

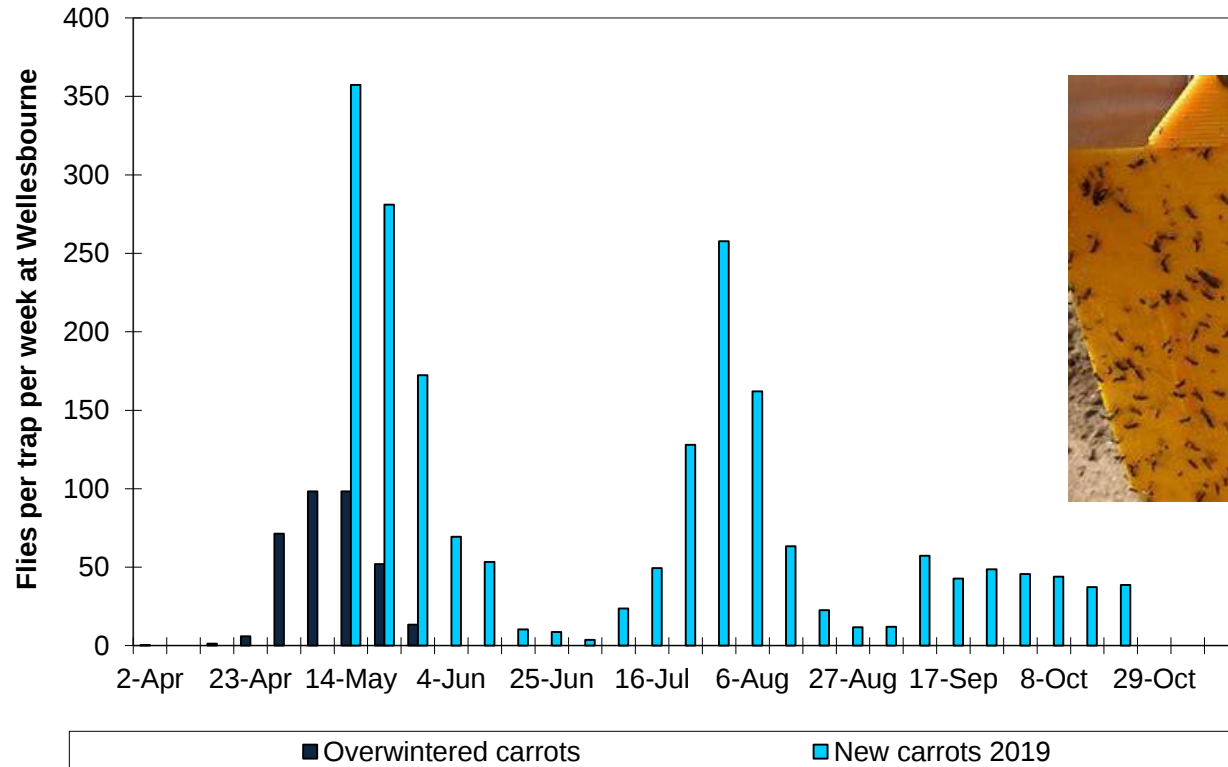
Managing carrot fly

Rosemary Collier

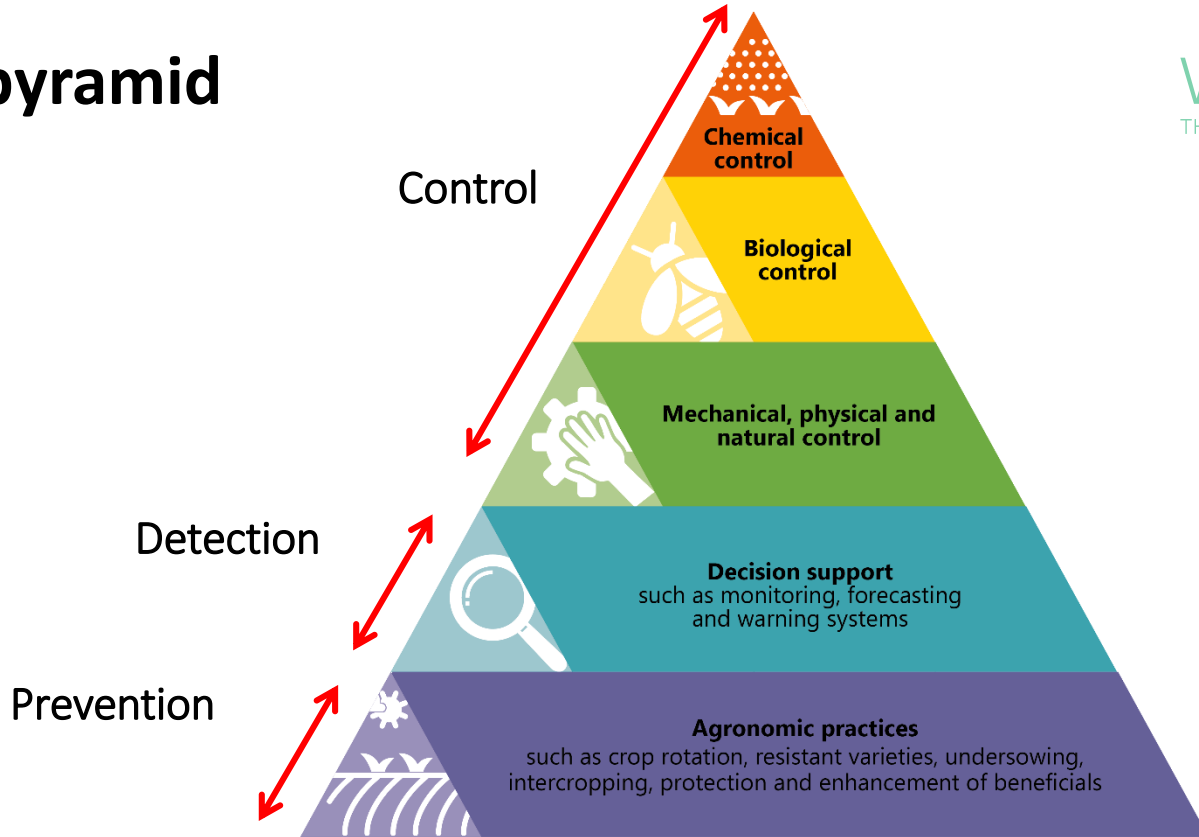
Teagasc Webinar, 26 January 2021



Carrot fly trap captures – Wellesbourne, Warwickshire 2019



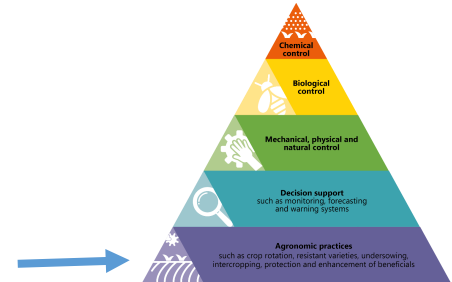
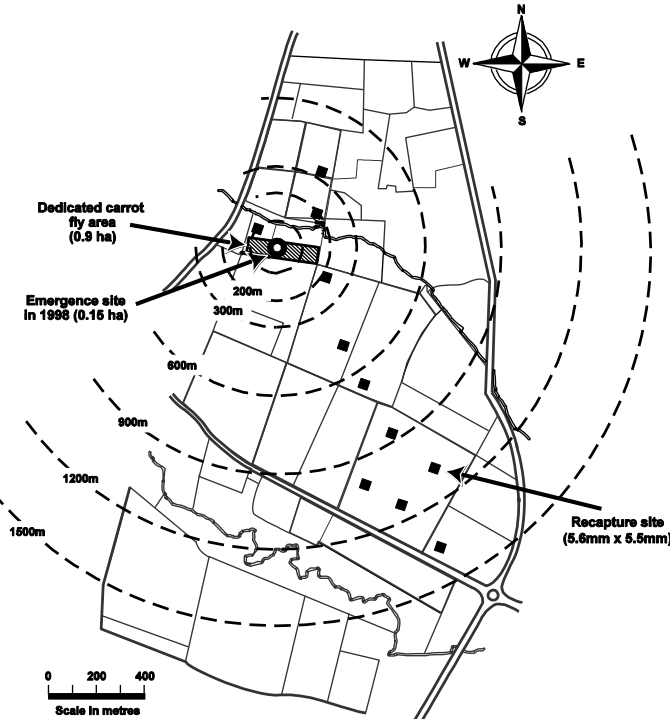
IPM pyramid

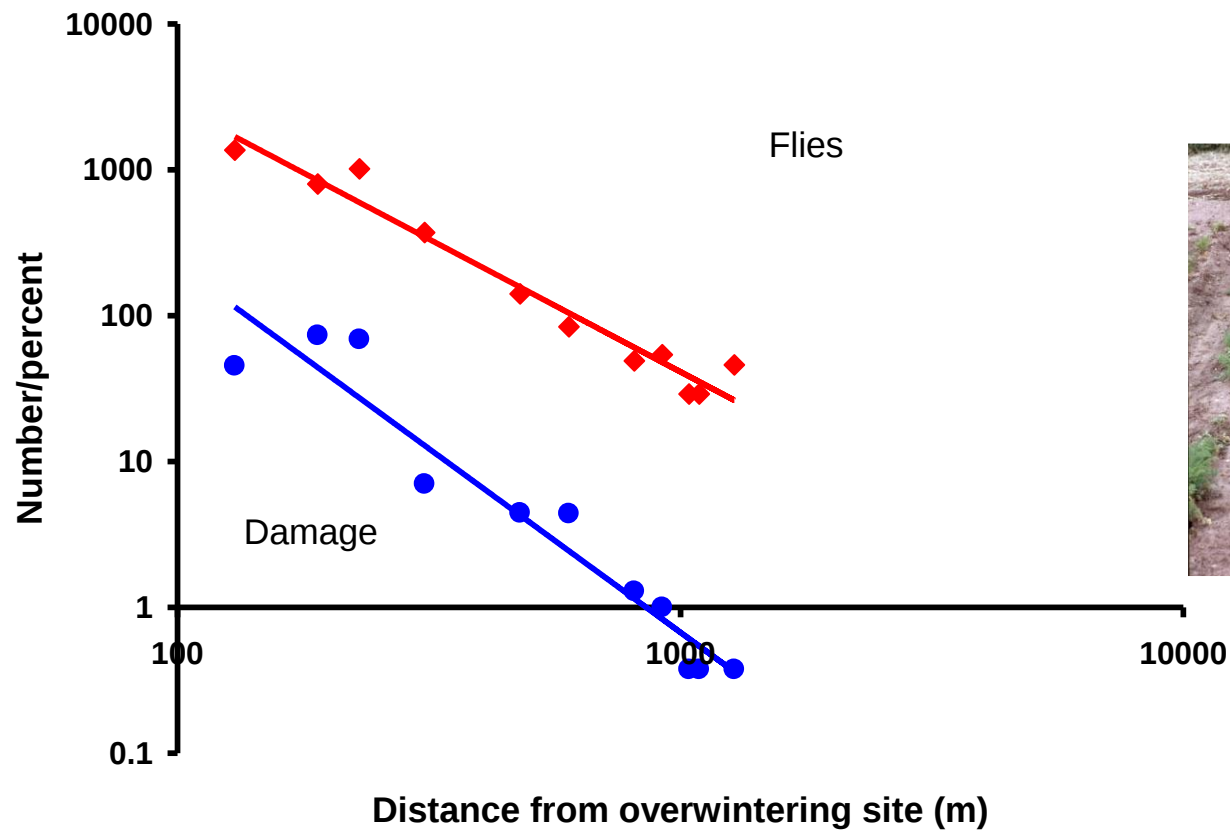


Crop rotation and isolation

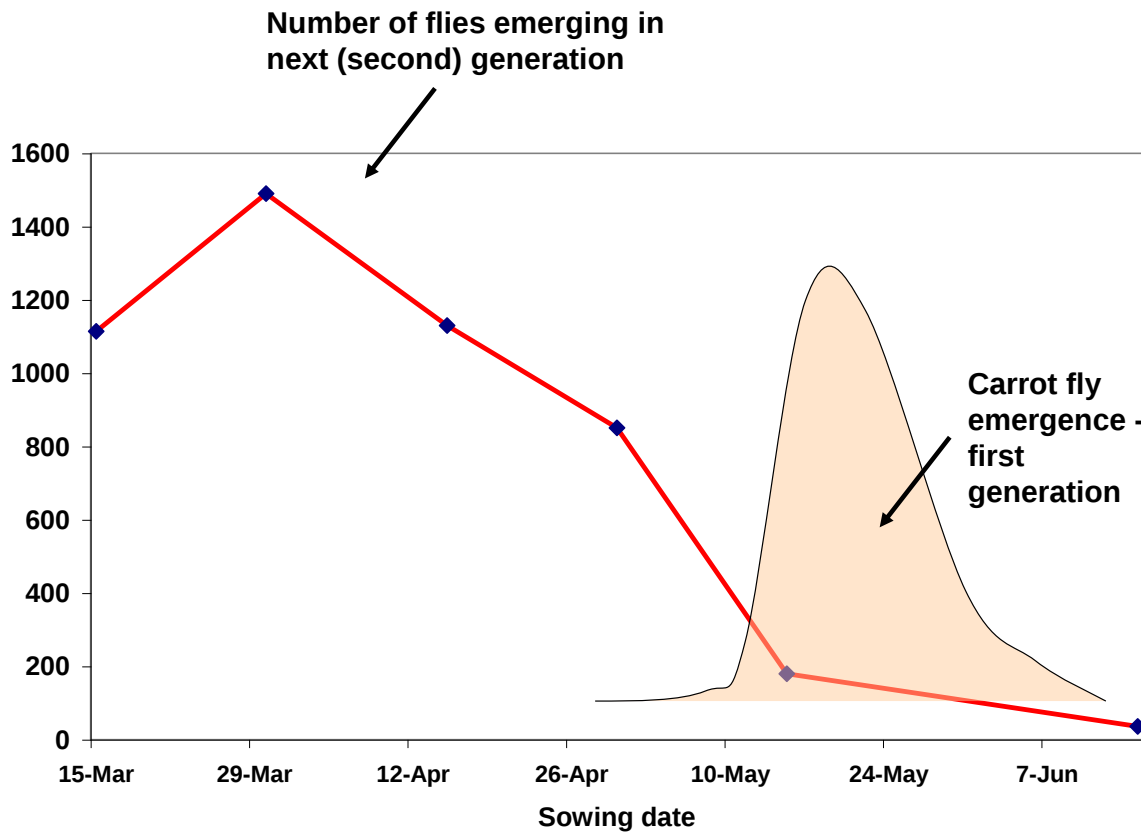
Carrot fly - isolating old and new crops

- 11 plots of carrots
- At range of distances from population of **carrot fly**
- Recorded numbers of flies, eggs, pupae and amount of root damage

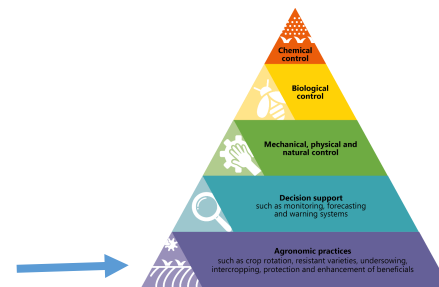




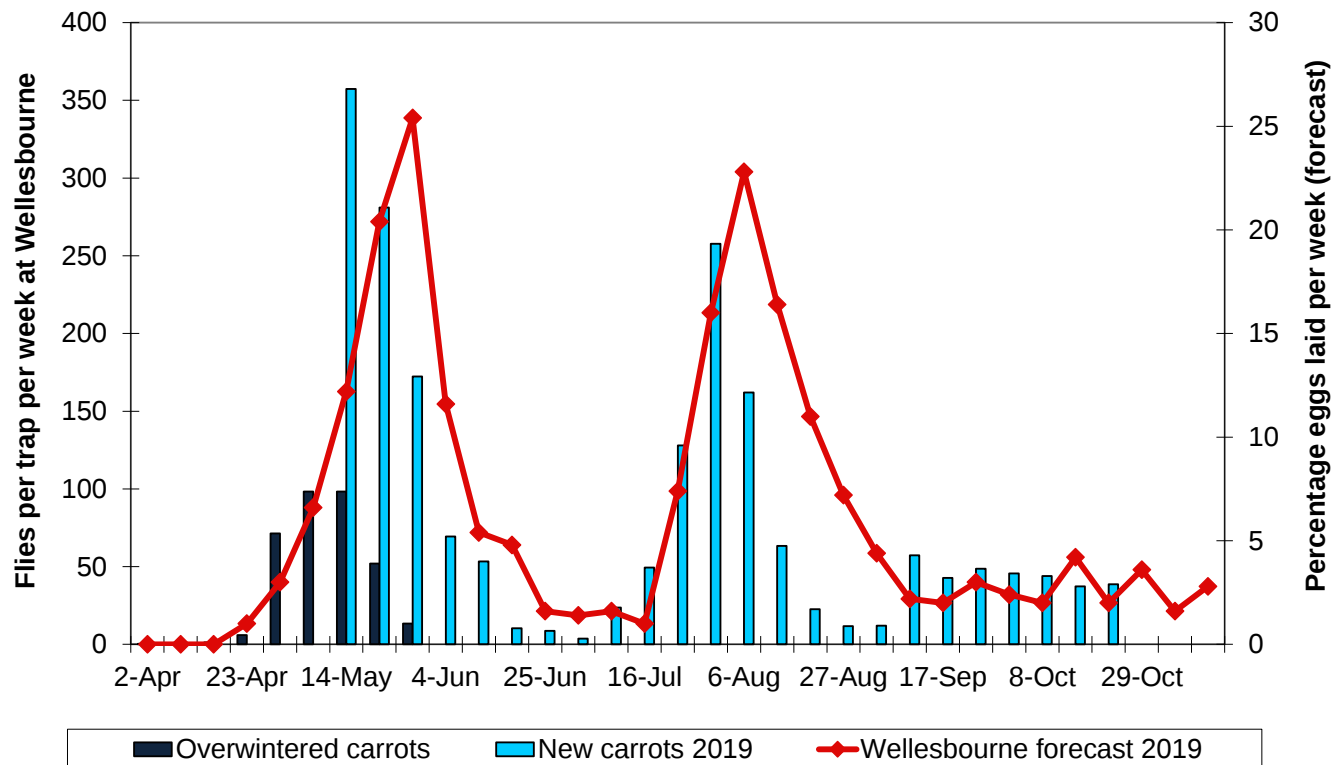
Late sowing



WARWICK
THE UNIVERSITY OF WARWICK



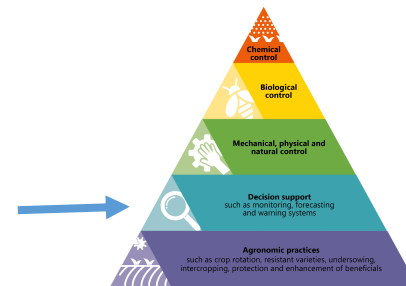
Carrot fly forecast



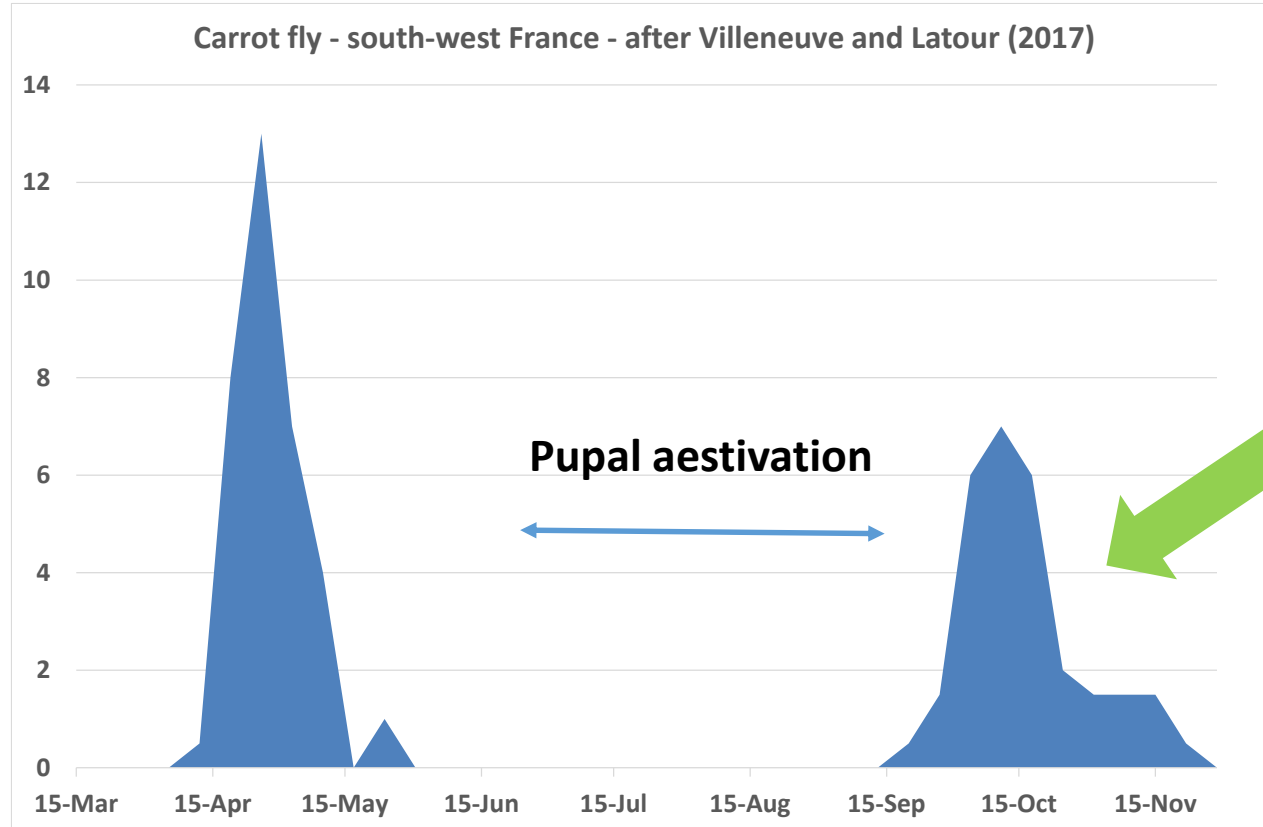
WARWICK
THE UNIVERSITY OF WARWICK

Uses soil and air
temperatures
from 1 February

AHDB Pest
Bulletin on
Syngenta web site

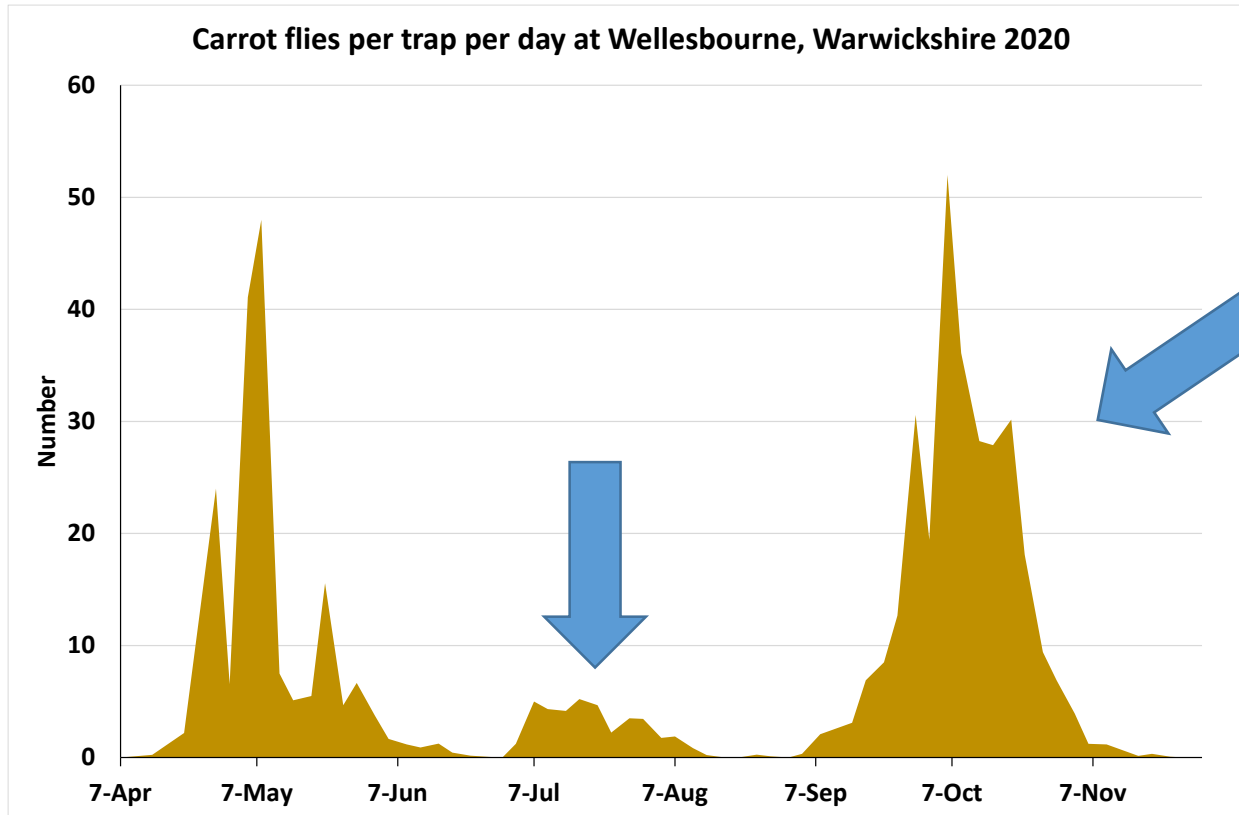


Carrot fly in a warmer climate



Actually the
second
generation!

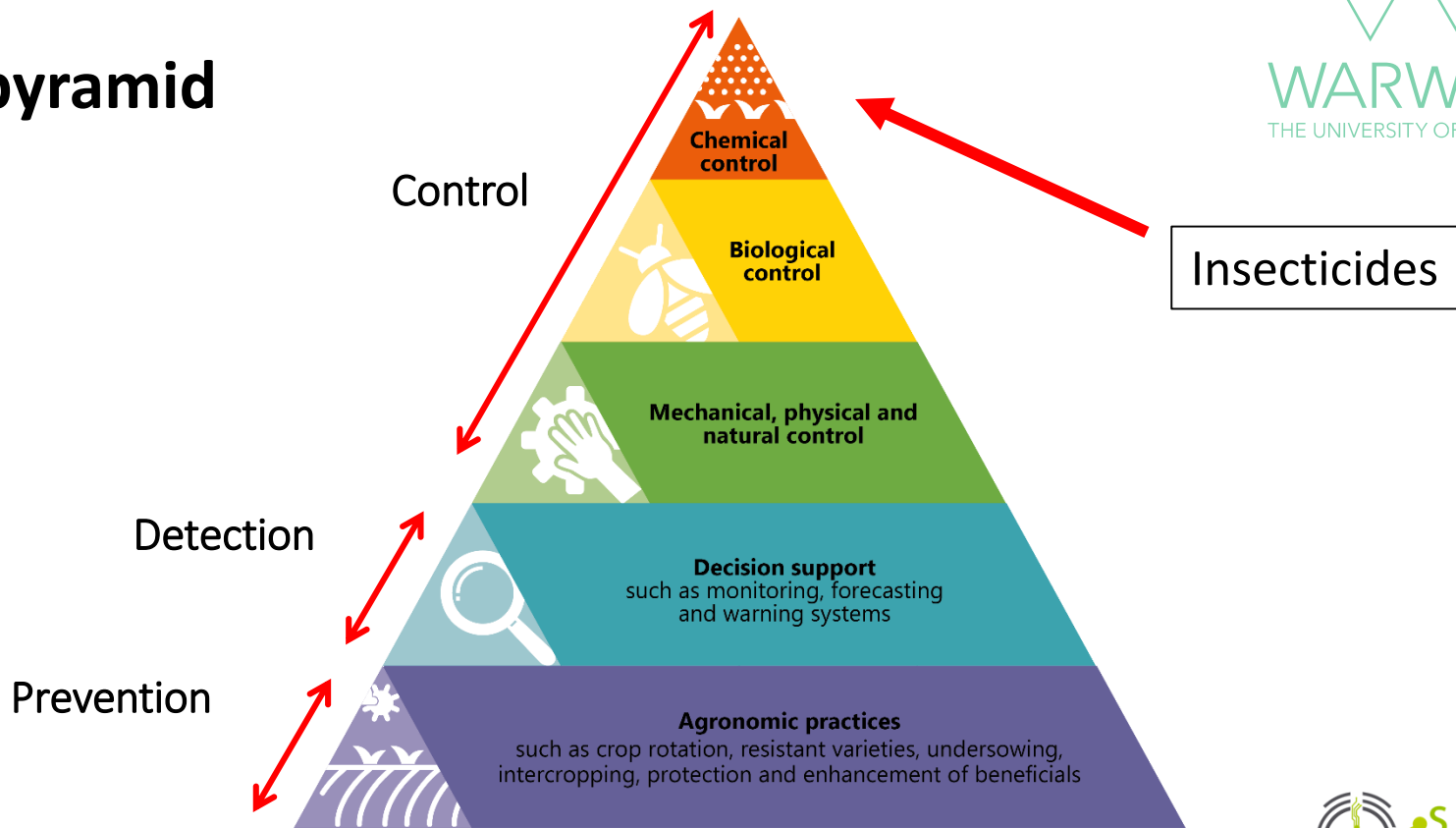
Climate change UK?



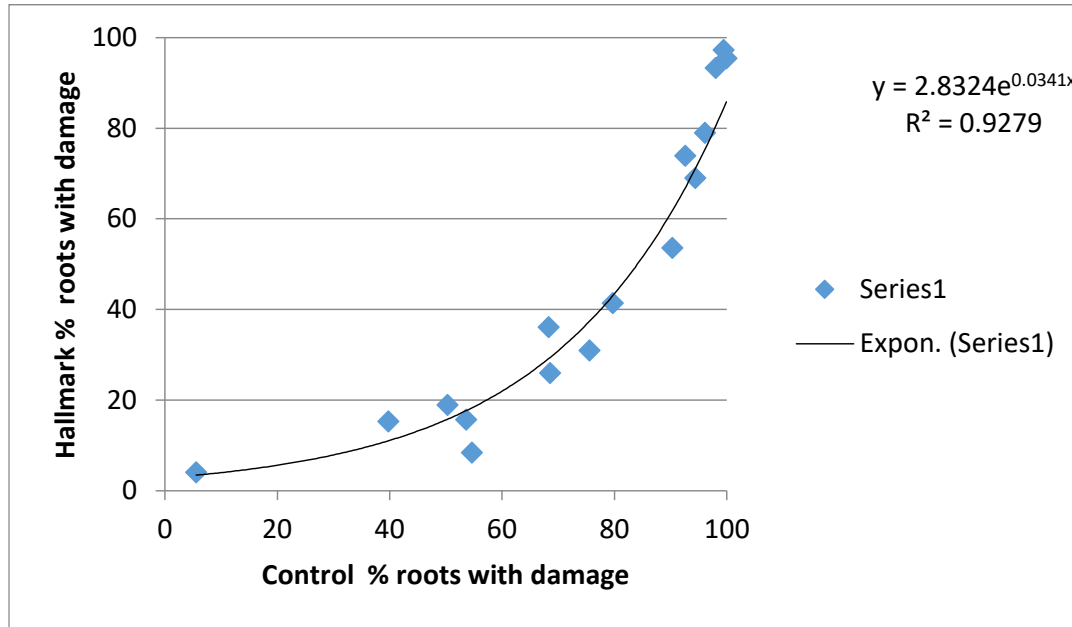
Will late
second/third
generation
egg-laying become
more important?

20 years ago, last
new larvae of the
year were found at
end of September

IPM pyramid



'Standard' Hallmark programme versus untreated control at Wellesbourne



Example dates	Weeks from start	Pyrethroid/rate
06-Aug	0	H 150
20-Aug	2	H 100
03-Sep	4	H 100
17-Sep	6	H 100
01-Oct	8	D 500
15-Oct	10	D 500

H=Hallmark – lambda-cyhalothrin

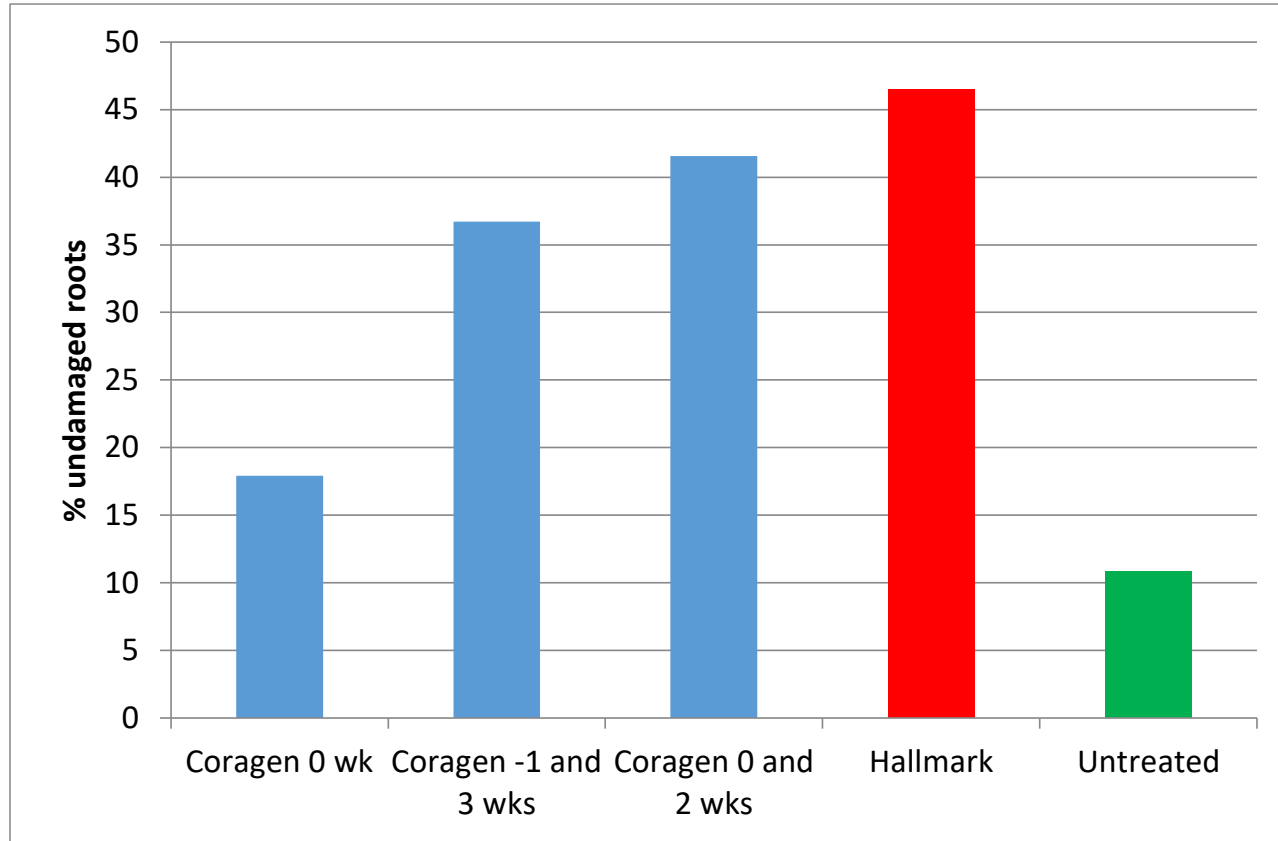
D=Decis - deltamethrin

Rate = ml product/ha

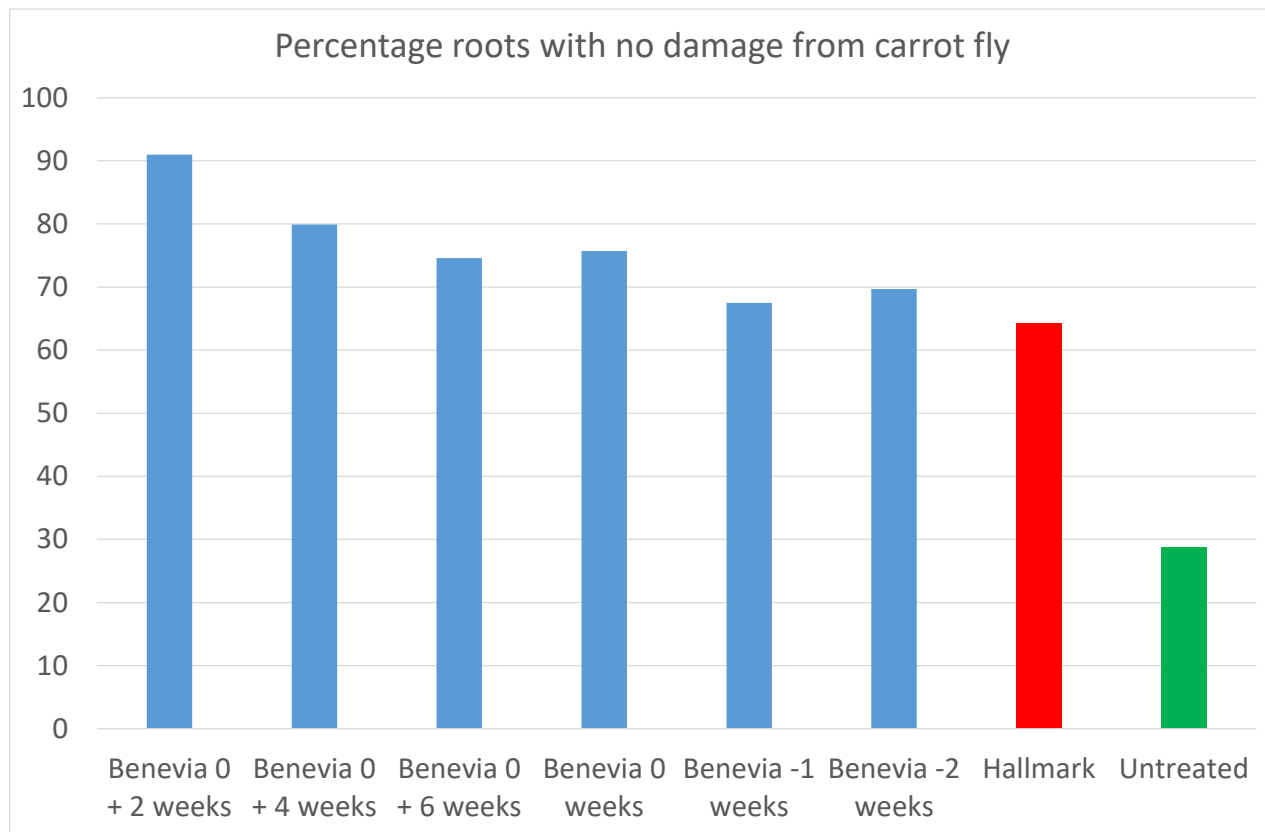
Data from 2004-2020 – trials funded by AHDB and commercial sponsors

Coragen - chlorantraniliprole

Trial funded
by AHDB



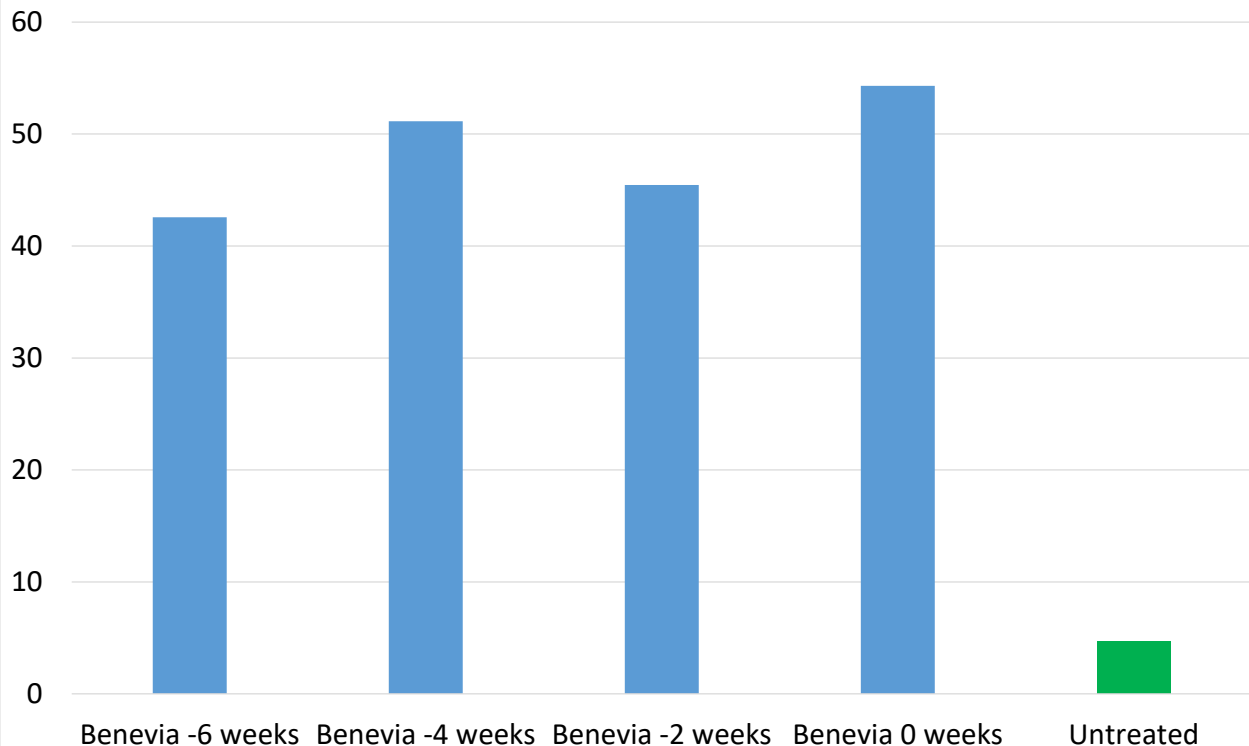
Benevia - cyantraniliprole



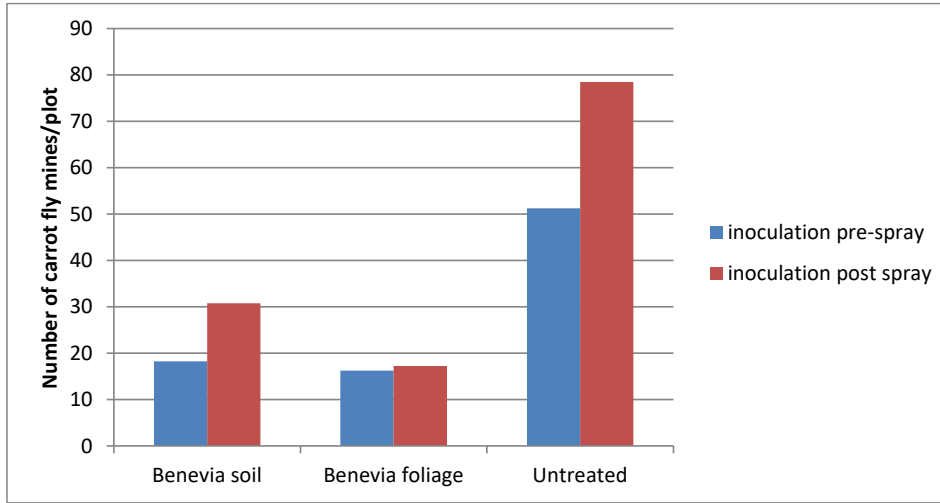
Trial funded by Du Pont

Benevia - cyantraniliprole

Percentage roots with no damage from carrot fly



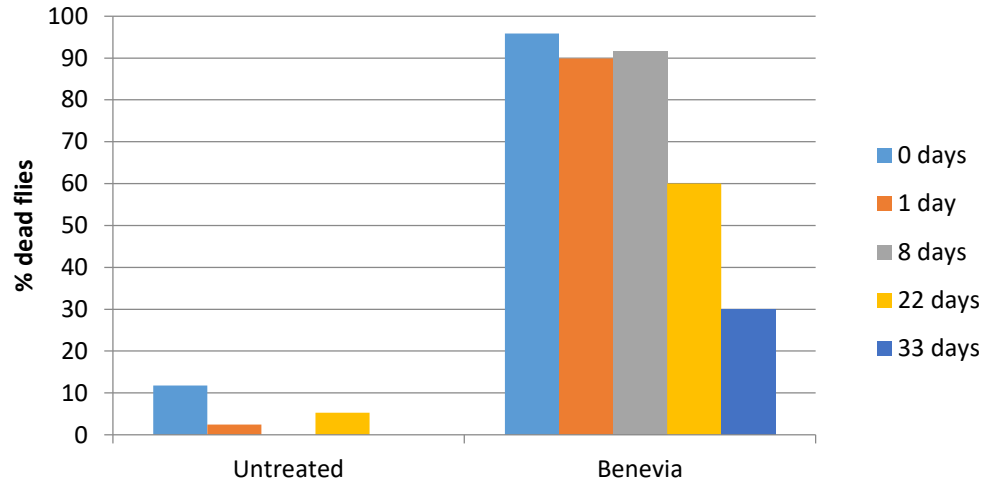
Trial funded by Du Pont



Trial funded by Du Pont

- Trial covered with fleece and carrots inoculated with carrot fly eggs pre- and post-spray
- Sprays targeted at foliage (200l/ha and soil covered) or soil (600l/ha and spray aimed at carrot crown)
- Control levels similar for both application methods.

Benevia aged residue - <24hr mortality

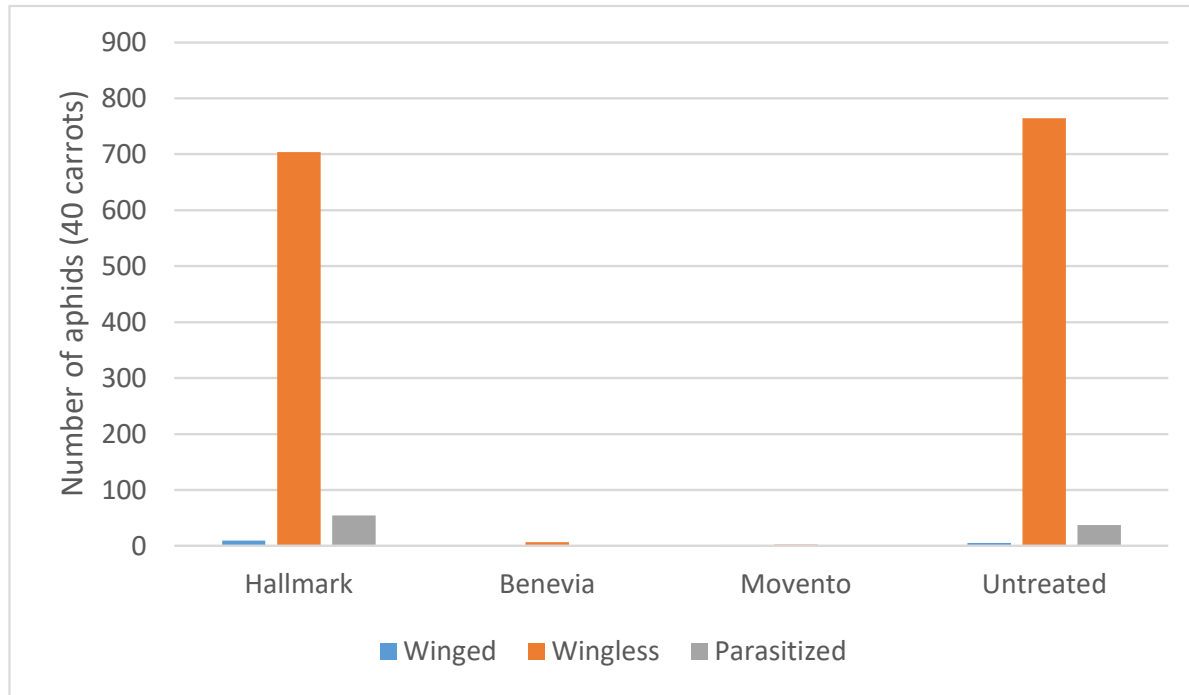


Trial funded by Du Pont

- Benevia very effective at killing adult flies for at least 8 days and some control continued for more than 4 weeks
- We don't have any data on how this affects egg laying but this supports results from field trials which indicate prolonged control with a single application

Aphid control

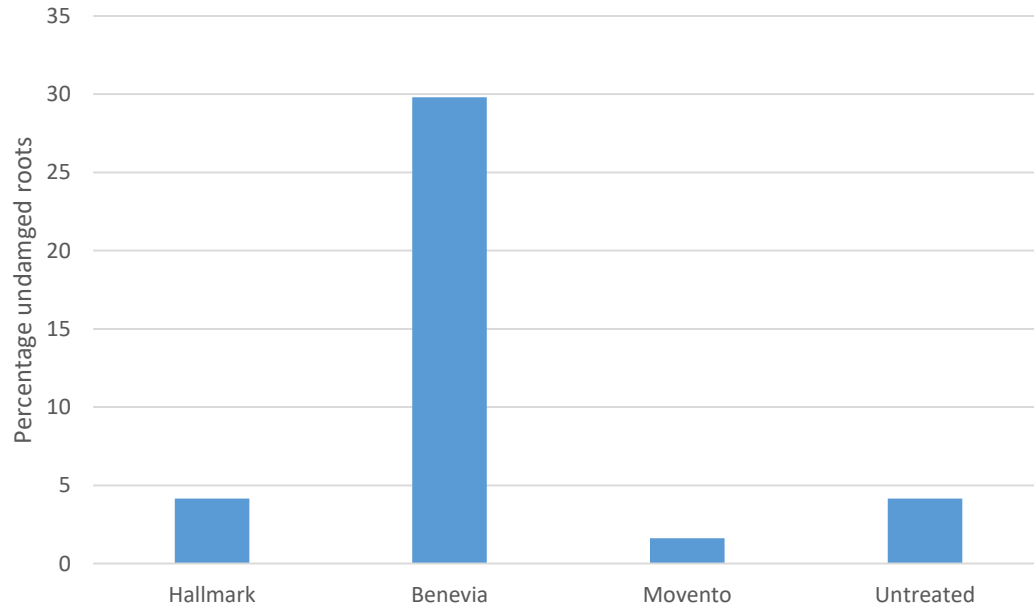
Sprays aimed at willow carrot aphid and applied twice on 25 May and 7 June with counts on 14 June



Trial funded by Du Pont

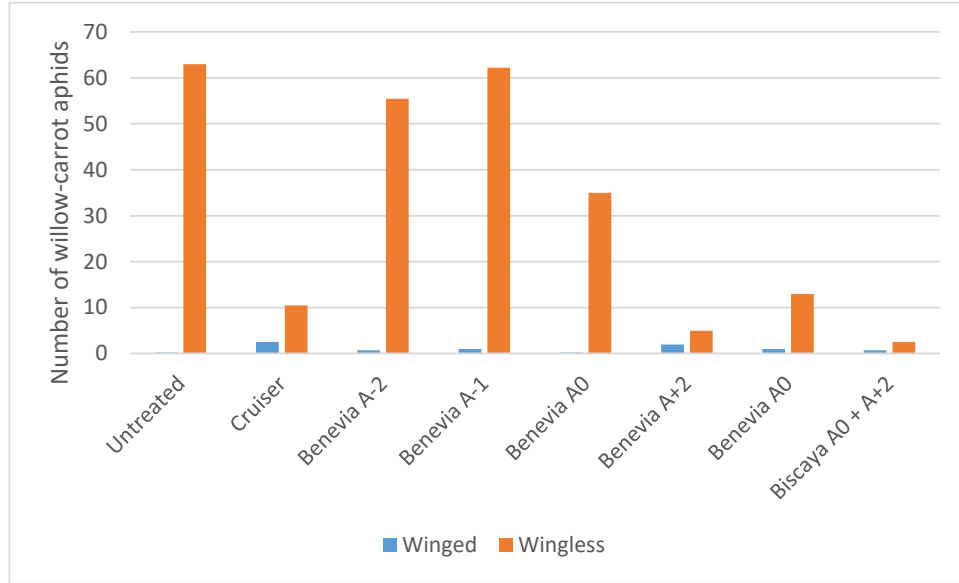
Carrot fly control

Sprays aimed at willow carrot aphid and applied twice on 25 May and 7 June. Carrot fly damage assessed on 14 November.



Trial funded by Du Pont

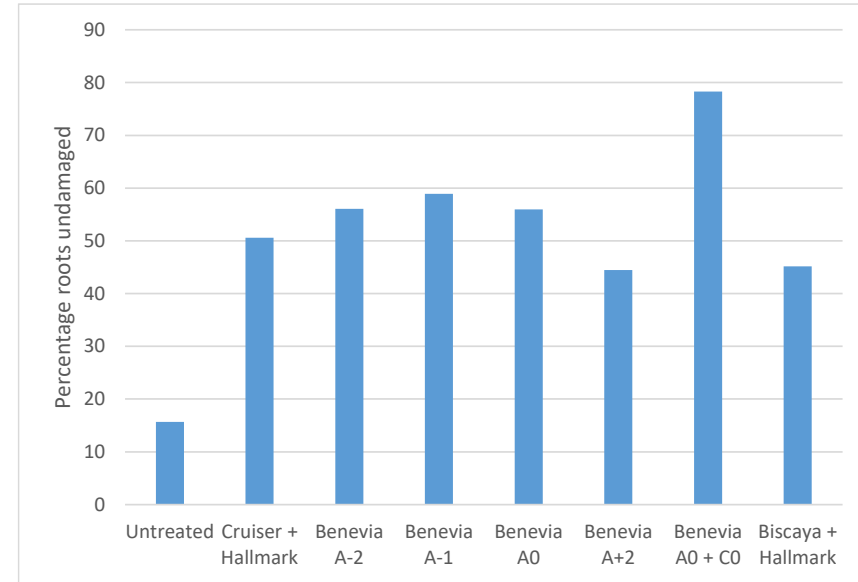
Aphids - 26 June



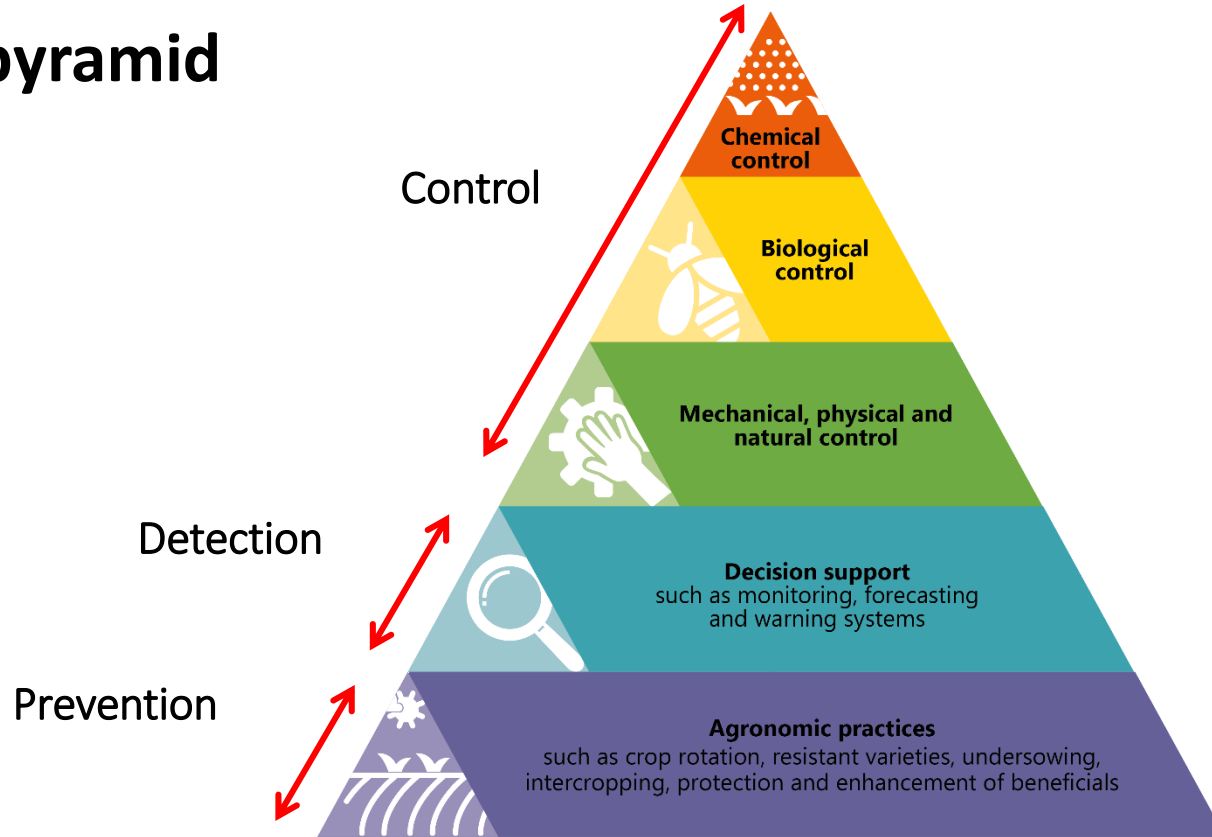
Timing A = 25 May and C = 31 July

Trial funded by FMC

Carrot fly - 15 November

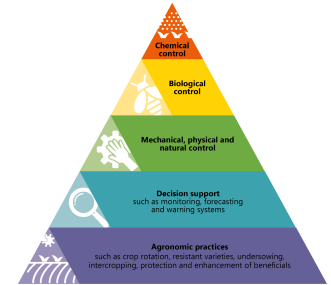


IPM pyramid

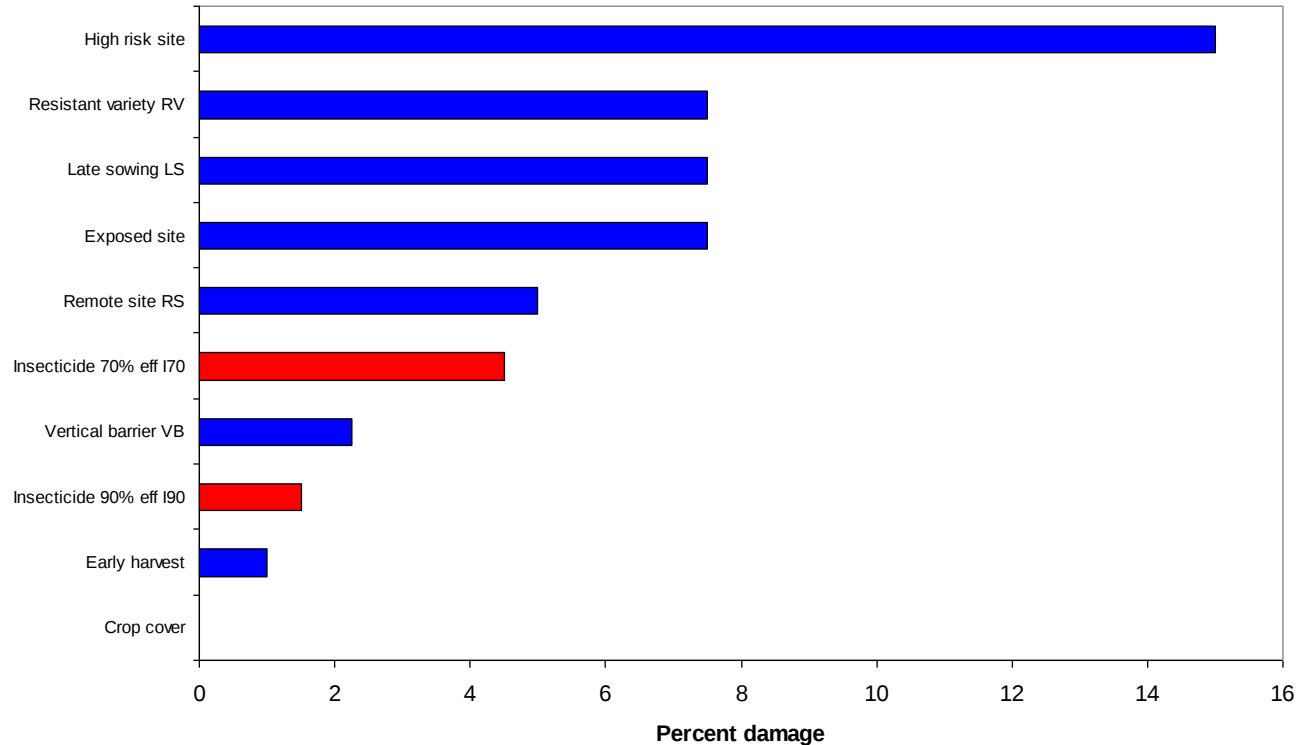


Estimated effects on percent carrots damaged at harvest of various techniques to reduce carrot fly damage – from various studies

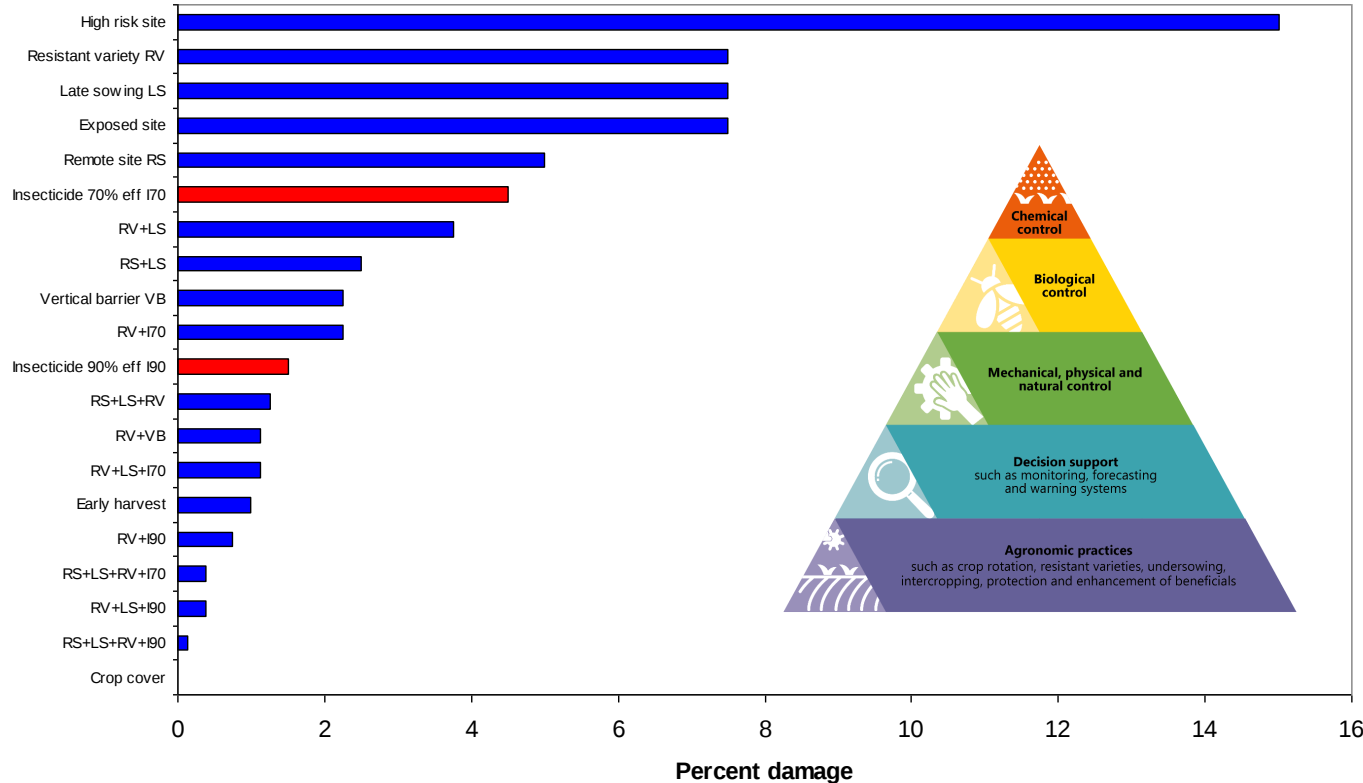
- **High risk site** where susceptible variety of carrots grown for 2 years – 15% damage
- **Exposed site** – approximately 50% less damage
- **Field remote** from sources of carrot fly – 5% damage
- **Late sowing** – depends on timings e.g. 50% less
- **Early harvest** before damage develops - 1% damage
- **Resistant variety** could reduce damage by up to 50% compared with susceptible variety
- **Crop cover** – no damage if used properly



Carrot fly damage following different control strategies



Carrot fly damage following use of different control strategies in combination



Thank you!

- DuPont
- FMC
- AHDB
- Andy Jukes, Marian Elliott and the Horticultural Services Team at Wellesbourne

