Cultural management and monitoring of bean seed fly

WARWICK
THE UNIVERSITY OF WARWICK

AHDB
AGRICULTURE & HORTICULTURE DEVELOPMENT BOARD

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)
- So far we've had a total of 32 reports, 16 in 2019 and 16 in 2020, in vining peas, broad beans, runner beans and spinach
- Reports are from Yorkshire, Lincolnshire, Warwickshire, Norfolk and West Sussex
- For further information go to https://www.pgro.org/pgro-agronomy-app/

2019 and 2020 Survey in Yorkshire and Lincolnshire

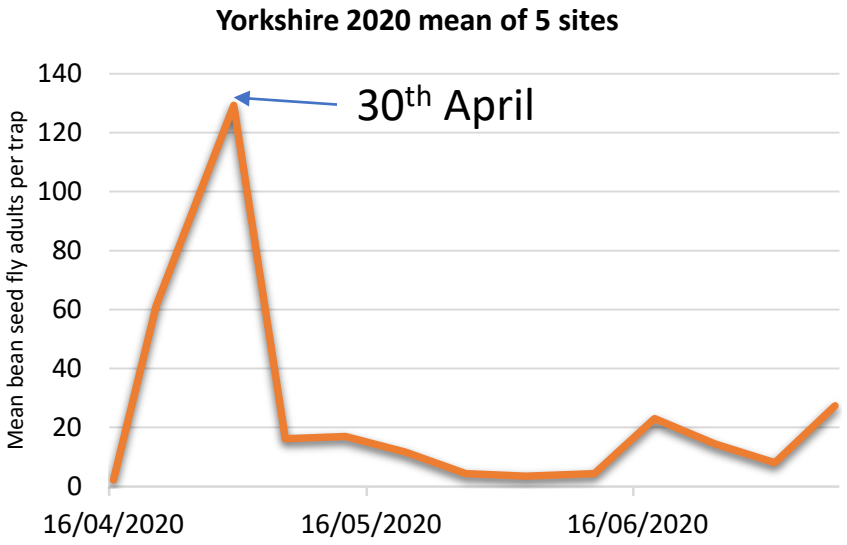
- Attractant traps to monitor peak pest presence (10 sites 2019, 8 sites 2020)
- Sowing timing both general and related to period following cultivation
- Cultivation techniques – drill type/ direct drilling/ min-till/ drilling depth
- Foot rot risk in BSF damaged plants
- Preliminary look at nematodes for control (*Steinernema feltiae*) at field scale

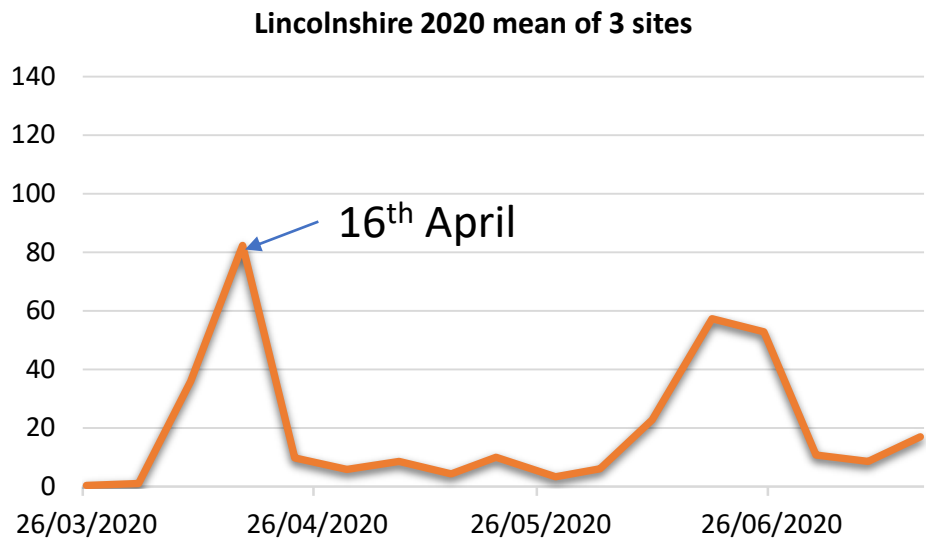
Monitoring

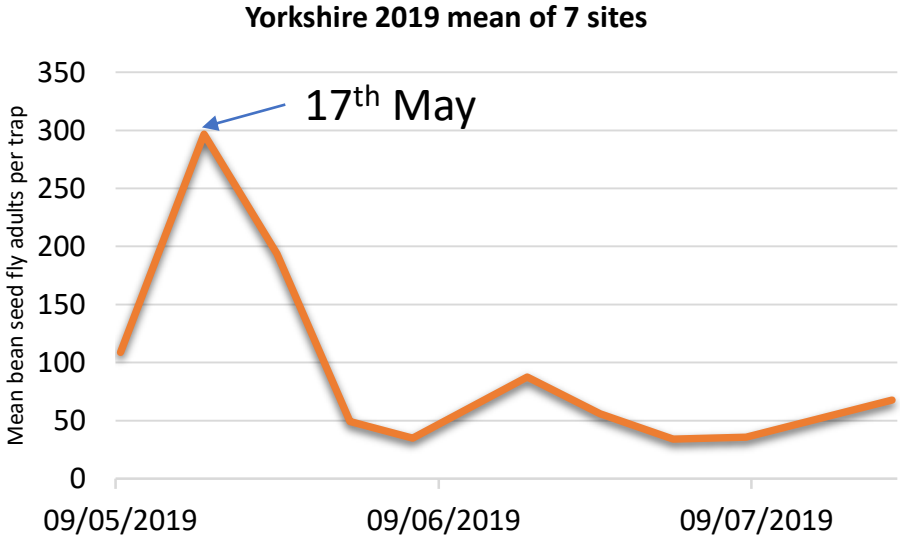
Swaythorpe GROWERS LTD.

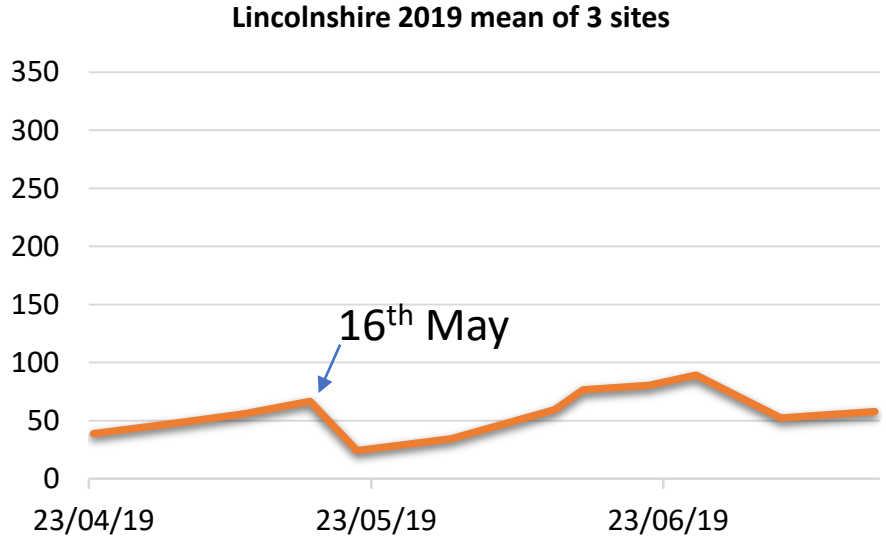
Yorkshire

Lincolnshire





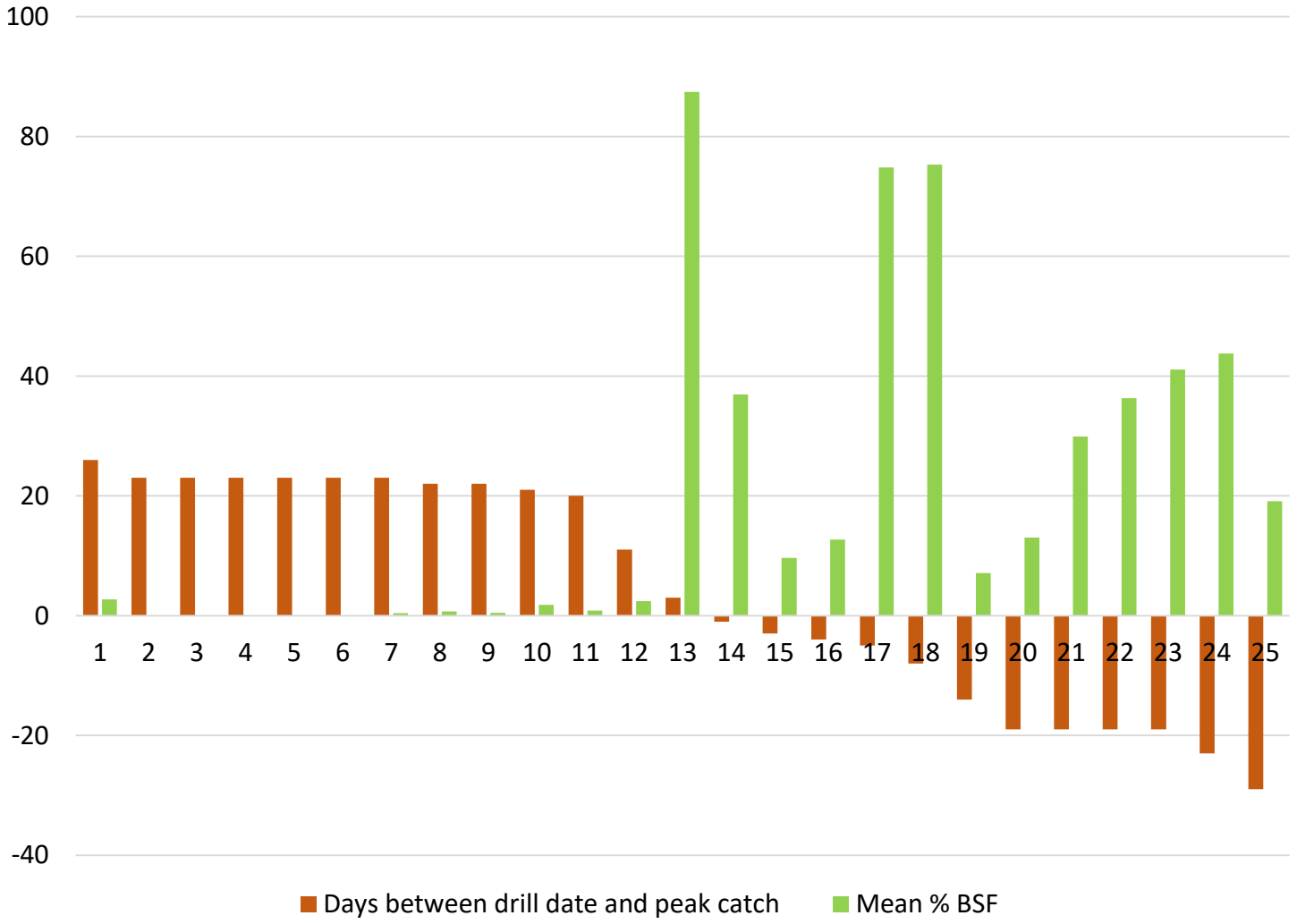




2019-2020 survey

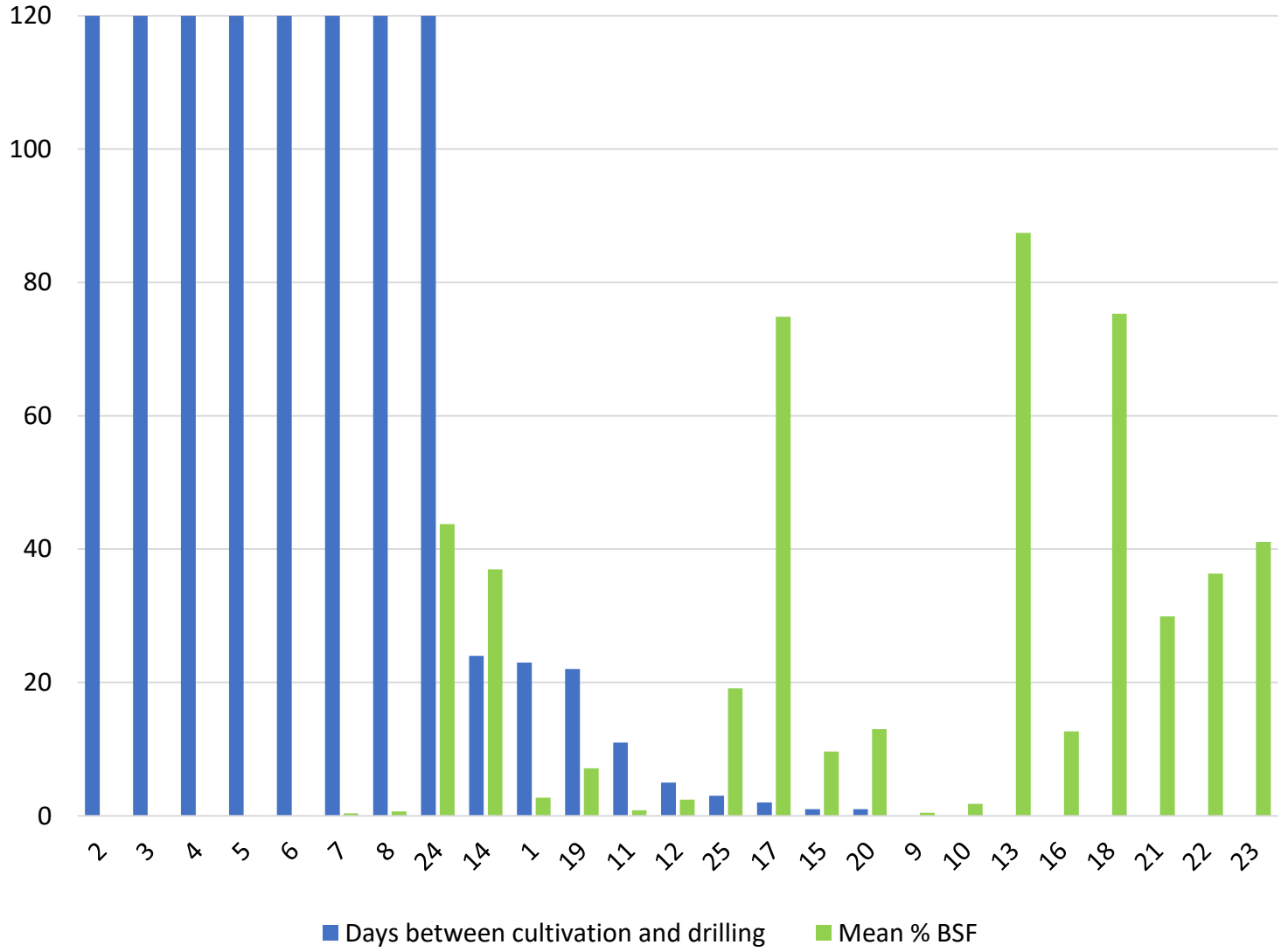
- **2019 work indicated the following:**
- There are differences in timing of peak adult activity in different regions
- The period 10 days before and after peak activity was high risk for drilling
- the period between cultivation and drilling seemed to have an effect on damage levels

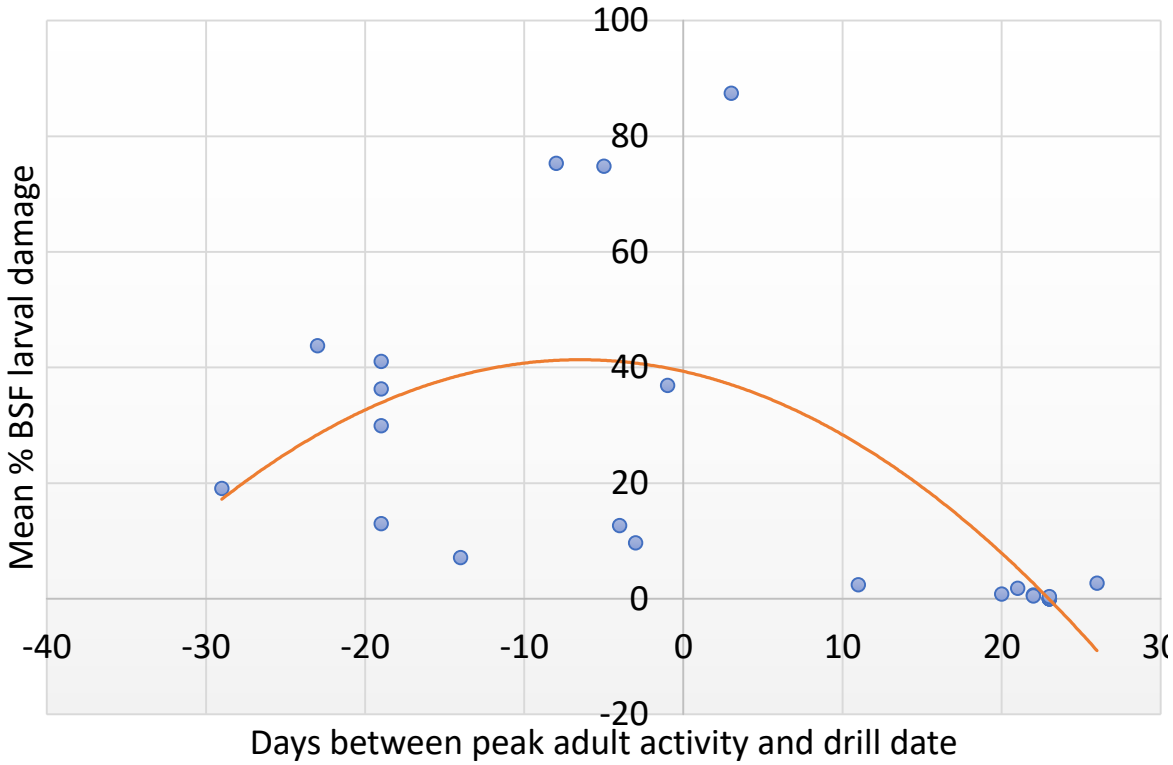
- **2020 work indicated the following:**
- The period around peak activity is not as clear and it seems that, although highest levels of damage were recorded in crops sown within 10 days of peak activity, activity and damage continues in crops at low to medium levels after this

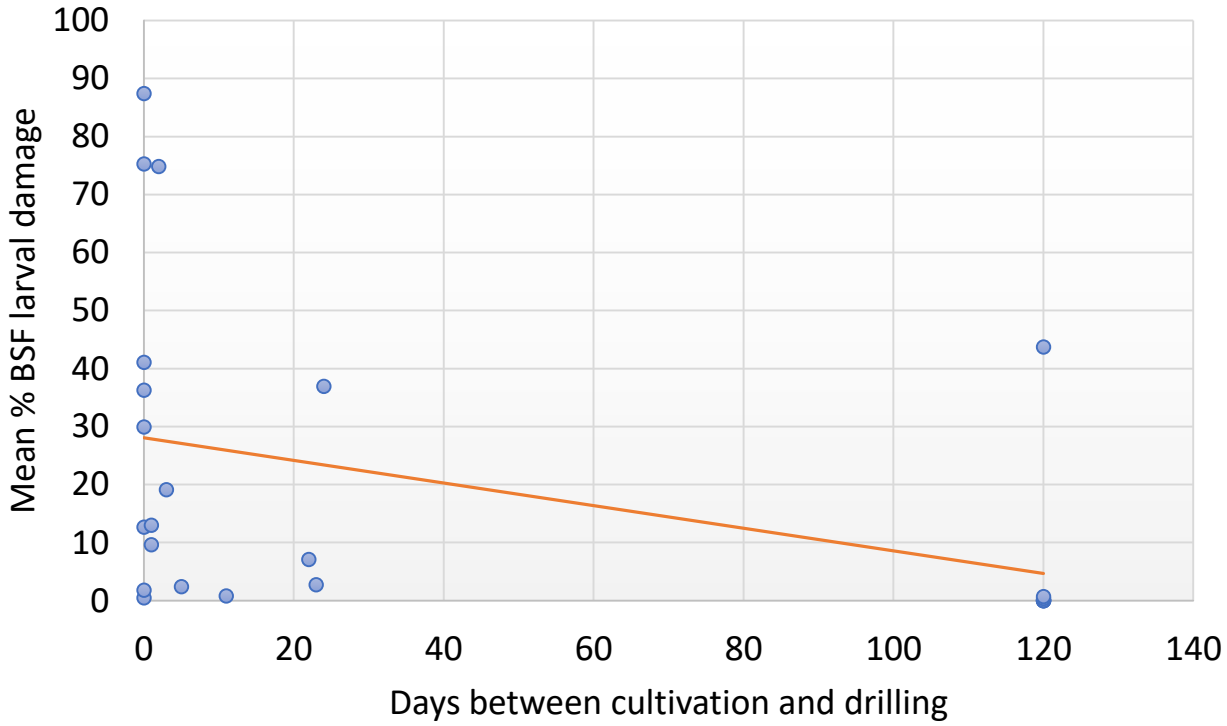


2019-2020 survey

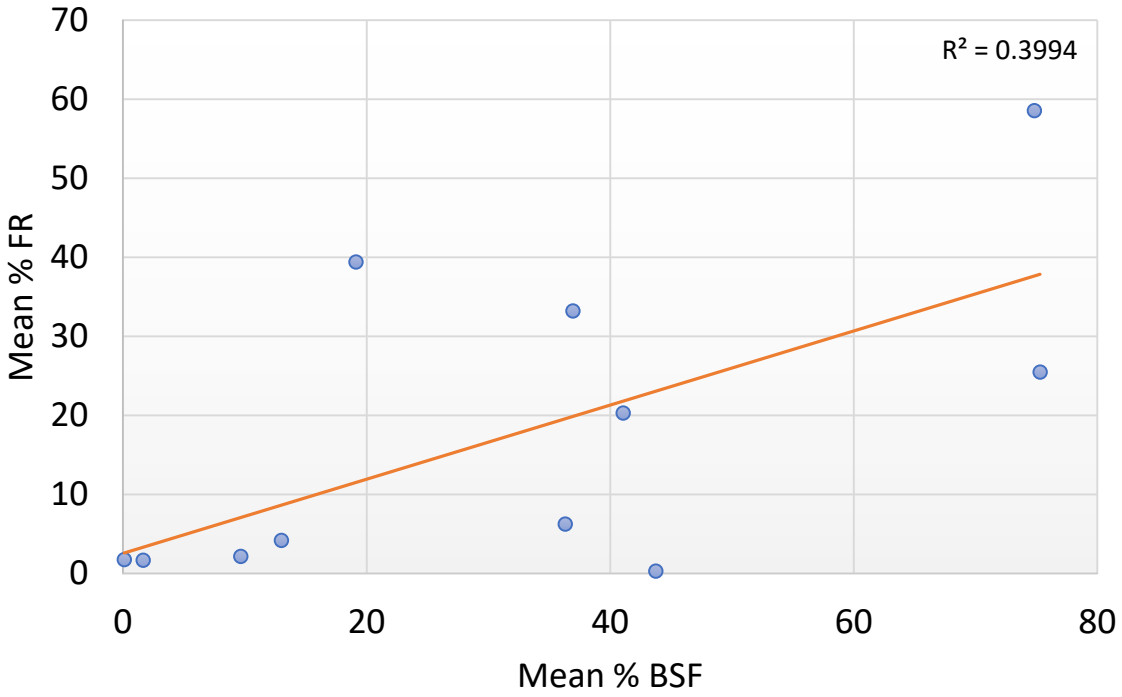
- **2020 work indicated the following:**
- The period between cultivation and drilling seems to have an influence, but again, there are some anomalies with a general trend to higher levels of damage where cultivation and drilling took place on the same day

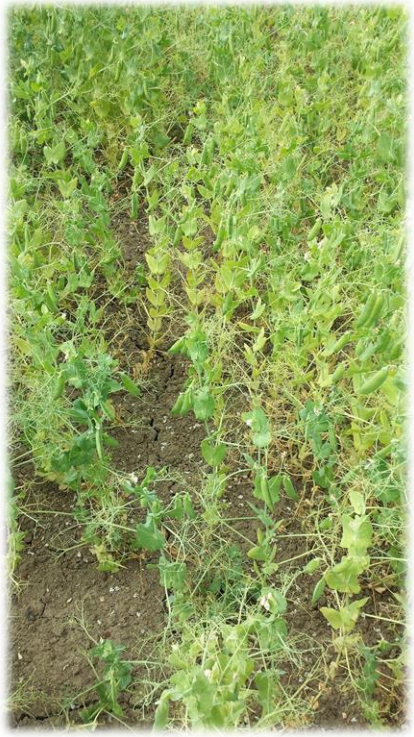



Mean % BSF larval damage
100
80
60
40
20
0
-20
-40
-30
-20
-10
0
10
20
Days between peak adult activity and drill date


Mean % BSF larval damage
100
90
80
70
60
50
40
30
20
10
0
0
20
40
60
80
100
120
140
Days between cultivation and drilling

Relationship between larval damage and foot rot infection

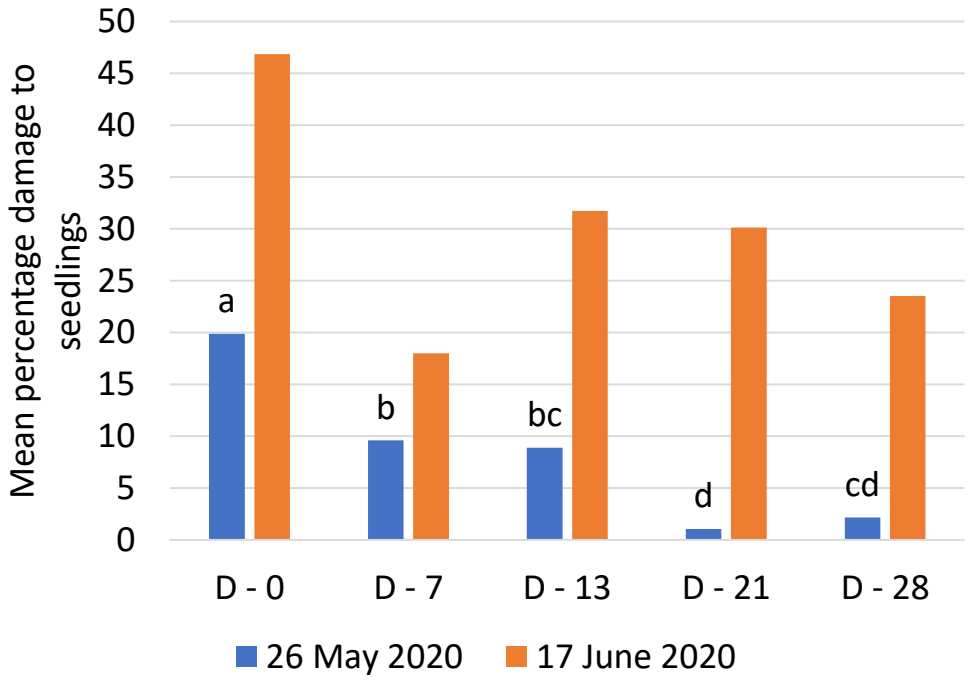




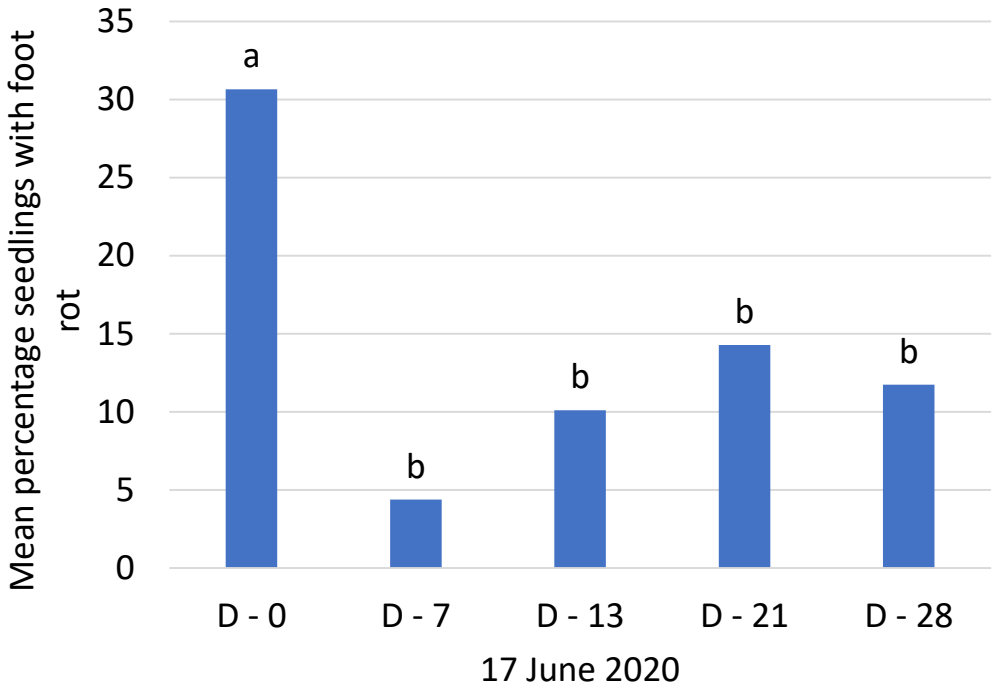
Cultivation trial, Stubton, 2020

Drilled 27th April 2020

Bean seed fly larval damage



Foot rot infection



The work carried out in 2019 and 2020 shows real promise for an IPM strategy for bean seed fly management, but no firm recommendations will be made until further trials have been carried out in 2021

Thank you

- 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

- For further information go to www.pgro.org
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- Or call 01780 782585
- Download the App from Google and Apple stores