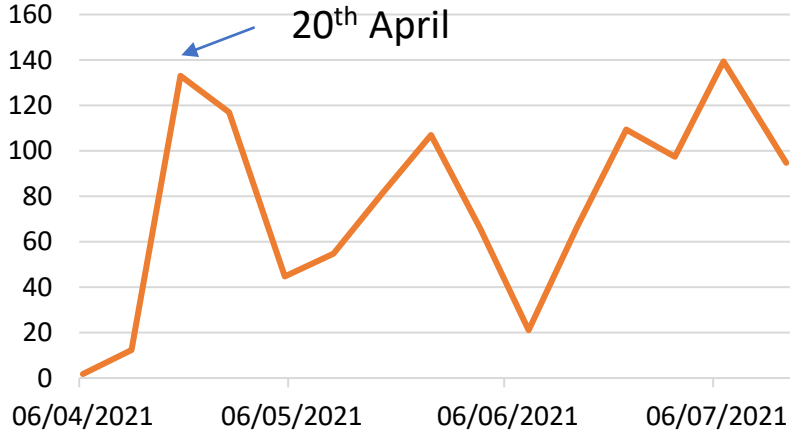
Lincolnshire 2019 mean of 3 sites



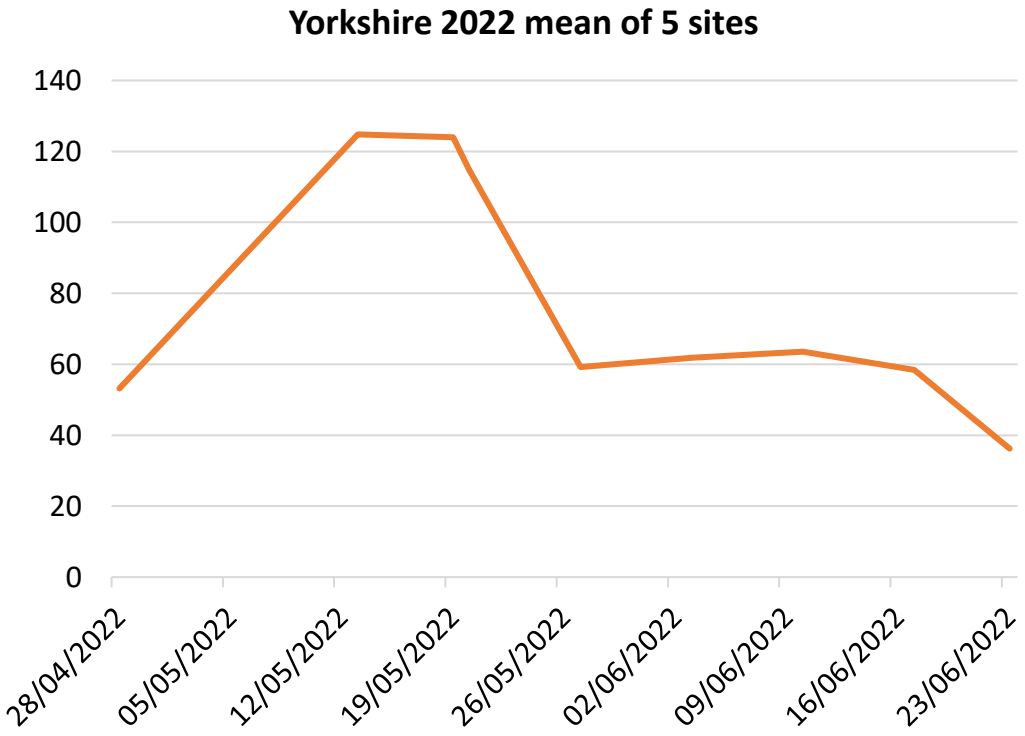
Lincolnshire 2020 mean of 3 sites

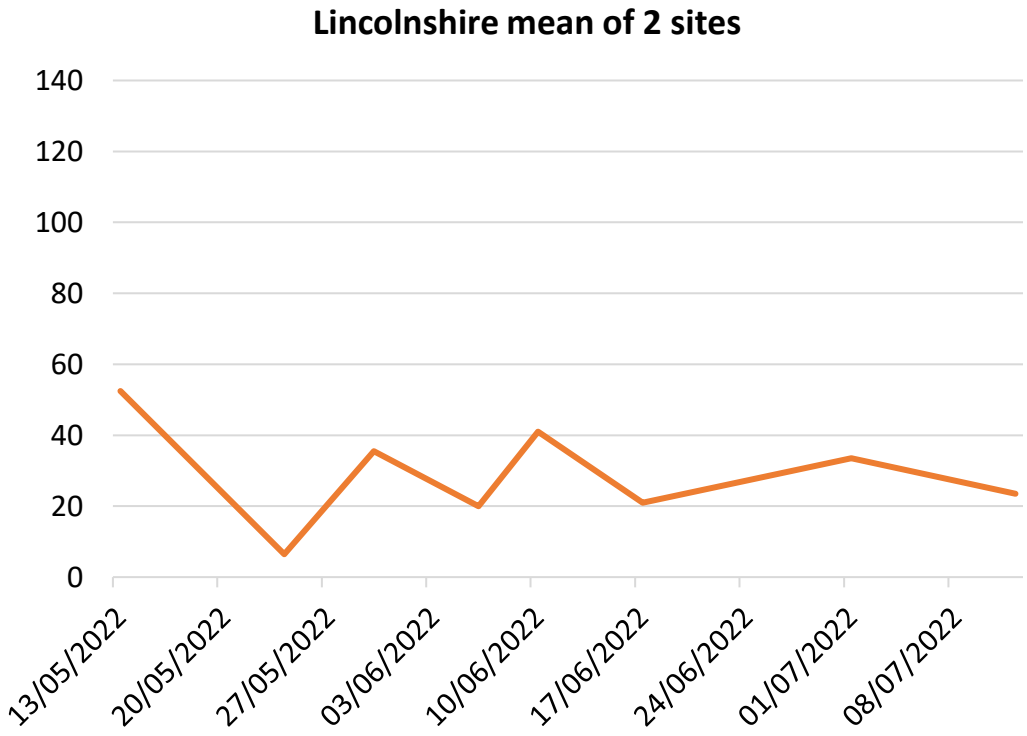


Lincolnshire 2021 mean of 3 sites



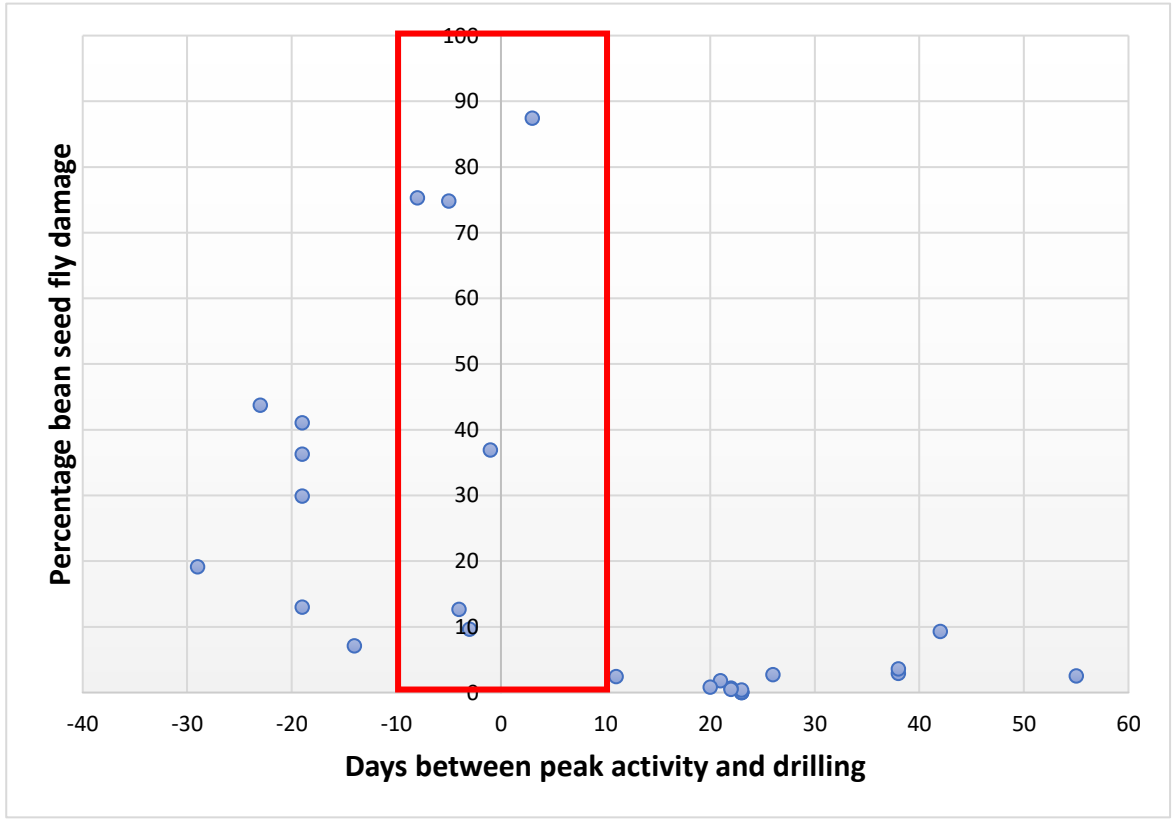
2022


Yorkshire 2022 mean of 5 sites
140
120
100
80
60
40
20
0
28/04/2022
05/05/2022
12/05/2022
19/05/2022
26/05/2022
02/06/2022
09/06/2022
16/06/2022
23/06/2022

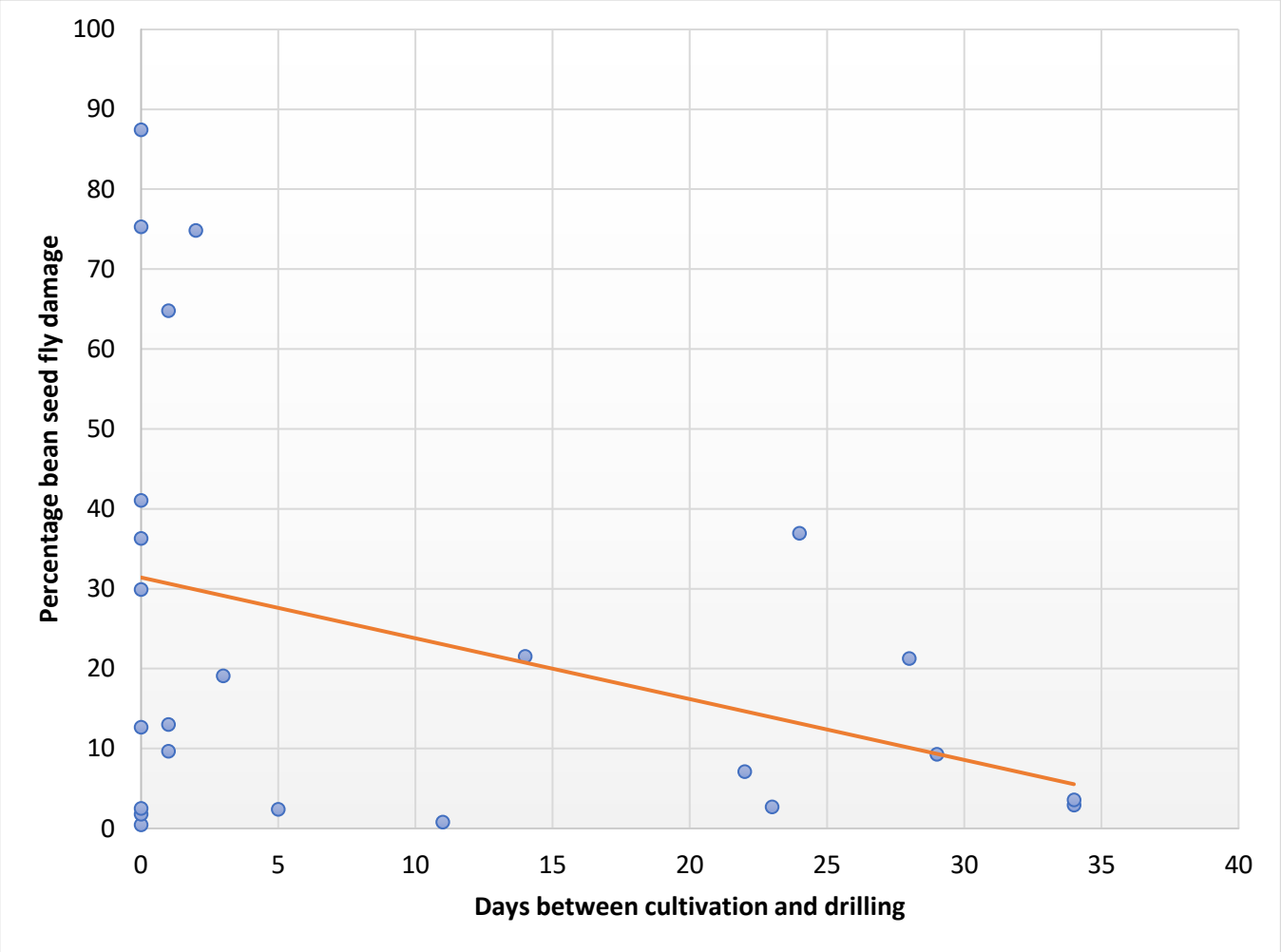

Lincolnshire mean of 2 sites
140
120
100
80
60
40
20
0
13/05/2022
20/05/2022
27/05/2022
03/06/2022
10/06/2022
17/06/2022
24/06/2022
01/07/2022
08/07/2022

2019-2021 survey

- **Survey work indicated the following:**
- There were differences in timing of peak adult activity in different regions
- The period 10 days before and after peak activity was high risk for drilling
- the period between cultivation and drilling seemed to have an effect on damage levels
- Damage levels varied significantly between years



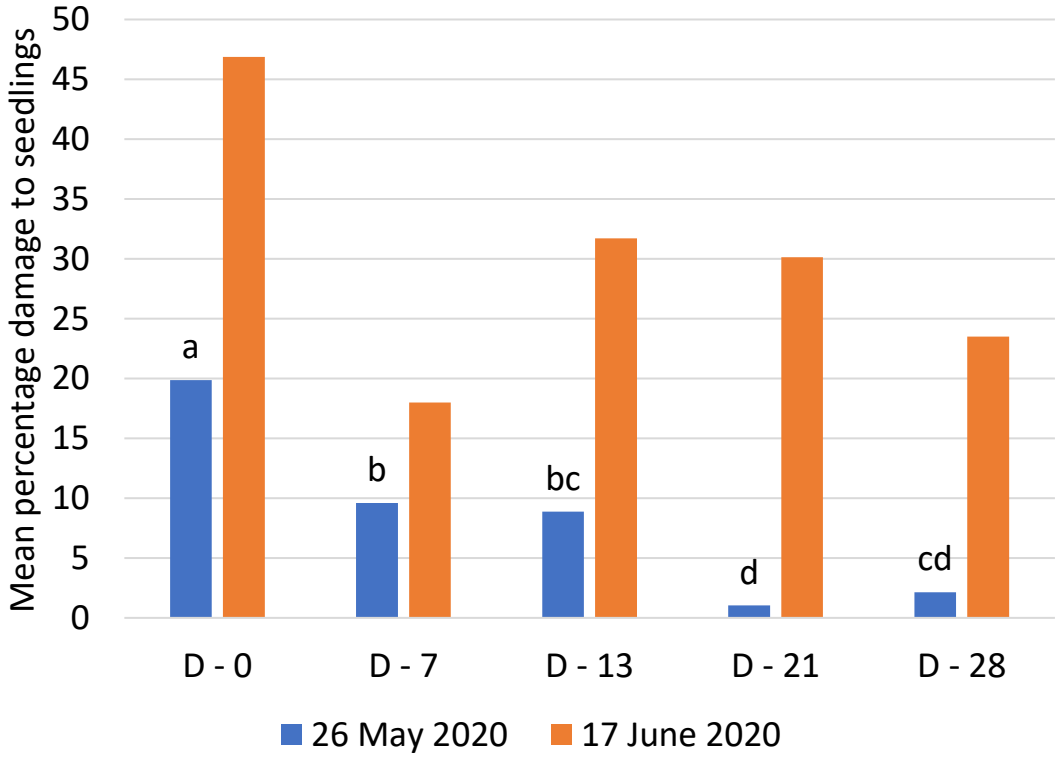
2019-2021 survey



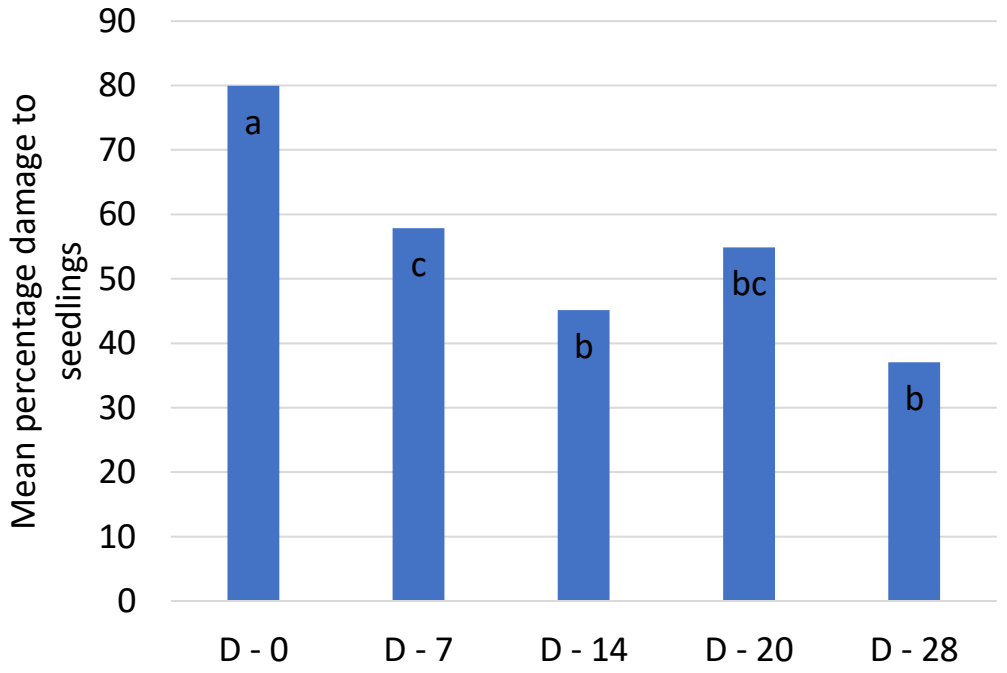
Cultivation trial, Stubton, 2020 and 2021

Drilled 27th April in both years

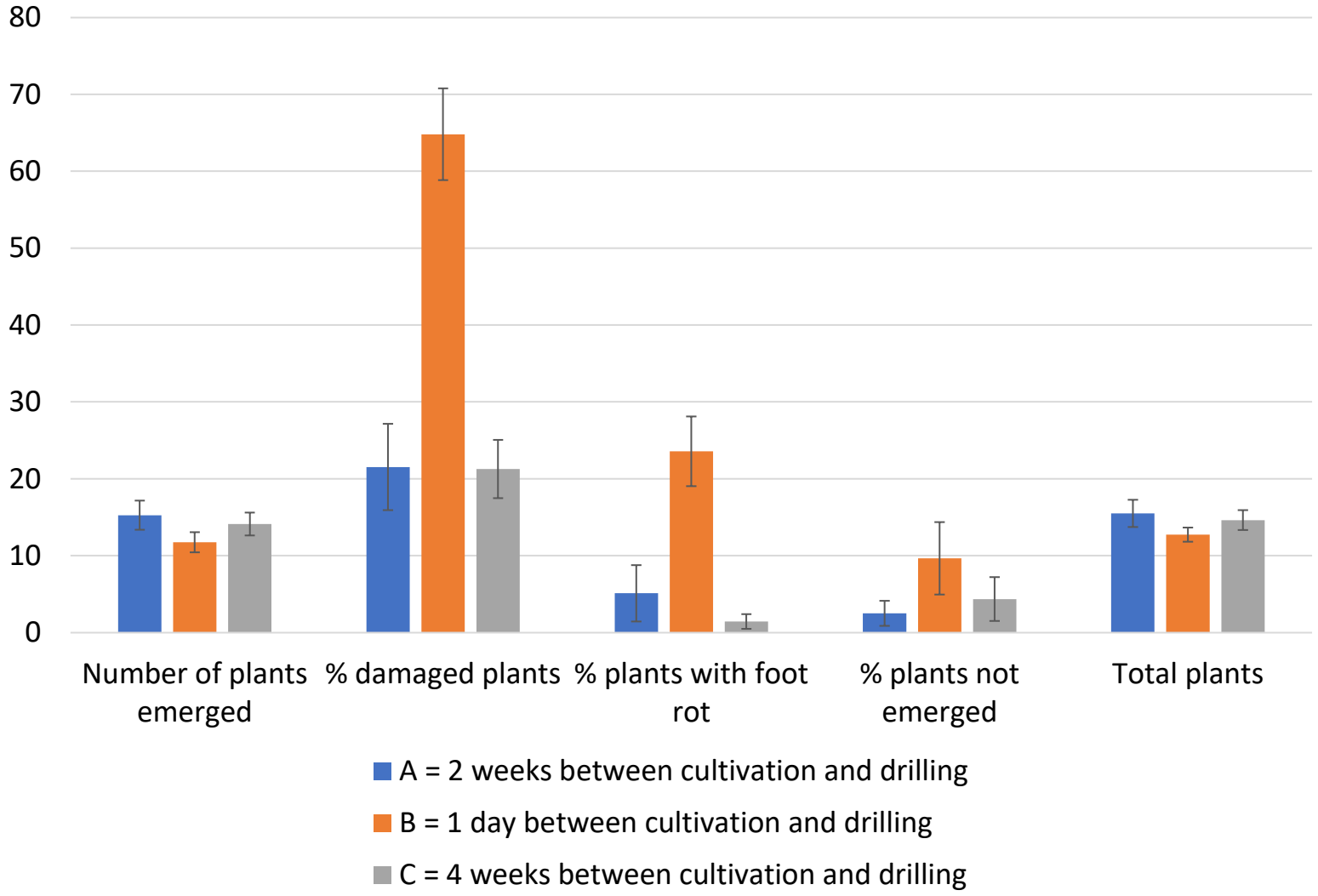
Bean seed fly larval damage 2020



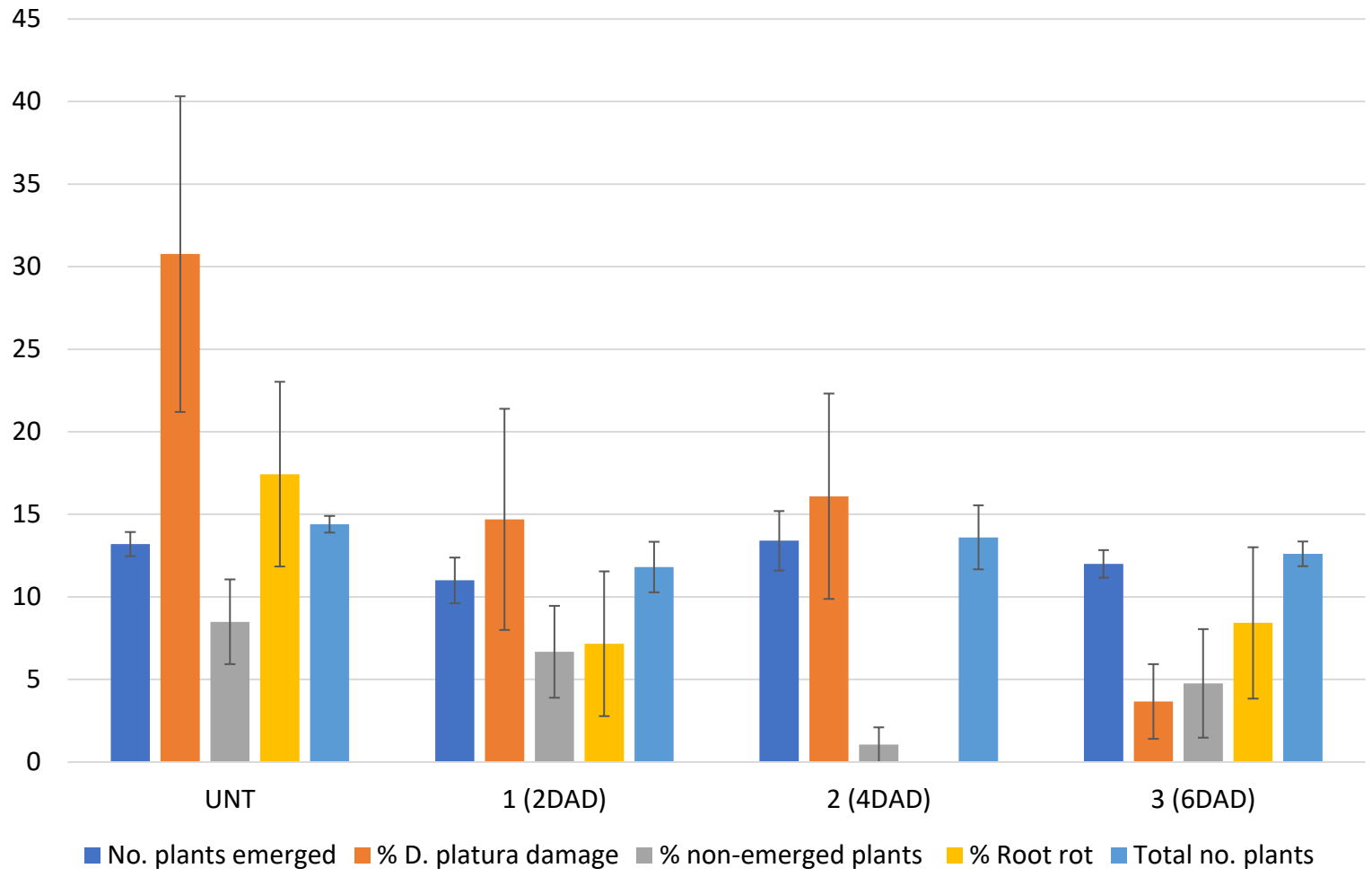
Bean seed fly larval damage 2021



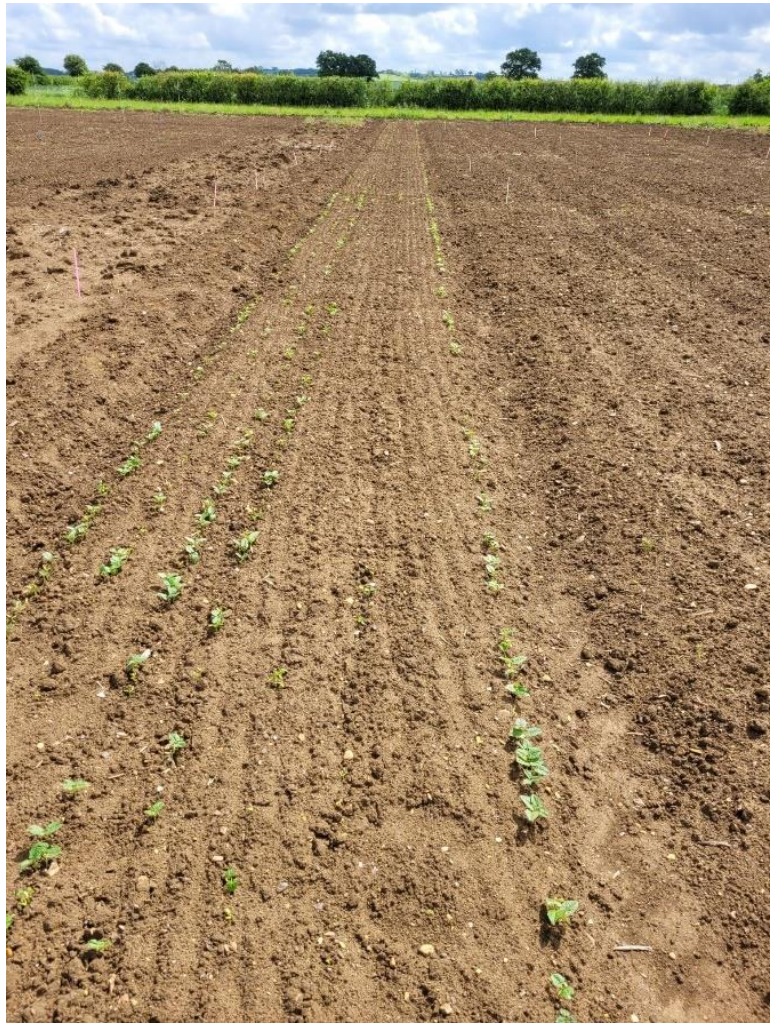
Cultivation trial, Yorkshire 2021 (field-scale)

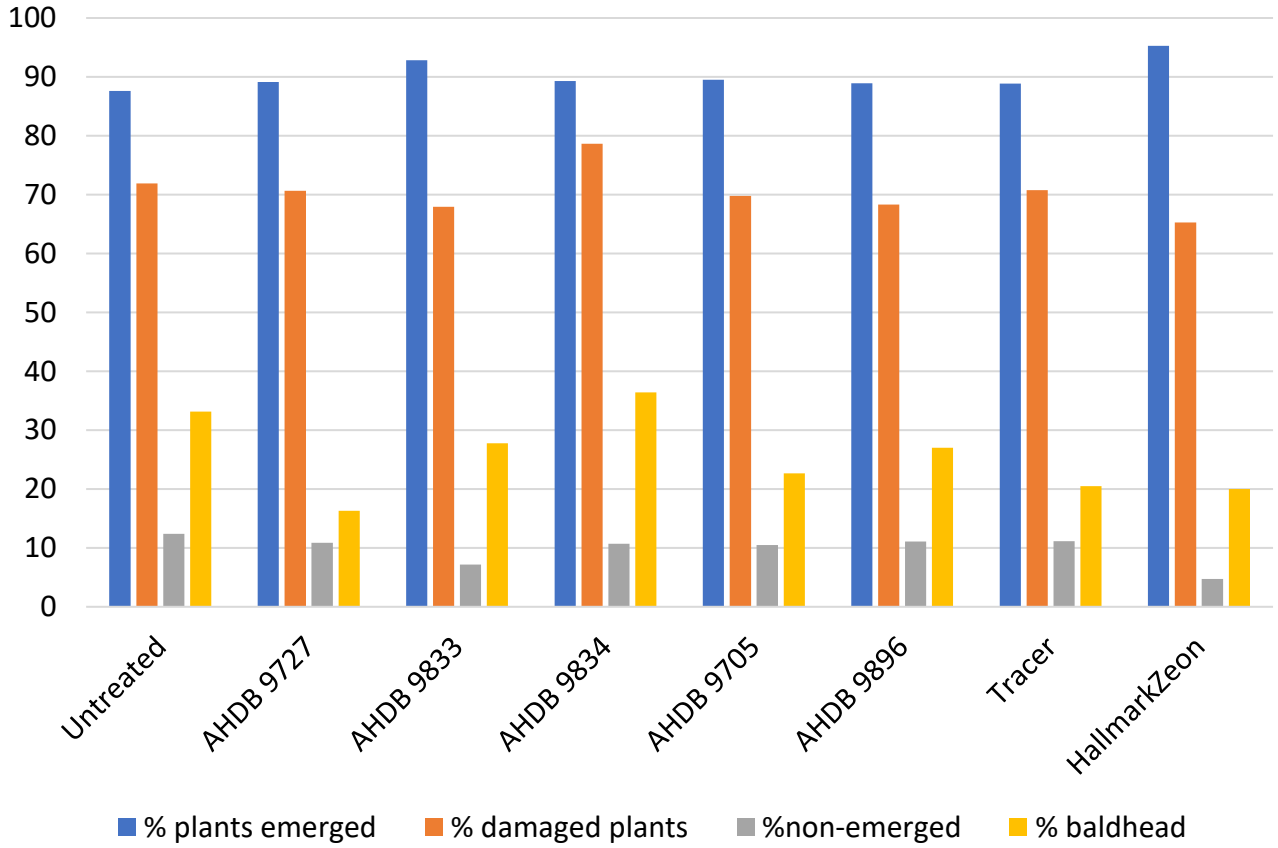


Entomopathogenic nematodes, Lincolnshire 2021 (field-scale)



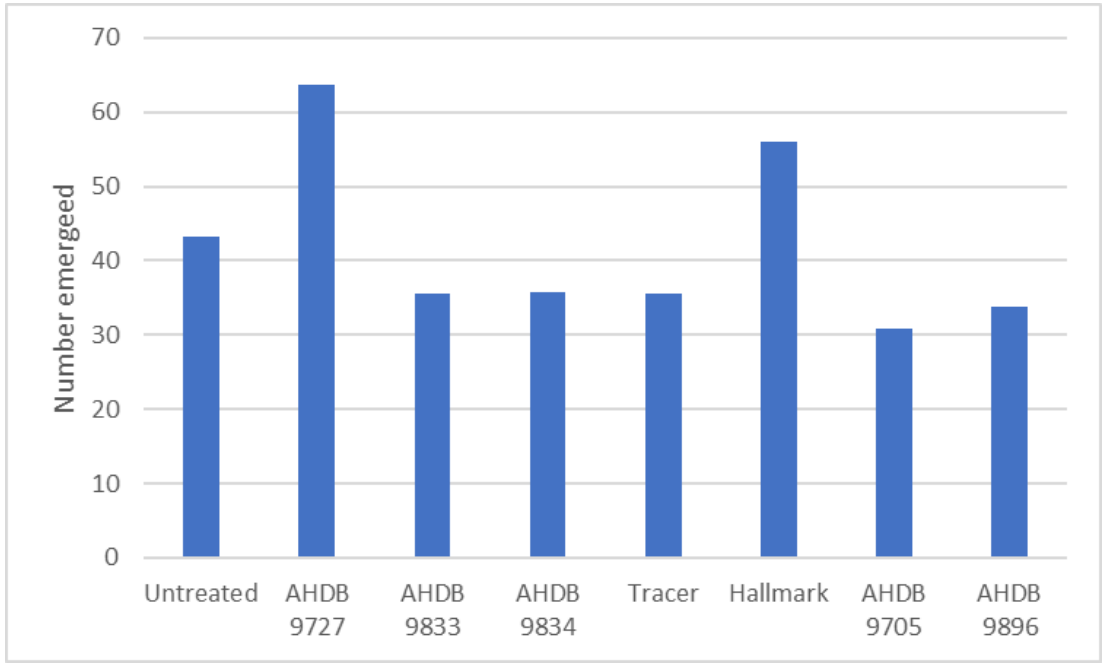
2022 efficacy trial Stubton



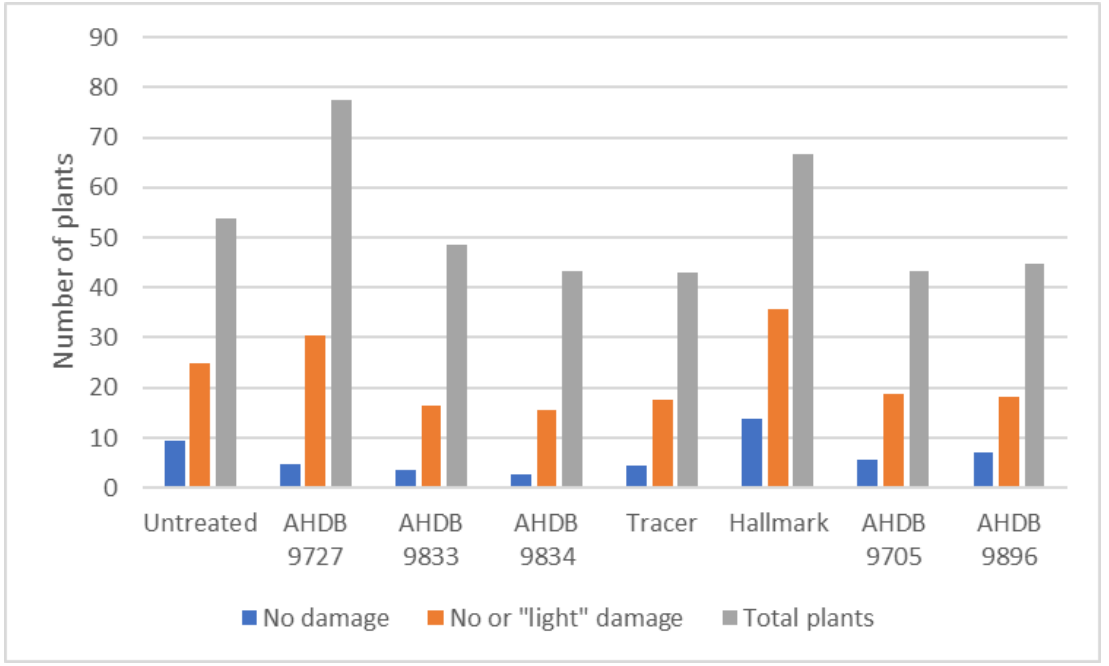


1st drilled 5th May 2022 – failed due to high levels of damage and redrilled on 17th June 2022 (Assessed 30 June and 01 July). There were no significant differences between treatments at Stubton.

2022 efficacy trial Warwick Crop Centre



Mean number of French beans emerged per treatment



Mean number of French bean plants with no damage, no or light damage and total plants assessed at Warwick Crop Centre

Thank you

Swaythorpe GROWERS LTD.

Stemgold Peas
Proudly growing Lincolnshire peas for over 15 years

- Thanks to Matthew hayward, Nick Lount, Ewan Findlay, Ian Watson, Liz Johnson and Phil Langley for monitoring and reporting, and Jo Arden for fly identification
- Thanks to Dyson Farming for hosting trials and Warwick Crop Centre for conducting the second French bean trial
- For further information go to www.pgro.org
- becky@pgro.org
- Or call 01780 782585
- Download the App from Google and Apple stores