

7th March
2014

Aphid News



POTATO, SUGAR BEET AND BRASSICA APHID FORECASTS 2014

The long run of aphid data from our suction-trap network, combined with the long run of weather data available from the Met Office and others, makes it possible to establish relationships between weather and the timing of the start of aphid flights and aphid abundance in spring and early summer. The best predictor is the mean temperature in January and February, and confidence is greatest for those aphid species which pass the winter in the active stages rather than as eggs, including Peach-potato aphid (*Myzus persicae*) and Potato aphid (*Macrosiphum euphorbiae*). This is because active stages are susceptible to low winter temperatures but can take advantage of warm conditions, whereas eggs are very cold hardy and in diapause, so don't respond to warm conditions in mid-winter. Although Cabbage aphid (*Brevicoryne brassicae*) overwinters mainly in the active stages it flies later and is more difficult to predict.

The temperature in January and February was considerably higher than the long-term average throughout the Country, by 1 to 1.5°C in the north and around 2°C in the south, leading to expected first aphid flights of two to four weeks earlier than average.

	Monthly mean temp °C		Mean temp Jan-Feb °C
	Jan	Feb	
Dundee	4.59	5.09	4.84
Gogarbank	5.24	5.58	5.41
Ayr	Met data not yet available		
Newcastle	5.01	5.82	5.41
Preston	5.60	5.85	5.73
Kirton II	5.52	6.02	5.77
Broom's Barn	5.74	6.50	6.12
Hereford	5.50	6.60	6.05
Rothamsted	5.70	6.11	5.91
Writtle	6.03	7.07	6.55
Silwood	5.46	6.05	5.75
Wye	6.73	6.93	6.83
Starcross	6.75	6.96	6.85

The tables give the following information:

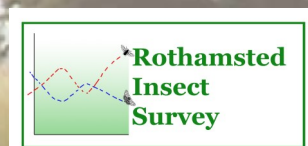
For *Myzus persicae*, *Macrosiphum euphorbiae* and *Brevicoryne brassicae*, the predicted date of first capture at the listed sites, together with the position of this year's prediction out of all years of trap operation (e.g. 8/50 = 8th earliest out of 50 years. Yes, the Rothamsted Insect Survey is 50 years old this year!);

For *Myzus persicae* and *Macrosiphum euphorbiae*, the predicted numbers caught by 17th June and for *Brevicoryne brassicae* by 7th October, together with the position of this year's prediction out of all years of trap operation (e.g. 7/50 = 7th largest number out of 50 years).

A major feature of the winter was high rainfall. Based on years to date the influence of rainfall on the timing and size of the migrations is statistically insignificant compared to temperature. This winter, however, rainfall has broken all records and so we are in uncharted territory. By no means all the variability in the aphid data is captured by winter temperature and the actual dates should be seen as very approximate.

The general message is that, if spring does not throw any wildly abnormal conditions at us, aphids will be flying considerably earlier than normal.

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Peach—potato aphid (*Myzus persicae*)

	<u>1st Capture in suction-trap</u>			<u>Numbers to 17th June</u>		
	Predicted	75% Confidence limits	Ranking	Predicted	75% Confidence limits	Ranking
Dundee	1 June	(6 May - 27 June)	14/47	3	(0 - 9)	=7/47
Gogarbank	27 May	(3 May - 19 June)	13/46	4	(1 - 14)	=8/46
Ayr						
Newcastle	31 May	(3 May - 27 June)	=14/45	4	(1 - 15)	=10/46
Preston	20 May	(16 April - 23 June)	22/39	4	(1 - 15)	=18/39
Kirton	27 April	(11 April - 14 May)	7/35	34	(7 - 146)	10/35
Broom's Barn	18 April	(31 March - 5 May)	7/50	131	(31 - 552)	9/50
Hereford	1 May	(10 April - 21 May)	7/43	34	(10 - 115)	10/43
Rothamsted	15 April	(30 March - 1 May)	=8/50	87	(27 - 278)	7/50
Writtle	4 April	(8 March - 1 May)	7/40	301	(72 - 1253)	5/40
Silwood Park	28 April	(7 April - 18 May)	8/35	32	(8 - 118)	10/34
Wye	10 April	(6 March - 15 May)	7/47	140	(42 - 458)	7/46
Starcross	7 April	(5 March - 10 May)	=7/45	27	(9 - 77)	7/43

Potato aphid (*Macrosiphum euphorbiae*)

	<u>1st Capture in suction-trap</u>			<u>Numbers to 17th June</u>		
	Predicted	75% Confidence limits	Ranking	Predicted	75% Confidence limits	Ranking
Dundee	17 May	(22 April - 11 June)	=13/47	8	(2 - 28)	15/47
Gogarbank	8 May	(15 April - 30 May)	=10/46	26	(7 - 93)	=12/46
Ayr						
Newcastle	22 May	(2 May - 10 June)	10/46	7	(1 - 25)	=15/46
Preston	22 May	(6 May - 7 June)	=21/39	8	(3 - 19)	=22/39
Kirton	24 April	(4 April - 14 May)	7/35	32	(9 - 109)	7/35
Broom's Barn	27 April	(7 April - 17 May)	8/50	22	(7 - 62)	8/50
Hereford	27 April	(10 April - 14 May)	6/43	28	(8 - 90)	12/43
Rothamsted	29 April	(8 April - 20 May)	10/50	29	(9 - 88)	9/50
Writtle	8 April	(15 March - 1 May)	=8/40	63	(20 - 189)	7/40
Silwood Park	22 April	(5 April - 9 May)	=8/35	36	(11 - 112)	11/34
Wye	27 April	(5 April - 19 May)	=7/46	25	(7 - 82)	12/46
Starcross	16 April	(24 March - 10 May)	10/44	39	(15 - 100)	7/43

Cabbage aphid (*Brevicoryne brassicae*)

	<u>1st Capture in suction-trap</u>			<u>Numbers to 7th October</u>		
	Predicted	75% Confidence limits	Ranking	Predicted	75% Confidence limits	Ranking

Dundee	7 July	(25 May - 19 August)	=14/46	26	(4 - 158)	14/46
Gogarbank	17 June	(4 May - 31 July)	8/44	18	(4 - 72)	=8/43
Ayr						
Newcastle	24 June	(25 May - 24 July)	9/44	14	(3 - 57)	=10/44
Preston	2 July	(26 May - 8 August)	20/39	12	(2 - 46)	=21/39
Kirton	4 May	(29 March - 8 June)	4/35	333	(63 - 1742)	8/35
Broom's Barn	10 May	(23 April - 28 May)	8/50	448	(85 - 2342)	10/50
Hereford	12 May	(20 April - 3 June)	7/43	496	(105 - 2336)	9/41
Rothamsted	4 May	(9 April - 30 May)	4/50	329	(60 - 1775)	9/50
Writtle	21 April	(1 April - 11 May)	=4/40	1521	(275 - 8386)	8/39
Silwood Park	18 May	(21 April - 14 June)	=10/33	141	(24 - 802)	10/32
Wye	27 April	(26 March - 29 May)	=2/45	319	(50 - 2001)	11/43
Starcross	21 April	(24 March - 19 May)	6/43	243	(81 - 723)	11/40

More aphid information available at <http://www.rothamsted.ac.uk/insect-survey/>
 Please feed back any information on aphids in crops.
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