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### **CATERPILLAR PESTS OF BRASSICA CROPS – 10th September 2019**

#### Diamond-back moth

Very few diamond-back moths have been seen recently by ‘citizen scientists’ in the UK <https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/plutella/sightings2019/> or captured in pheromone traps in crops <https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/plutella/trapping2019/>.

Growers should continue to keep a close eye on crops, bearing in mind that the caterpillars are likely to be resistant to pyrethroid insecticides.

More information about diamond-back moths is available on the [AHDB web site](https://horticulture.ahdb.org.uk/diamondback-moth) <https://horticulture.ahdb.org.uk/diamondback-moth>.

#### Silver Y moth

Similarly, few silver Y moths have been seen recently by citizen scientists in the UK <https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/plutella/sightings2019/>. Moth captures in pheromone traps in brassica crops are recorded here <https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/silvery/pheromonetraps/>.



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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 |
|---------------------------|--------------|-----------------|-----------------|-------------------------------|
| 10 September              | Wellesbourne | 0               | 2               | 0                             |
| 6 September               | Lincolnshire | 0               | 4               | 0                             |
| 6 September               | Wellesbourne | 0               | 2               | 0                             |
| 3 <sup>rd</sup> September | Wellesbourne | 0               | 2               | 0                             |
| 31 <sup>st</sup> August   | Lincolnshire | 10              | 4               | 2.5                           |
| 30 <sup>th</sup> August   | Wellesbourne | 0               | 2               | 0                             |

**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 |
|----------------------------|--------------|---|-----------------|-------------------------------|
| 27 <sup>th</sup><br>August | Wellesbourne | 0<br>There was 1 moth on a total of 5 carrot fly traps        | 2               | 0                             |
| 23 <sup>rd</sup><br>August | Wellesbourne | 1   | 2               | 0.5                           |
| 20 <sup>th</sup><br>August | Wellesbourne | 2<br>There were also 2 moths on a total of 5 carrot fly traps | 2               | 1                             |
| 16 <sup>th</sup><br>August | Lincolnshire | 2   | 4               | 0.5                           |
| 16 <sup>th</sup><br>August | Wellesbourne | 2   | 2               | 1                             |
| 13 August                  | Wellesbourne | 2<br>There were also 3 moths on a total of 5 carrot fly traps | 2               | 1                             |
| 9 August                   | Lincolnshire | 8   | 4               | 2                             |
| 9 August                   | Wellesbourne | 2<br>There were also 4 moths on a total of 5 carrot fly traps | 2               | 1                             |

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| Date     | Location                  | Number of moths   | Number of traps | Mean number of moths per trap |
|----------|---------------------------|---|-----------------|-------------------------------|
| 6 August | Wellesbourne              | 3<br>There were also 2 moths on a total of 5 carrot fly traps | 2               | 1.5                           |
| 2 August | Lincolnshire              | 2   | 4               | 0.5                           |
| 2 August | Wellesbourne              | 4<br>There were also 2 moths on a total of 5 carrot fly traps | 2               | 2                             |
| 30 July  | Wellesbourne              | 0<br>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                           |
| 26 July  | Lincolnshire              | 2   | 4               | 0.5                           |
| 26 July  | Wellesbourne              | 2<br>There were also 4 moths on a total of 5 carrot fly traps | 2               | 1                             |



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| Date    | Location                  | Number of moths   | Number of traps | Mean number of moths per trap |
|---------|---------------------------|---|-----------------|-------------------------------|
| 23 July | Wellesbourne              | 2<br>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<br>Old Leake 3                                     | 4 (2 per site)  | 1.25                          |
| 19 July | Wellesbourne              | 0<br>There were also 8 moths on a total of 5 carrot fly traps | 2               | 0                             |

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 |
|---------|---------------------------|--|-----------------|-------------------------------|
| 15 July | Scotland (Fife and Angus) | 11   | 12              | 0.9                           |
| 15 July | Wellesbourne              | 3<br>There were also 7 moths on a total of 5 carrot fly traps  | 2               | 1.5                           |
| 12 July | Lincolnshire              | Spalding 5<br>Old Leake 49                                     | 4 (2 per site)  | 13.5                          |
| 12 July | Wellesbourne              | 1<br>There were also 11 moths on a total of 5 carrot fly traps | 2               | 0.5                           |

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 |
|---------|---------------------------|---|-----------------|-------------------------------|
| 10 July | Lancashire                | 71<br>Caterpillars in crops                                       | 5               | 14.2                          |
| 9 July  | Wellesbourne              | 1<br>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<br>Kirton 10<br>Old Leake 47                           | 6 (2 per site)  | 10.5                          |
| 5 July  | Wellesbourne              | 2<br>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.<br>Moths seen in most brassica fields |                 |                               |

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 |
|---------|---------------------------|---|-----------------|-------------------------------|
| 2 July  | Wellesbourne              | 11<br>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<br>There were also 4 moths on a total of 5 carrot fly traps   | 2               | 1.5                           |

More on next page....



**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 |
|---------|---------------------------|--|-----------------|-------------------------------|
| 25 June | Lancashire                | 70   | 6               | 11.7                          |
| 25 June | Lincolnshire              | 15<br>Larvae in crop at Spalding (5 seen)                    | 1               | 15                            |
| 25 June | Wellesbourne              | 4<br>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<br>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<br>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<br>There were also 29 moths in total on 3 carrot fly traps                                 | 2               | 7.5                           |
| 12 June | Lincolnshire              | 2 (Kirton), 2 (Spalding)<br>Larvae in crop at Spalding (14 seen), moths in crop at Old Leake. | 4               | 1                             |

More on next page....

**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 |
|---------|---------------------------|--|-----------------|-------------------------------|
| 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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**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 |
|--------|---------------------------|------------------------------------|-----------------|-------------------------------|
| 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                             |



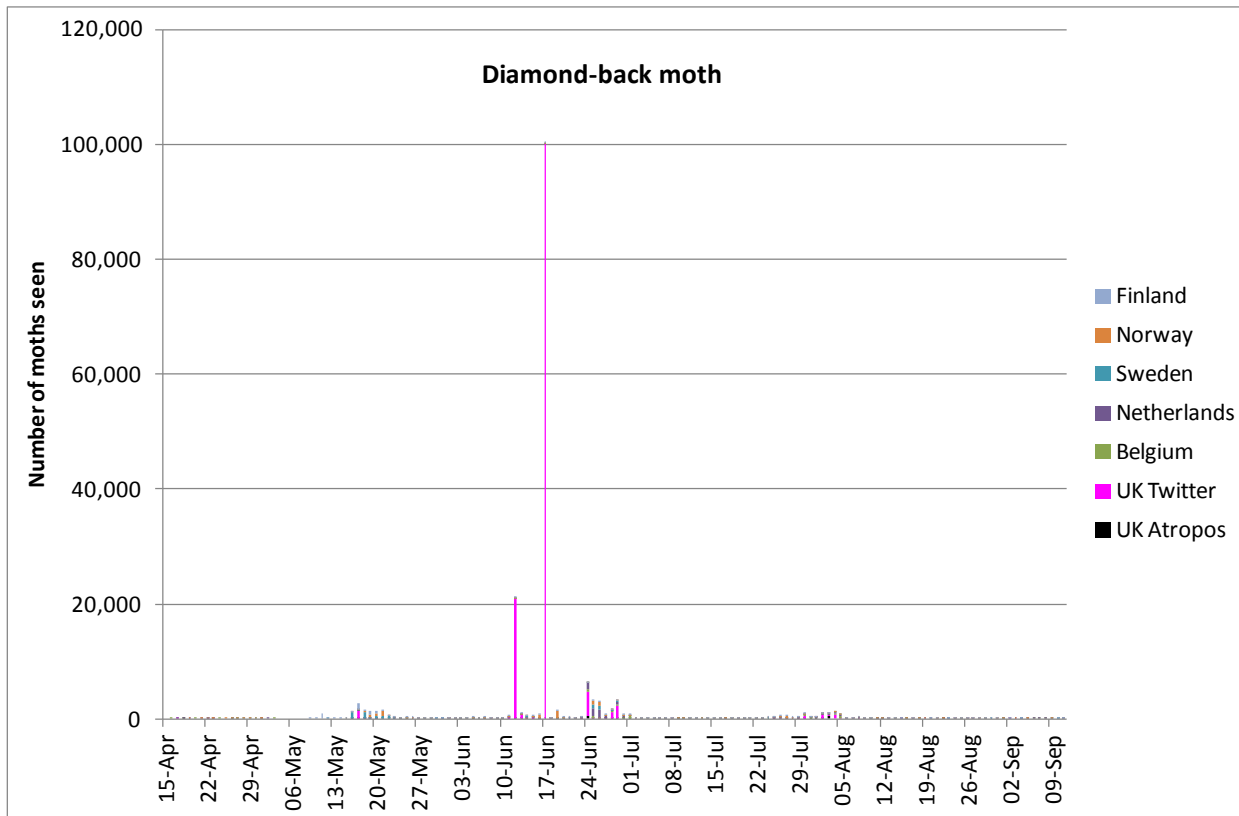
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### Citizen Science – sightings of diamond-back moth and silver Y moth

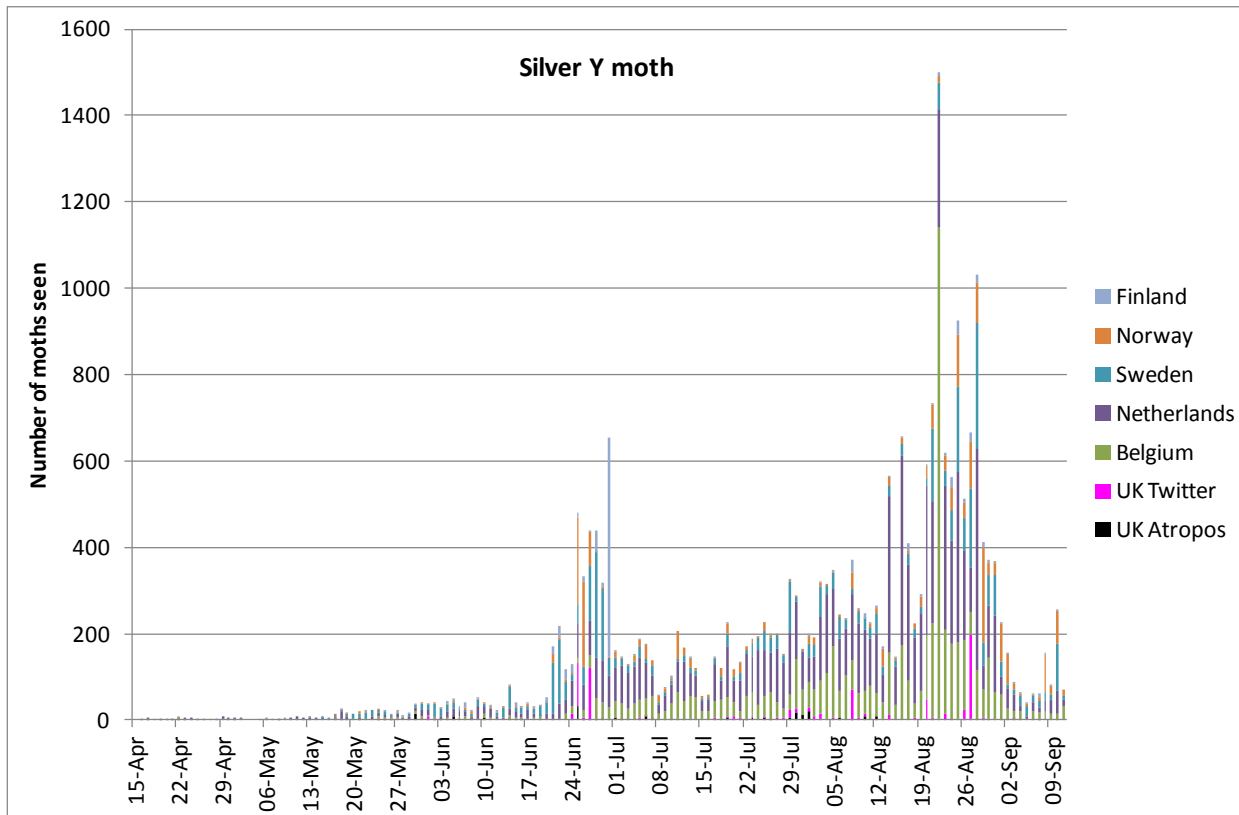
<https://warwick.ac.uk/fac/sci/lifesci/wcc/research/pests/plutella/sightings2019/>

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





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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)                                   |



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Numbers of butterflies and moths captured at Wellesbourne in 2019.

| Date         | Diamond-back moth<br>(2 pheromone traps) | Cabbage moth<br>(2 pheromone traps) | Silver Y moth<br>(2 pheromone traps) | Turnip moth<br>(2 pheromone traps) | Small white butterfly<br>(no. water traps) | Large white butterfly<br>(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)                                      |



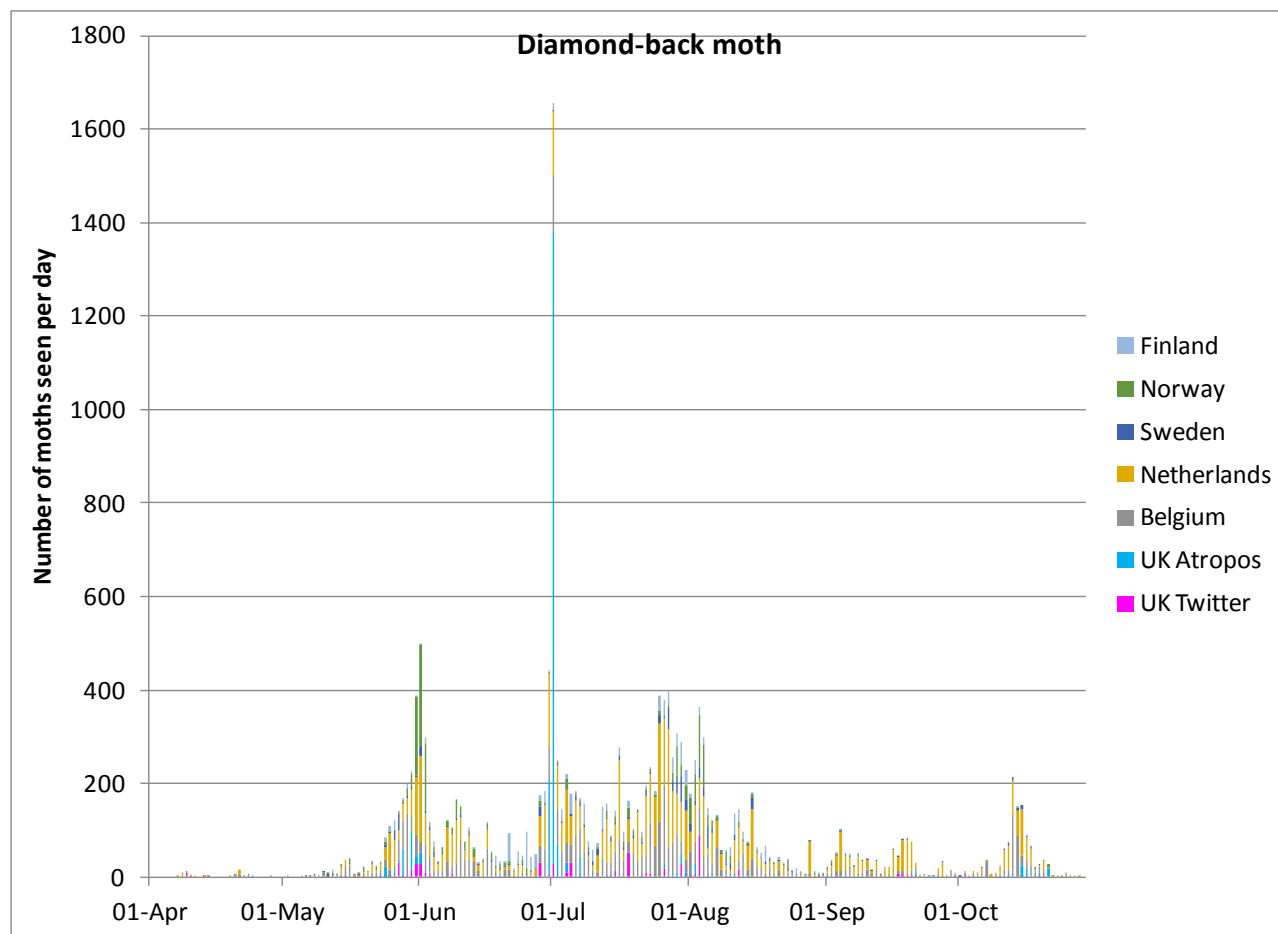


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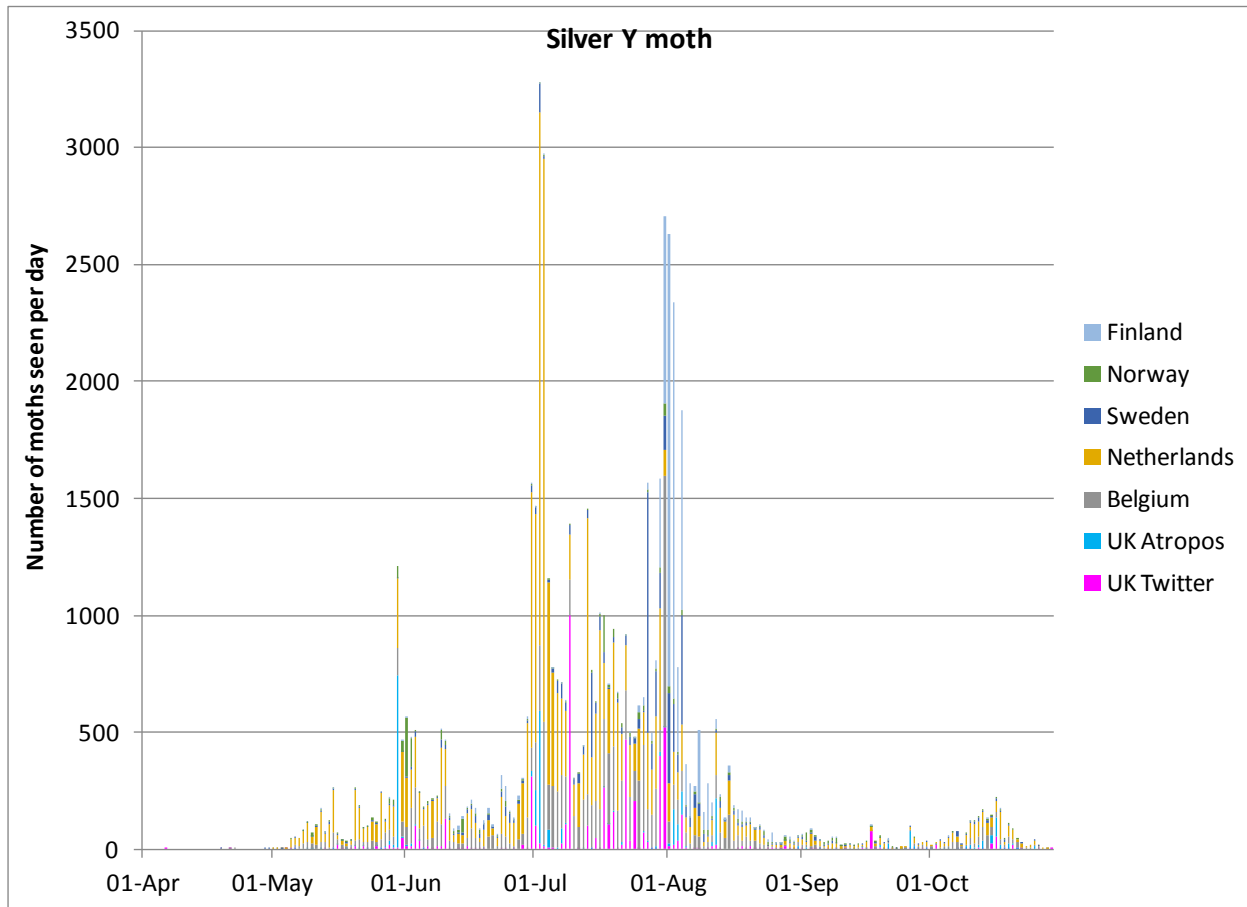
**2018**

Sightings of diamond-back moth and silver Y moth reported on websites in 2018 are summarised below.





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**Moth and butterfly captures at Wellesbourne 2018**

| Date         | Diamond-back moth (2 traps) | Silver Y moth (2 traps) | Cabbage moth (2 traps) | Small white butterfly (3 traps) | Large white butterfly (3 traps) |
|--------------|-----------------------------|-------------------------|------------------------|---------------------------------|---------------------------------|
| 3 July       | 9                           | 0                       | 0                      | 0                               | 0                               |
| 6 July       | 6                           | 1                       | 0                      | 3                               | 0                               |
| 10 July      | 11                          | 2                       | 0                      | 0                               | 1                               |
| 13 July      | 6                           | 5                       | 0                      | 0                               | 0                               |
| 17 July      | 7                           | 15                      | 0                      | 0                               | 0                               |
| 19 July      | 3                           | 4                       | 0                      | 0                               | 0                               |
| 24 July      | 0                           | 5                       | 0                      | 0                               | 0                               |
| 27 July      | 0                           | 4                       | 0                      | 0                               | 1                               |
| 31 July      | 3                           | 2                       | 0                      | 0                               | 0                               |
| 3 August     | 1                           | 0                       | 0                      | 0                               | 0                               |
| 7 August     | 2                           | 0                       | 0                      | 0                               | 0                               |
| 10 August    | 0                           | 0                       | 0                      | 1                               | 0                               |
| 14 August    | 1                           | 0                       | 0                      | 0                               | 0                               |
| 17 August    | 1                           | 2                       | 0                      | 0                               | 0                               |
| 21 August    | 0                           | 0                       | 0                      | 1                               | 0                               |
| 24 August    | 0                           | 0                       | 0                      | 2                               | 0                               |
| 28 August    | 0                           | 1                       | 0                      | 1                               | 0                               |
| 31 August    | 0                           | 0                       | 0                      | 1                               | 0                               |
| 4 September  | 0                           | 2                       | 0                      | 0                               | 0                               |
| 7 September  | 0                           | 0                       | 0                      | 0                               | 0                               |
| 11 September | 0                           | 4                       | 0                      | 0                               | 0                               |
| 14 September | 0                           | 1                       | 0                      | 0                               | 0                               |
| 18 September | 0                           | 0                       | 0                      | 0                               | 0                               |
| 21 September | 0                           | 0                       | 0                      | 0                               | 0                               |
| 25 September | 0                           | 0                       | 0                      | 0                               | 0                               |
| 28 September | 0                           | 0                       | 0                      | 0                               | 0                               |
| 2 October    | 0                           | 0                       | 0                      | 0                               | 0                               |
| 9 October    | 0                           | 0                       | 0                      | 0                               | 0                               |
| 16 October   | 0                           | 1                       | 0                      | 0                               | 0                               |
| 23 October   | 0                           | 2                       | 0                      | 0                               | 0                               |
| 30 October   | 0                           | 0                       | 0                      | 0                               | 0                               |

## 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<br>( <i>Pieris rapae</i> )       | May/June and late summer – more abundant in late summer                                 | Can be damaging and hard to see on plants  |
| Large white butterfly<br>( <i>Pieris brassicae</i> )   | 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<br>( <i>Mamestra brassicae</i> )          | May/June and late summer – more abundant in late summer                                 | Localised pest – can be hard to see on plants when young                                     |
| Garden pebble moth<br>( <i>Evergestis forficalis</i> ) | May/June and late summer – more abundant in late summer                                 | Localised pest – hard to see on plants   |
| Diamond-back moth<br>( <i>Plutella xylostella</i> )    | 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<br>( <i>Autographa gamma</i> )           | Migrant and can arrive at any time from early spring                                    | Rarely causes significant damage on brassicas  |
| Turnip moth<br>(cutworm) ( <i>Agrotis segetum</i> )    | Late May-early July, sometimes a second generation in later summer – forecast available | Rarely causes significant damage on brassicas  |