In partnership with AHDB HORTICULTURE THE UNIVERSITY OF WARWICK ROTHAMSTED RESEARCH

CATERPILLAR PESTS OF BRASSICA CROPS – 28 May 2020

This year we will be monitoring diamond-back moth, silver Y moth, cabbage moth, large white butterfly and small white butterfly. Some background on these and other caterpillar pests is below.

Diamondback moth

- Information from citizen science web sites is summarized on this web page: https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/plutella/sightings2020/
- Information from commercial crops (pheromone traps sponsored by FMC) is summarized on this web page: https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/plutella/trapping2020
- Pheromone trap captures in Warwickshire will be summarized below.

Silver Y moth

- Information from citizen science web sites is summarized on this web page: https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/silvery/sysightings2020
- Pheromone trap captures in Warwickshire will be summarized below.

Cabbage moth

- Pheromone trap captures in Warwickshire will be summarized below.

Small white and large white butterfly

- Water trap captures in Warwickshire will be summarized below.

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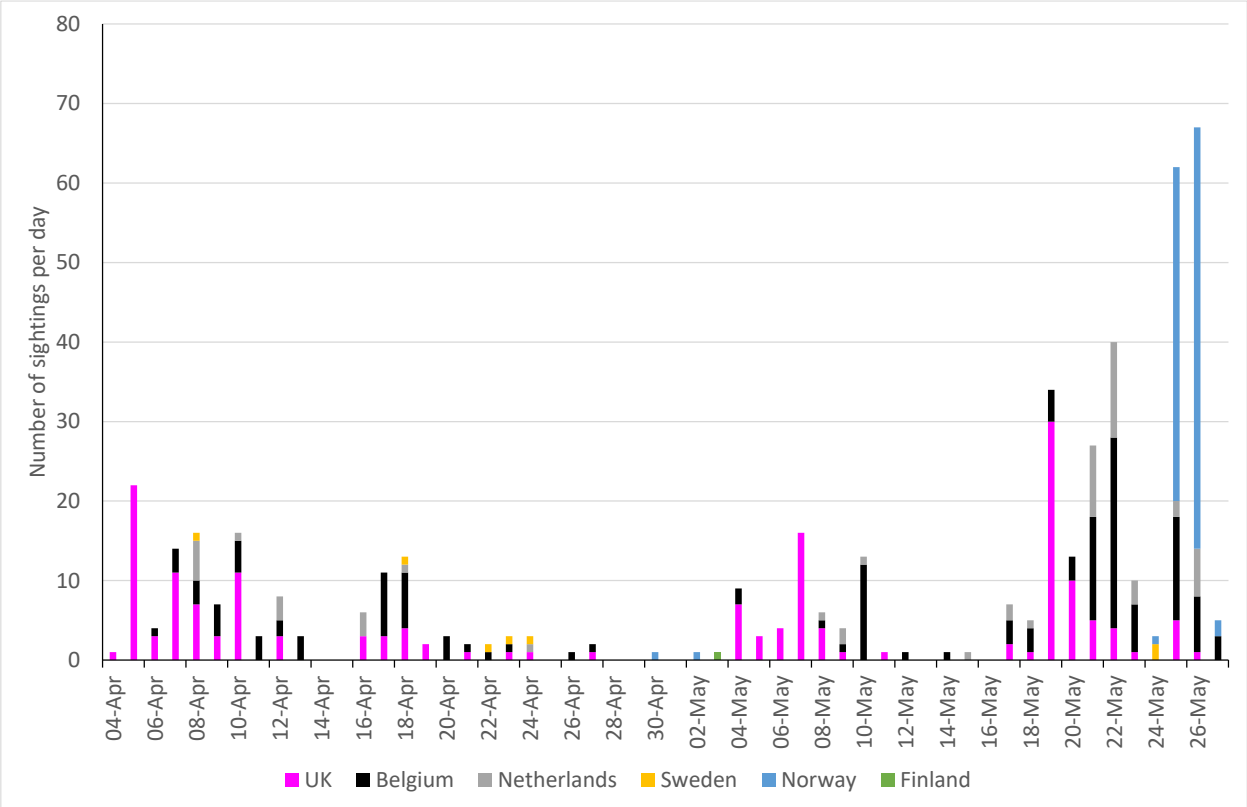
Monitoring information 2020

Diamondback moth

What was probably the first influx of migrant diamondback moths occurred over the weekend 4th-5th April and you can see the citizen science counts here:
https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/plutella/sightings2020/

The graph below shows sightings by citizen scientists so far this year.



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Diamondback moth monitoring in commercial crops 2020

Pheromone traps have been set up in a number of locations. Information from commercial crops (pheromone traps sponsored by FMC) is summarized on this web page: https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/plutella/trapping2020

Below are the findings so far:

Date	Location	Number of moths	Number of traps	Mean number of moths per trap
26 May	Wellesbourne, Warwick	0	2	0
26 May	Cornwall (Gwinear)	0	1	0
26 May	Cornwall (Mithian)	0	1	0
26 May	Cornwall (Coverack)	2	1	2
22 May	Wellesbourne, Warwick (from 19 May)	0	2	0
19 May	Cornwall (Gwinear)	0	1	0
19 May	Cornwall (Mithian)	0	1	0
19 May	Cornwall (Coverack)	1	1	1

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
12 May	Cornwall (Gwinear)	1	1	1
12 May	Cornwall (Mithian)	1	1	1
12 May	Cornwall (Coverack)	5	1	5
7 May	Lancashire	0	4	0
6 May	Cornwall (Coverack)	0	1	0
4 May	Cornwall (Gwinear)	1	1	1
4 May	Cornwall (Mithian)	1	1	1

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
29 April	Cornwall (Coverack) (from 20 April)	3	1	3
28 April	Cornwall (Gwinear) (from 20 April)	1	1	1
27 April	Cornwall (Mithian) (from 20 April)	3	1	3
7 April	Lancashire	4	4	1
20 April	Lancashire	0	3	0
14 April	Lancashire	5	3	1.7

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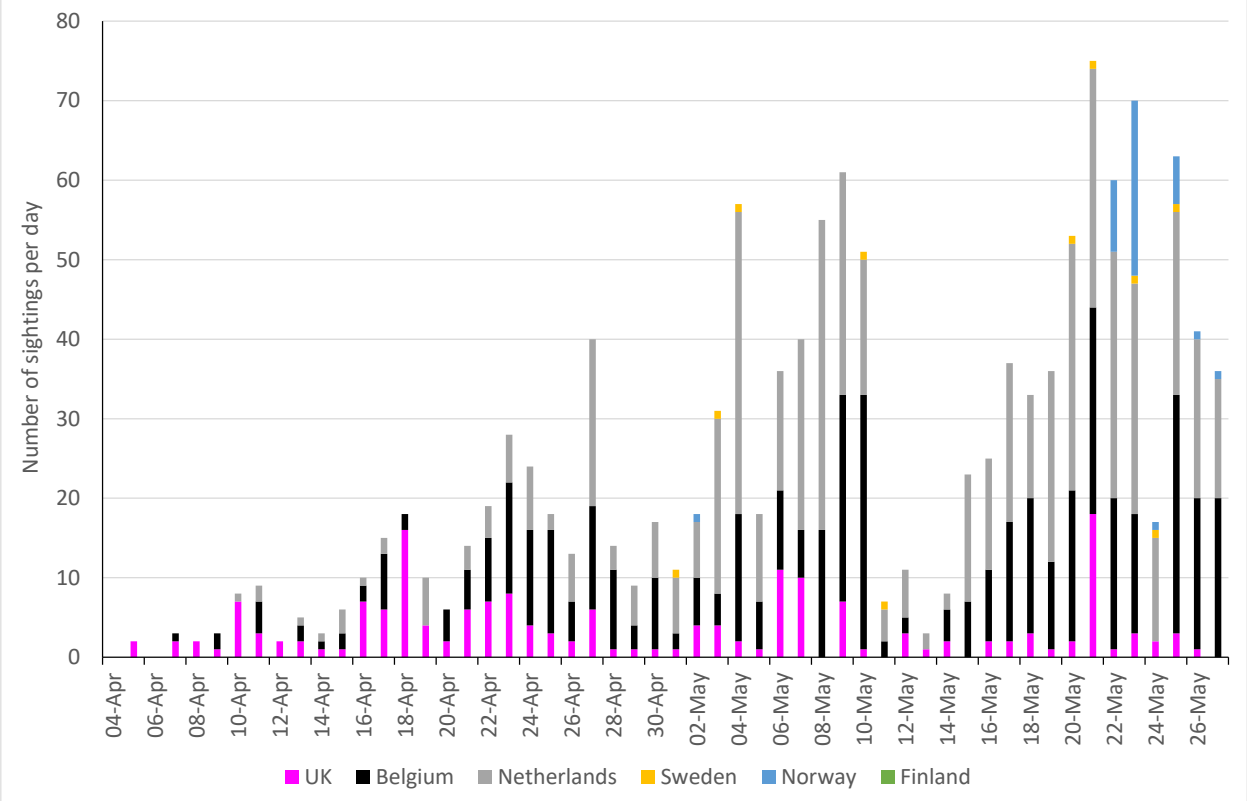
Silver Y moth

A very small number of silver Y moths were seen at the same time as the first diamondback moths and you can see the counts from then on here:
https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/silvery/sysightings2020

The graph below shows sightings by citizen scientists so far this year.



Background

The caterpillars of a number of species of moth and butterfly can be pests of brassica crops:

Species	**Activity periods**	**Importance**
Small white butterfly (*Pieris rapae*)	May/June and late summer – more abundant in late summer	Can be damaging and hard to see on plants
Large white butterfly (*Pieris brassicae*)	May/June and late summer – more abundant in late summer	Can be damaging but usually attacks a small number of plants and damage is generally obvious
Cabbage moth (*Mamestra brassicae*)	May/June and late summer – more abundant in late summer	Localised pest – can be hard to see on plants when young
Garden pebble moth (*Evergestis forficalis*)	May/June and late summer – more abundant in late summer	Localised pest – hard to see on plants
Diamond-back moth (*Plutella xylostella*)	Migrant and can arrive at any time – usually from June onwards	Can be very damaging and hard to see on plants when small
Silver Y moth (*Autographa gamma*)	Migrant and can arrive at any time from early spring	Rarely causes significant damage on brassicas
Turnip moth (cutworm) (*Agrotis segetum*)	Late May-early July, sometimes a second generation in later summer – forecast available	Rarely causes significant damage on brassicas

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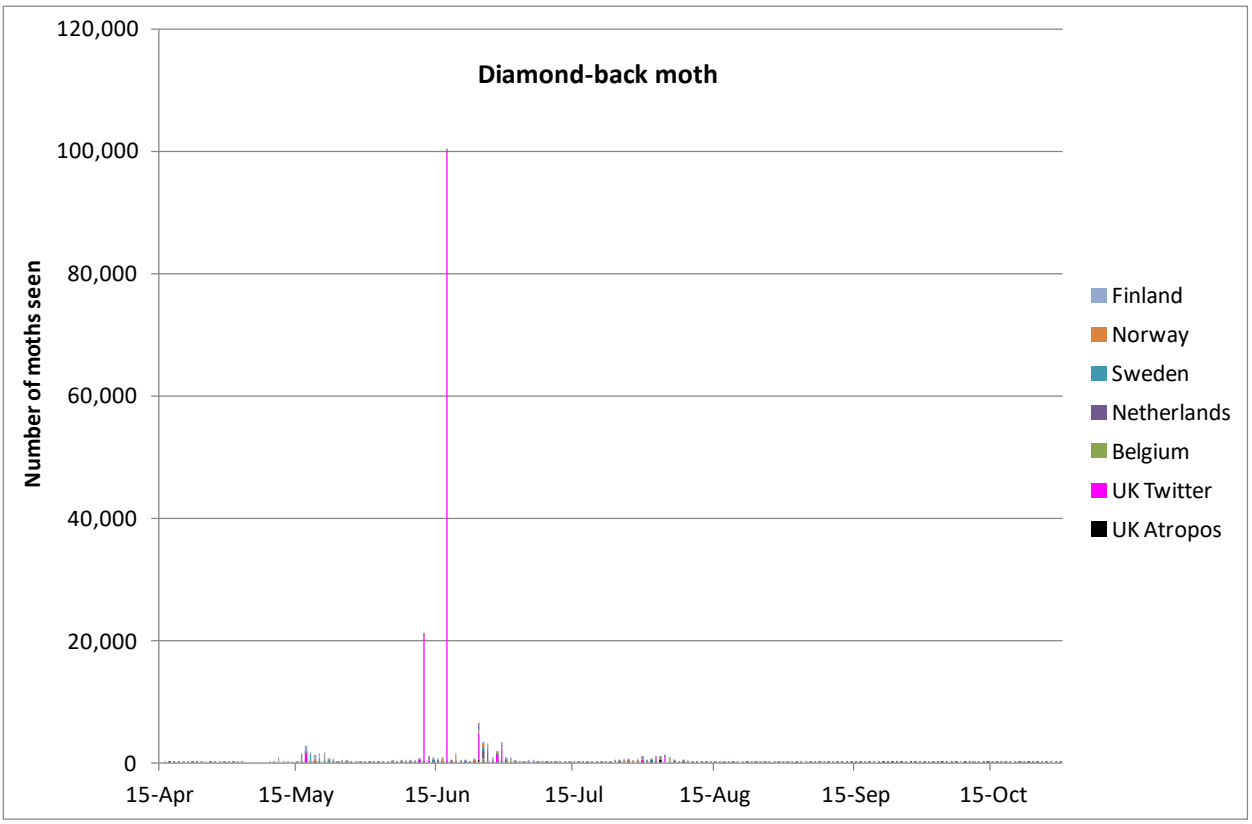
Historical information from 2019

Citizen Science – sightings of diamond-back moth and silver Y moth
https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/plutella/sightings2019/

Sightings of diamond-back moth and silver Y moth reported on websites since mid-April 2019 are summarised below.



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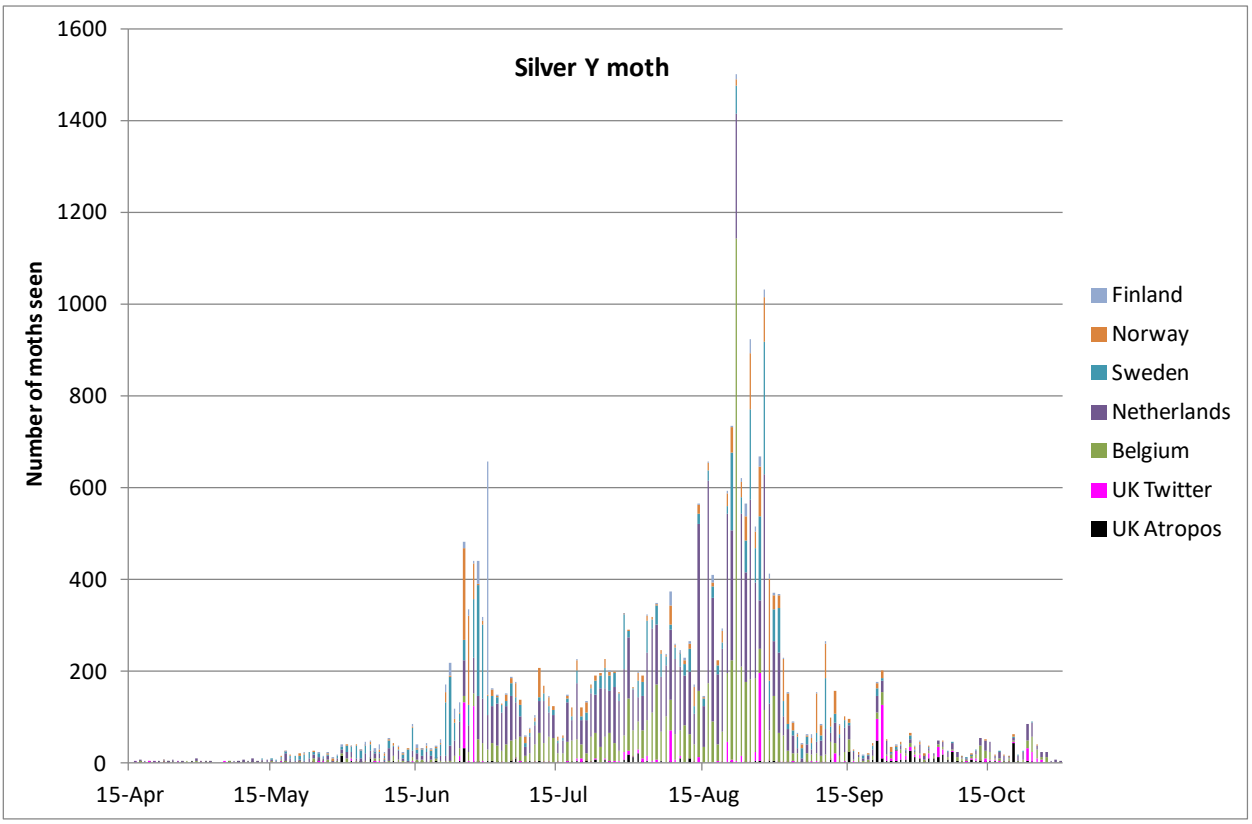

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Numbers of butterflies and moths captured at Wellesbourne in 2019.

Date	Diamond-back moth (2 pheromone traps)	Cabbage moth (2 pheromone traps)	Silver Y moth (2 pheromone traps	Turnip moth (2 pheromone traps)	Small white butterfly (no. water traps)	Large white butterfly (no. water traps)
14 May	0	0	0	4	1 (6)	0 (6)
17 May	1	0	0	1	0 (6)	0 (6)
20 May	0	0	0	0	0 (6)	0 (6)
24 May	2	0	0	0	0 (3)	0 (3)
28 May	0	0	0	9	0 (3)	0 (3)
31 May	0	0	0	5	0 (3)	0 (3)
4 June	0	0	0	2	0 (3)	0 (3)
7 June	1	0	0	0	0 (3)	0 (3)
10 June	2	0	0	2	0 (3)	0 (3)
14 June	15	0	0	0	0 (3)	0 (3)
18 June	8	0	0	1	0 (3)	0 (3)
21 June	6	0	0	1	0 (3)	0 (3)
25 June	4	0	0	1	0 (3)	0 (3)
28 June	3	0	0	3	0 (3)	0 (3)
2 July	11	0	0	1	0 (3)	0 (3)
5 July	2	0	0	2	0 (3)	0 (3)
9 July	1	0	0	8	0 (3)	0 (3)
12 July	1	0	0	1	0 (3)	0 (3)
15 July	3	0	0	1	1 (3)	0 (3)
19 July	0	0	0	0	1 (3)	0 (3)
23 July	2	0	1	1	1 (3)	0 (3)
26 July	2	0	0	0	0 (3)	0 (3)
30 July	0	0	1	1	0 (3)	0 (3)

Numbers of butterflies and moths captured at Wellesbourne in 2019.

Date	Diamond-back moth (2 pheromone traps)	Cabbage moth (2 pheromone traps)	Silver Y moth (2 pheromone traps	Turnip moth (2 pheromone traps)	Small white butterfly (no. water traps)	Large white butterfly (no. water traps)
2 August	4	0	0	3	0(3)	0 (3)
6 August	3	0	2	2	0 (3)	0 (3)
9 August	2	0	3	2	0 (3)	0 (3)
13 August	2	0	7	2	0 (3)	0 (3)
16 August	2	0	1	0	0 (3)	0 (3)
20 August	2	0	0	0	1 (3)	0 (3)
23 August	1	0	0	0	1 (3)	0 (3)
27 August	0	0	0	0	2 (3)	0 (3)
30 August	0	0	0	2	0 (3)	0 (3)
3 September	0	0	0	2	2 (3)	0 (3)
6 September	0	0	0	2	1 (3)	0 (3)
10 September	0	0	1	3	2 (3)	0 (3)
13 September	0	0	2	0	1 (3)	0 (3)
17 September	0	0	0	2	2 (3)	0 (3)
20 September	0	0	0	0	2 (3)	0 (3)
24 September	0	0	0	1	2 (3)	0 (3)
27 September	0	0	0	0	2 (3)	0 (3)
1 October	0	0	1	1	1 (3)	0 (3)
4 October	0	0	1	0	0 (3)	0 (3)
7 October	0	0	0	1	0 (3)	0 (3)
11 October	0	0	0	0	0 (3)	0 (3)
15 October	0	0	1	4	0 (3)	0 (3)
18 October	0	0	1	0	0 (3)	0 (3)
22 October	0	0	3	1	0 (3)	0 (3)
25 October	0	0	0	0	0 (3)	0 (3)
29 0ctober	0	0	1	1	0 (3)	0 (3)

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On-farm monitoring of diamond-back moth by members of the Brassica Growers Association and others using pheromone traps

Date	Location	Number of moths	Number of traps	Mean number of moths per trap
29th October	Wellesbourne	0	2	0
25th October	Lincolnshire	0	4	0
25th October	Wellesbourne	0	2	0
22nd October	Wellesbourne	0	2	0
18th October	Lincolnshire	0	4	0
18th October	Wellesbourne	0	2	0

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
15th October	Wellesbourne	0	2	0
11th October	Lincolnshire	0	4	0
11th October	Wellesbourne	0	2	0
7th October	Wellesbourne	0	2	0
4th October	Lincolnshire	0	4	0
4th October	Wellesbourne	0	2	0
1st October	Wellesbourne	0	2	0
27 September	Lincolnshire	0	4	0
27 September	Wellesbourne	0	2	0
24 September	Wellesbourne	0	2	0
20 September	Wellesbourne	0	2	0
20 September	Lincolnshire	0	4	0
17 September	Wellesbourne	0	2	0

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
16 September	Scotland (Fife and Angus)	1	2	0.5
13 September	Wellesbourne	0	2	0
13 September	Lincolnshire	0	4	0
10 September	Wellesbourne	0	2	0
9 September	Scotland (Fife and Angus)	0	12	0
6 September	Lincolnshire	0	4	0
6 September	Wellesbourne	0	2	0
3rd September	Wellesbourne	0	2	0
2 September	Scotland (Fife and Angus)	10	12	0.8
31st August	Lincolnshire	10	4	2.5
30th August	Wellesbourne	0	2	0

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
27th August	Wellesbourne	0 There was 1 moth on a total of 5 carrot fly traps	2	0
26 August	Scotland (Fife and Angus)	6	12	0.5
23rd August	Wellesbourne	1	2	0.5
20th August	Wellesbourne	2 There were also 2 moths on a total of 5 carrot fly traps	2	1
19 August	Scotland (Fife and Angus)	9	12	0.75
16th August	Lincolnshire	2	4	0.5
16th August	Wellesbourne	2	2	1
13 August	Wellesbourne	2 There were also 3 moths on a total of 5 carrot fly traps	2	1
12 August	Scotland (Fife and Angus)	1	12	<0.1

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
9 August	Lincolnshire	8	4	2
9 August	Wellesbourne	2 There were also 4 moths on a total of 5 carrot fly traps	2	1
6 August	Wellesbourne	3 There were also 2 moths on a total of 5 carrot fly traps	2	1.5
5 August	Scotland (Fife and Angus)	15	12	1.3
2 August	Lincolnshire	2	4	0.5
2 August	Wellesbourne	4 There were also 2 moths on a total of 5 carrot fly traps	2	2
30 July	Wellesbourne	0 There were also 3 moths on a total of 5 carrot fly traps	2	0
29 July	Scotland (Fife and Angus)	70	12	5.8

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On-farm monitoring of diamond-back moth by members of the Brassica Growers Association and others using pheromone traps

Date	Location	Number of moths	Number of traps	Mean number of moths per trap
26 July	Lincolnshire	2	4	0.5
26 July	Wellesbourne	2 There were also 4 moths on a total of 5 carrot fly traps	2	1
23 July	Wellesbourne	2 There were also 5 moths on a total of 5 carrot fly traps	2	1
22 July	Scotland (Fife and Angus)	24	12	2
19 July	Lincolnshire	Spalding 2 Old Leake 3	4 (2 per site)	1.25
19 July	Wellesbourne	0 There were also 8 moths on a total of 5 carrot fly traps	2	0

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On-farm monitoring of diamond-back moth by members of the Brassica Growers Association and others using pheromone traps

Date	Location	Number of moths	Number of traps	Mean number of moths per trap
15 July	Scotland (Fife and Angus)	11	12	0.9
15 July	Wellesbourne	3 There were also 7 moths on a total of 5 carrot fly traps	2	1.5
12 July	Lincolnshire	Spalding 5 Old Leake 49	4 (2 per site)	13.5
12 July	Wellesbourne	1 There were also 11 moths on a total of 5 carrot fly traps	2	0.5

More on next page…

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
10 July	Lancashire	71 Caterpillars in crops	5	14.2
9 July	Wellesbourne	1 There were also 14 moths on a total of 5 carrot fly traps	2	0.5
8 July	Scotland (Fife and Angus)	25	12	2.1
5 July	Lincolnshire	Spalding 6 Kirton 10 Old Leake 47	6 (2 per site)	10.5
5 July	Wellesbourne	2 There were also 7 moths on a total of 5 carrot fly traps	2	1
4 July	Somerset and Devon	29 on one trap over 8 days. Moths seen in most brassica fields		

More on next page….

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
2 July	Wellesbourne	11 There were also 11 moths on a total of 5 carrot fly traps	2	5.5
1 July	Scotland (Fife and Angus)	46	12	3.8
28 June	Wellesbourne	3 There were also 4 moths on a total of 5 carrot fly traps	2	1.5

More on next page….

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
25 June	Lancashire	70	6	11.7
25 June	Lincolnshire	15 Larvae in crop at Spalding (5 seen)	1	15
25 June	Wellesbourne	4 There were also 4 moths in total on 5 carrot fly traps	2	2
24 June	Scotland (Fife and Angus)	64	12	5.3
24 June	Lincolnshire	Old Leake - 30 (17-24 June)	2	15
21 June	Wellesbourne	6 There were also 12 moths in total on 5 carrot fly traps	2	3
18 June	Lancashire	58	5	11.6

More on next page….

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On-farm monitoring of diamond-back moth by members of the Brassica Growers Association and others using pheromone traps

Date	Location	Number of moths	Number of traps	Mean number of moths per trap
18 June	Wellesbourne	8 There were also 2 moths in total on 3 carrot fly traps	2	4
17 June	Scotland (Fife and Angus)	29	12	2.4
14 June	Wellesbourne	15 There were also 29 moths in total on 3 carrot fly traps	2	7.5
12 June	Lincolnshire	2 (Kirton), 2 (Spalding) Larvae in crop at Spalding (14 seen), moths in crop at Old Leake.	4	1

More on next page….

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
11 June	Lancashire	27	6	4.5
11 June	Wellesbourne	2	2	1
10 June	Scotland (Fife and Angus)	55	12	4.6
7 June	Somerset and Devon	9 (on 1 trap over 2 weeks)	4	2.25
7 June	Wellesbourne	1	2	0.5
4 June	Lancashire	27 (16 at one site) and moths in crops	6	4.5
4 June	Wellesbourne	0	2	0
3 June	Scotland (Fife and Angus)	88	12	7.3
31 May	Wellesbourne	0	2	0
27 May	Scotland (Fife and Angus)	134	12	11.2

More on next page….

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Date	Location	Number of moths	Number of traps	Mean number of moths per trap
27-May	Wellesbourne	0	2	0
24-May	Wellesbourne	2	2	1
23-May	Lincolnshire	Moths seen in crops since 17th May		
21-May	Lancashire	11	6	1.8
21-May	Wellesbourne	0	2	0
20-May	Scotland (Fife and Angus)	19	12	1.6
20-May	Scotland	Moths seen in crops		
17-May	Wellesbourne	1	2	0.5
14-May	Wellesbourne	0	2	0
14-May	Lancashire	14	6	2.3
14-May	Cornwall	1	2	0.5
13-May	Scotland (Fife)	0	4	0
10-May	Wellesbourne	0	2	0
07-May	Lancashire	15	6	2.5
07-May	Wellesbourne	0	2	0
03-May	Wellesbourne	0	2	0
30-Apr	Lancashire	1	2	0.5
30-Apr	Wellesbourne	0	2	0