

Project Title: Dissemination and exploitation of aphid monitoring data

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The results and conclusions in this report are based on an investigation conducted over one year. The conditions under which the work was carried out have been reported with detail and accuracy. However, because of the biological nature of the work it must be borne in mind that different circumstances and conditions could produce different results. Therefore, care must be taken with interpretation of the results especially if they are used as the basis for commercial product recommendations.

## **CONTENTS**

|   |           |
|---|-----------|
| <b>PRACTICAL SECTION FOR GROWERS</b>                | <b>1</b>  |
| <b>Commercial benefits of the project</b>           | <b>1</b>  |
| <b>Background and objectives</b>                    | <b>1</b>  |
| <b>Summary of results and conclusions</b>           | <b>1</b>  |
| <b>Action points for growers</b>                    | <b>2</b>  |
| <b>Anticipated practical and financial benefits</b> | <b>3</b>  |
| <b>SCIENCE SECTION</b>                              | <b>4</b>  |
| <b>Introduction</b>                                 | <b>4</b>  |
| <b>Materials and Methods</b>                        | <b>5</b>  |
| <b>Results and Discussion</b>                       | <b>9</b>  |
| <b>Conclusions</b>                                  | <b>13</b> |
| <b>TECHNOLOGY TRANSFER</b>                          | <b>14</b> |
| <b>REFERENCES</b>                                   | <b>15</b> |
| <b>APPENDIX 1</b>                                   | <b>16</b> |

## **PRACTICAL SECTION FOR GROWERS**

### **Commercial benefits of the project**

The project provides information to help avoid unnecessary crop monitoring and spraying for aphids on a wide range of horticultural crops, thus giving the opportunity to reduce expenditure on these activities.

### **Background and objectives**

Aphids can cause problems in every horticultural crop. Financial losses may be due to cosmetic damage or to yield loss resulting from removal of phloem sap or from viruses transmitted by the aphids. Some key aphid species of horticultural significance have clones which are resistant to a range of insecticides. Use of insecticides hastens the development of resistance and there is thus the need to reduce use to the minimum necessary. Such a strategy has many components, one of which is monitoring and forecasting which can help to optimise spray timings. Crop monitoring is time consuming, and can be guided by regional monitoring which does not involve growers.

The Rothamsted Insect Survey co-ordinates a network of 15 suction traps in the UK for monitoring aphids. The long term and spatially extensive natures of the data facilitate forecasting of timing of migrations and abundance of a range of economically important species. Forecasts are driven mainly by temperature.

The objective of this project is to provide forecasts and up to date information on aphid species of importance in horticulture in a format that facilitates their use by growers.

### **Summary of results and conclusions**

Aphids of horticultural importance were identified from daily samples from 15 suction traps distributed throughout the UK during the 2001 growing season. The data from the 12 English traps were interpreted in terms of how the timing of migrations and numbers of aphids caught compared to the year 2000 and to a ten year mean (1991-2000). Weekly news sheets were issued by email from mid April until mid August detailing this information on a regional

basis for the aphid species of interest, namely the peach-potato aphid (*Myzus persicae*), the potato aphid (*Macrosiphum euphorbiae*), the cabbage aphid (*Brevicoryne brassicae*), the currant-lettuce aphid (*Nasonovia ribisnigri*), the willow-carrot aphid (*Cavariella aegopodii*), the black bean aphid (*Aphis fabae*) and the pea aphid (*Acyrtosiphon pisum*). Feedback from growers on the situation in crops was reported, but more such feedback would be desirable.

In general, aphid numbers were relatively low during 2001 and there was no need for 'news flashes' between the weekly bulletins.

The raw data for 21 aphid species (including several that are pests of non horticultural crops) were also made available via the internet ([www.iacr.bbsrc.ac.uk/insect-survey](http://www.iacr.bbsrc.ac.uk/insect-survey)), and in future years it will be possible for individuals to tailor bulletins to include only the regions and aphid species of interest to them. It will also be possible to include the news sheets with interpreted information on the internet pages if this is considered desirable. General information on the relevant aphid species will also be available on the internet pages during 2002 and thereafter.

Forecasts were provided in early March for the timing and size of spring migrations in 2002 of peach potato aphid, potato aphid and cabbage aphid. The generally mild winter throughout the Country has led to most forecasts being for aphid timings and numbers in the first quarter of the range of current experience, ie generally early, and large numbers in the early part of the season. This does not necessarily mean that peak numbers will be high. Indeed, there is evidence that, if large numbers of aphids occur early in the season, peaks may be suppressed due to the action of natural enemies. An exceptionally cold spring could hold aphids back but the potential exists for an early and large migration of the three species. Forecasts for the willow-carrot aphid and currant-lettuce aphid are under development.

#### **iv) Action points for growers**

Be prepared for a relatively early migration of aphids in 2002 and for relatively large numbers up until the end of June.

Inform us ([mark-s.taylor@bbsrc.ac.uk](mailto:mark-s.taylor@bbsrc.ac.uk)) of aphid occurrences in your crops so that information that may be of use to other growers can be included in our weekly news sheets.

**v) Anticipated practical and financial benefits**

The project will:

- provide forecasts of the timing and size of aphid migrations nation-wide;
- provide easy access for growers and advisers to relevant information on current aphid pest status, insecticide resistance status, biology and control options;
- facilitate focussed crop inspections prior to making control decisions;
- optimise insecticide usage and hence reduce costs, limit selection for insecticide resistance and produce environmental benefits.

Much information was available during the first year of the project, providing the potential for a rapid return on investment. It is anticipated that a very small reduction in insecticide usage would be equivalent to the cost of the project. The cost-benefit relationship is enhanced dramatically by the synergistic funding of a range of organisations and core funding through the BBSRC and Lawes Agricultural Trust (total approximately £280,000 per year). It is difficult to cost environmental benefits.

## SCIENCE SECTION

### Introduction

Aphids can cause problems in every horticultural crop. Financial losses may be due to cosmetic damage or to yield loss resulting from removal of phloem sap or from viruses transmitted by the aphids. Some key aphid species of horticultural significance (*Myzus persicae*, the peach-potato aphid and *Nasonovia ribisnigri*, the currant-lettuce aphid) have clones which are resistant to a range of insecticides (Barber *et al.*, 1999; Dewar *et al.*, 1998; Rufingier *et al.*, 1997). *Macrosiphum euphorbiae* (the potato aphid), a pest of lettuce, is also showing signs of resistance. There is no *a priori* reason known why other species will not develop resistance in due course and there is no doubt that the greater the intensity of crop spraying, the greater is this risk, and the greater will be the problem from species already resistant. There is thus the need to reduce the use of insecticides to the minimum necessary. Such a strategy has many components, one of which is monitoring and forecasting which can help to optimise spray timings. Crop monitoring is time consuming, and can be guided by regional monitoring which does not involve growers.

The Rothamsted Insect Survey (RIS) (Woiwod & Harrington, 1994), in collaboration with the Scottish Agricultural Science Agency, East Craigs, Edinburgh, operates a network of 15 suction traps in the UK for monitoring aphids. Daily records of most UK aphid species at these sites are available from up to 35 years ago to the present. The long term and spatially extensive natures of the data facilitate forecasting of phenology (timing of migrations etc.) and abundance of a range of economically important species. Forecasts are driven mainly by temperature.

A weekly bulletin is issued to contributors to the system, detailing numbers of 21 economically important species at each site. This includes the main species of relevance to the horticultural industry. In relation to specific contracts, forecasts and data interpretations are issued to the sugar beet industry. In Scotland, the data are used by SERAD for forecasting the incidence of aphid-borne virus in seed potato crops. Prior to a Government review of 'near market' research in 1989 a 'commentary' was issued with each aphid bulletin. This showed how the abundance of aphids associated with a particular crop compared to that at an equivalent time in the previous year and to a ten year mean. This basic interpretation of the

data was found very useful by the industry but, following the review, could only be provided to those contributing to data collection. The funding of this project provides access to such information for HDC members.

Use of the information and forecasts will lower labour input by focussing the time for crop inspection prior to aphid control and, by reducing the number of insecticidal sprays required, provide environmental and marketing benefits.

## **Materials and methods**

### *Aphid monitoring*

Fifteen suction traps (Macaulay *et al.*, 1988) were operated throughout 2001. Their locations are shown in Figure 1. Traps were emptied daily from 16<sup>th</sup> April until 12<sup>th</sup> November (weekly at other times). Samples from the traps in England were sent twice a week to IACR Rothamsted and those from Scotland to SASA East Craigs, where the aphids were separated from other insects and identified to species or species group. A weekly bulletin incorporating data on 21 aphids of economic importance was sent by post to contributors and made available on a web site ([www.iacr.bbsrc.ac.uk/insect-survey](http://www.iacr.bbsrc.ac.uk/insect-survey)). For the traps in England, numbers of five species of horticultural importance (peach-potato aphid, potato aphid, cabbage aphid, willow-carrot aphid and currant-lettuce aphid) caught each week were compared to numbers caught over the same period in 2001 and the mean for the ten years from 1991 to 2000. This information was sent weekly by email from 20<sup>th</sup> April until 24<sup>th</sup> August to the HDC for onward transmission to members. Growers were requested to provide information on aphid incidence in crops, and this was included in the weekly news sheets.

### *Aphid forecasting using existing methods*

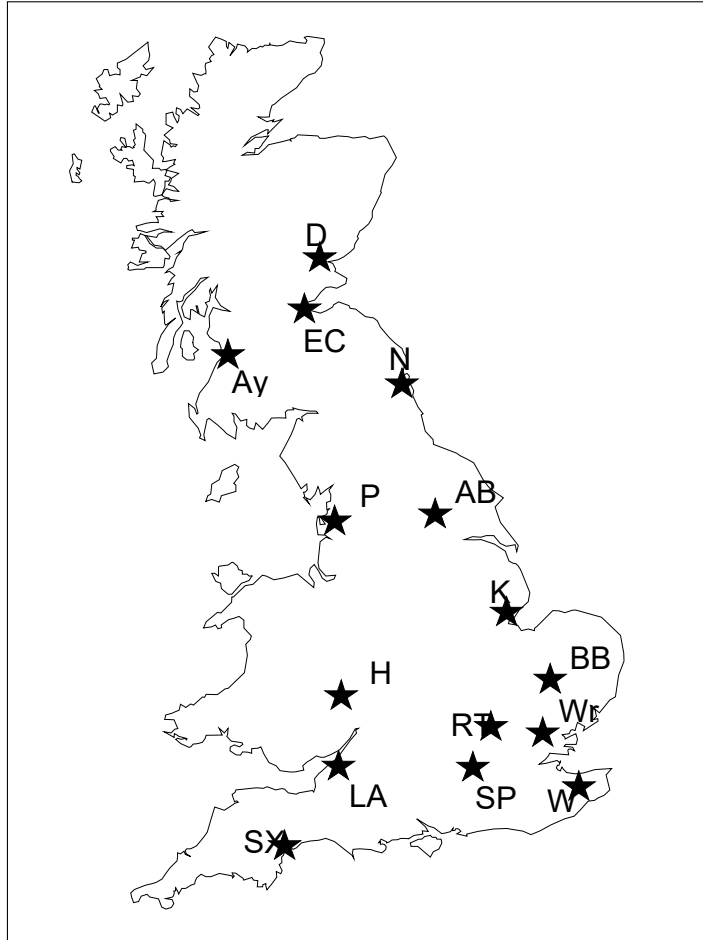
Forecasts were issued on 12<sup>th</sup> March of the timing and size of migrations of peach-potato aphid, potato aphid and cabbage aphid in 2002.

The forecasts were based on simple linear regression equations relating, for *Myzus persicae* and *Macrosiphum euphorbiae*, January-February mean temperature and, for *Brevicoryne*



Figure 1

Suction Trap Sites 2002



| ★ indicate suction trap sites which are: |              |    |                  |
|--|--------------|----|------------------|
| D  | Dundee       | H  | Hereford         |
| EC                                       | East Craigs  | RT | Rothamsted Tower |
| Ay                                       | Ayr          | Wr | Writtle          |
| N  | Newcastle    | LA | Long Ashton      |
| AB                                       | Askham Bryan | SP | Silwood Park     |
| P  | Preston      | W  | Wye              |
| K  | Kirton       | SX | Starcross        |
| BB                                       | Broom's Barn |    |                  |

*brassicae*, December to February mean temperature, to the aphid variables. Forecasts were issued only where the relationships were statistically significant at  $P < 0.001$ .

The forecasts take the form  $y = ax + b$  where  $y$  is the variable to be forecast (julian date of first flight or  $\log_{10} (+1)$  numbers caught up to July 1<sup>st</sup> for peach-potato aphid and potato aphid, October 7<sup>th</sup> for cabbage aphid),  $x$  is the mean temperature (January to February for peach-potato aphid and potato aphid, December to February for cabbage aphid),  $a$  and  $b$  are constants.

$X$ ,  $a$  and  $b$  are shown in Table 1 for each trap site.

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**Table 1**

*Regression parameters used to forecast aphids*

*First record*

| Trap site    | Peach-potato aphid |       |       | Potato aphid |       |       | Cabbage aphid |       |       |
|--------------|--------------------|-------|-------|--------------|-------|-------|---------------|-------|-------|
|              | $x$                | $a$   | $b$   | $x$          | $a$   | $b$   | $x$           | $a$   | $b$   |
| Rothamsted   | 6.02               | -15.8 | 194.7 | 6.02         | -7.12 | 163.0 | 5.02          | -21.0 | 249.1 |
| Wye          | 6.69               | -11.8 | 186.9 | 6.69         | -6.29 | 160.7 | 5.71          | -24.0 | 278.5 |
| Broom's Barn | 6.05               | -14.3 | 196.7 | 6.05         | -11.5 | 188.7 | 4.93          | -14.0 | 221.9 |
| Newcastle    | 5.17               | -16.3 | 241.7 | 5.17         | -10.4 | 202.1 | 4.63          | -23.0 | 318.1 |
| Dundee       | 4.38               | -11.6 | 208.2 | 4.38         | -11.2 | 192.8 | 3.90          | -10.2 | 243.8 |
| Silwood      | 6.50               | -8.21 | 165.4 | 6.50         | -10.1 | 166.7 | 5.53          | -12.0 | 209.5 |
| East Craigs  | 5.14               | -14.1 | 215.6 | 5.14         | -9.11 | 176.7 | 4.85          | -14.0 | 262.2 |
| Starcross    | 6.97               | -14.0 | 197.3 | 6.97         | -6.11 | 149.1 | 5.74          | -8.86 | 205.7 |
| Hereford     | 6.15               | -14.0 | 203.7 | 6.15         | -9.26 | 172.3 | 5.14          | -18.1 | 238.2 |
| Preston      | 5.37               | -4.71 | 152.9 | 5.37         | -8.26 | 168.3 | 4.69          | -30.4 | 299.6 |
| Ayr          | 6.11               | -13.5 | 231.9 | 6.11         | -9.29 | 192.9 | 5.38          | -15.6 | 294.4 |
| Writtle      | 6.45               | -12.2 | 171.6 | 6.45         | -12.5 | 172.3 | 5.36          | -20.5 | 240.1 |
| Kirton       | 5.91               | -11.4 | 184.4 | 5.91         | -8.97 | 165.8 | 5.04          | -29.7 | 299.6 |
| Long Ashton  | 6.87               | -12.7 | 191.1 | 6.87         | -8.78 | 165.6 | 5.85          | -24.9 | 284.2 |

(Table 1 continued)

*Numbers caught*

| Trap site    | Peach-potato aphid |          |          | Potato aphid |          |          | Cabbage aphid |          |          |
|--------------|--------------------|----------|----------|--------------|----------|----------|---------------|----------|----------|
|              | <i>x</i>           | <i>a</i> | <i>b</i> | <i>x</i>     | <i>a</i> | <i>b</i> | <i>x</i>      | <i>a</i> | <i>b</i> |
| Rothamsted   | 6.02               | 0.415    | -0.094   | 6.02         | 0.266    | 0.324    | 5.02          | 0.433    | 0.195    |
| Wye          | 6.69               | 0.400    | -0.204   | 6.69         | 0.191    | 0.560    | 5.71          | 0.513    | -0.491   |
| Broom's Barn | 6.05               | 0.420    | -0.158   | 6.05         | 0.278    | -0.019   | 4.93          | 0.288    | 1.048    |
| Newcastle    | 5.17               | 0.301    | -0.733   | 5.17         | 0.145    | 0.196    | 4.63          | 0.276    | -0.531   |
| Dundee       | 4.38               | 0.272    | -0.432   | 4.38         | 0.275    | -0.146   | 3.90          | 0.376    | -0.452   |
| Silwood      | 6.50               | 0.302    | 0.172    | 6.50         | 0.262    | 0.549    | 5.53          | 0.434    | 0.017    |
| East Craigs  | 5.14               | 0.303    | -0.460   | 5.14         | 0.255    | 0.282    | 4.85          | 0.366    | -0.763   |
| Starcross    | 6.97               | 0.262    | -0.196   | 6.97         | 0.195    | 0.542    | 5.74          | 0.099    | 1.371    |
| Hereford     | 6.15               | 0.389    | -0.497   | 6.15         | 0.241    | 0.337    | 5.14          | 0.432    | 0.409    |
| Preston      | 5.37               | 0.324    | -0.059   | 5.37         | 0.241    | 0.388    | 4.69          | 0.288    | 0.075    |
| Ayr          | 6.11               | 0.179    | -0.480   | 6.11         | 0.195    | -0.040   | 5.38          | 0.183    | -0.420   |
| Writtle      | 6.45               | 0.389    | 0.335    | 6.45         | 0.258    | 0.619    | 5.36          | 0.512    | 0.261    |
| Kirton       | 5.91               | 0.359    | -0.340   | 5.91         | 0.250    | 0.490    | 5.04          | 0.480    | -0.036   |
| Long Ashton  | 6.87               | 0.337    | -0.223   | 6.87         | 0.167    | 0.772    | 5.85          | 0.440    | -0.604   |

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*Development of forecasts for willow-carrot aphid*

Work has begun to develop forecasts for the willow-carrot aphid. For a trial set of widely separated traps (Rothamsted, East Craigs and Starcross) regression equations for first record of the aphid and numbers caught ( $\log_{10}(n+1)$ ) up to May 20<sup>th</sup>, June 17<sup>th</sup> and July 15<sup>th</sup> on mean temperature over individual months and all consecutive combinations of months from December to May have been derived. Further analyses will be done for these and other traps on the basis of these preliminary tests.

## Results and Discussion

### *Aphid monitoring*

The weekly news sheets are attached at Appendix 1. The raw data bulletins can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey](http://www.iacr.bbsrc.ac.uk/insect-survey). In general, aphid numbers were relatively low throughout 2001. There was no need to send 'news flashes' between the weekly news sheets.

### *Aphid forecasting using existing methods*

Table 2 gives the following information:

1. For *Myzus persicae*, *Macrosiphum euphorbiae* and *Brevicoryne brassicae*, the predicted date of first capture for 2002 at the listed sites, together with the dates of the upper and lower 95% confidence limits and the position of this year's prediction out of all years of trap operation (eg 3/38 = 3<sup>rd</sup> earliest out of 38 years).
2. For *Myzus persicae* and *Macrosiphum euphorbiae*, the predicted numbers caught by 1<sup>st</sup> July 2002 and for *Brevicoryne brassicae* by 7<sup>th</sup> October 2002, together with numbers corresponding to the upper and lower 95% confidence limits and the position of this year's prediction out of all years of trap operation (eg 3/38 = 3<sup>rd</sup> largest number out of 38 years).

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Table 2

*Predictions of aphid migrations in 2002*

*Myzus persicae*

|              | 1 <sup>st</sup> Capture  | Numbers to 1 <sup>st</sup> July |                |      |
|--------------|--------------------------|---------------------------------|----------------|------|
| Dundee       | Jun 7 (Apr 24 - Jul 20)  | 12/33                           | 5 (0 - 40)     | 8/33 |
| East Craigs  | May 23 (Apr 16 - Jun 30) | 7/33                            | 12 (1 - 81)    | 7/33 |
| Ayr          | May 29 (Mar 26 - Aug 1)  | 6/25                            | 3 (0 - 28)     | 6/25 |
| Newcastle    | Jun 7 (Apr 16 - Jul 28)  | 12/36                           | 6 (0 - 46)     | 7/36 |
| Askham Bryan | P>0.001                  |                                 | P>0.001        |      |
| Preston      | P>0.001                  |                                 | 43 (3 - 543)   | 6/27 |
| Kirton       | Apr 27 (Mar 15 - Jun 10) | 3/21                            | 59 (2-1170)    | 4/21 |
| Broom's Barn | Apr 20 (Mar 16 - May 26) | 6/38                            | 241 (14-3948)  | 7/38 |
| Hereford     | Apr 27 (Mar 15 - Jun 10) | 5/29                            | 78 (4-1370)    | 4/29 |
| Rothamsted   | Apr 9 (Mar 12 - May 7)   | 3/38                            | 252 (21-2953)  | 5/38 |
| Writtle      | Apr 3 (Feb 15 - May 20)  | 4/26                            | 699 (32-14844) | 4/26 |
| Long Ashton  | Apr 13 (Feb 28 - May 28) | 2/28                            | 123 (7 - 1970) | 4/28 |
| Silwood Park | P>0.001                  |                                 | 134 (5-3161)   | 3/25 |
| Wye          | Apr 18 (Feb 17 - Jun 17) | 5/35                            | 297 (15-5459)  | 5/35 |
| Starcross    | Apr 10 (Feb 3 - Jun 15)  | 4/32                            | 42 (2 - 607)   | 6/32 |

(Table 2 continued)

*Macrosiphum euphorbiae*

|              | 1 <sup>st</sup> Capture  |       | Numbers to 1 <sup>st</sup> July |       |
|--------------|--------------------------|-------|---------------------------------|-------|
| Dundee       | May 24 (Apr 5 - Jul 11)  | 11/33 | 10 (0 - 118)                    | 12/33 |
| East Craigs  | May 10 (Apr 5 - Jun 13)  | 8/33  | 38 (5 - 255)                    | 7/33  |
| Ayr          | May 16 (Mar 26 - Jul 6)  | 4/25  | 13 (0 - 150)                    | 6/25  |
| Newcastle    | May 28 (Apr 21- Jul 4)   | 9/36  | P>0.001                         |       |
| Askham Bryan | P>0.001                  |       | P>0.001                         |       |
| Preston      | May 6 (Apr 6 - Jun 4)    | 5/27  | 45 (9 - 211)                    | 5/27  |
| Kirton       | Apr 23 (Mar 6 - Jun 9)   | 3/21  | 91 (5 - 1409)                   | 5/21  |
| Broom's Barn | Apr 29 (Mar 20 - Jun 8)  | 5/38  | 45 (2 - 734)                    | 9/38  |
| Hereford     | Apr 25 (Mar 16 - Jun 5)  | 3/29  | 65 (7 - 569)                    | 7/29  |
| Rothamsted   | P>0.001                  |       | 83 (8 - 742)                    | 4/38  |
| Writtle      | Apr 2 (Feb 7 - May 25)   | 6/26  | 190 (18-1945)                   | 3/26  |
| Long Ashton  | P>0.001                  |       | P>0.001                         |       |
| Silwood Park | Apr 11 (Feb 21 - May 31) | 3/25  | 177 (23-1339)                   | 1/25  |
| Wye          | P>0.001                  |       | 68 (5 - 757)                    | 6/35  |
| Starcross    | P>0.001                  |       | 78 (5 - 1118)                   | 5/32  |

(Table 2 continued)

*Brevicoryne brassicae*

|              | 1 <sup>st</sup> Capture                | Numbers to 7 <sup>th</sup> October |                      |
|--------------|--|------------------------------------|----------------------|
| Dundee       | P>0.001                                | P>0.001                            |                      |
| East Craigs  | P>0.001                                | 9 (0 - 198)                        | 8/33                 |
| Ayr          | P>0.001                                | P>0.001                            |                      |
| Newcastle    | Jul 31 (May 21 - Oct 10)               | 10/36                              | 5 (0 - 101) 9/36     |
| Askham Bryan | P>0.001                                | P>0.001                            |                      |
| Preston      | Jun 17 (Mar 17 - Sep 16)               | 10/27                              | 24 (0 - 464) 6/27    |
| Kirton       | May 30 (Jan 30 - Sep 8 <sup>th</sup> ) | 8/21                               | 240 (0-47663) 8/21   |
| Broom's Barn | Jun 2 (Apr 25 - Jul 9) 1               | 0/38                               | P>0.001              |
| Hereford     | May 25 (Mar 29 - Jul 21)               | 11/29                              | 423 (10-17046) 10/29 |
| Rothamsted   | May 24 (Mar 26 - Jul 21)               | 9/38                               | 234 (7 - 6566) 10/38 |
| Writtle      | May 10 (Mar 20 - Jun 30)               | 7/26                               | 1024 (13-73561) 8/25 |
| Long Ashton  | May 19 (Jan 27 - Sep 8)                | 9/27                               | 92 (0 - 10537) 8/27  |
| Silwood Park | P>0.001                                | P>0.001                            |                      |
| Wye          | May 22 (Feb 20 - Aug 21)               | 8/35                               | 276 (4-14301) 11/35  |
| Starcross    | P>0.001                                | P>0.001                            |                      |

The generally mild winter throughout the Country has led to most forecasts being for aphid timings and numbers in the first quarter of the range of current experience, ie generally early, and large numbers in the early part of the season. This does not necessarily mean that peak numbers will be high. Indeed, there is evidence that, if large numbers of aphids occur early in the season, peaks may be suppressed due to the action of natural enemies. An exceptionally cold spring could hold aphids back but the potential exists for an early and large migration of the three species. The 95% confidence limits in the predictions are very wide. (It may be more appropriate to present 75% confidence in future, such that results are expected to be correct on three out of four occasions rather than nineteen times out of twenty. For example, whereas the 95% confidence interval for *M. persicae* first flight at Rothamsted is +/-28 days, the 75% interval is +/-15 days). It is clear that the dates are not precise. However, it is reasonable to say that this is likely to be a fairly early season.

### *Development of forecasts for willow-carrot aphid*

At all three sites tested there were highly significant correlations between time of first record and temperature from February to May, March to May and April to May. There were also highly significant relationships between winter temperature and numbers caught up to May 20<sup>th</sup> at all three sites and up to later dates at East Craigs. These provisional results require further investigation before forecasts are derived for all 15 sites and full results can be presented.

### **Conclusions**

Feedback from recipients suggests that the weekly news sheets have been very useful. However, their use could be enhanced if more growers were able to supply information on aphid incidence in their fields. These data would be particularly helpful in assessing the degree to which the time of first record in the suction traps matches that in crops.

The accuracy of the aphid forecasts will be assessed as the 2002 aphid season progresses and will be reported in the second Annual Report. Forecasts for willow-carrot aphid will be available for the 2003 season.

During the 2002 aphid season, weekly news sheets will be provided as in 2001 and, if necessary, interim 'news flashes' will be provided to alert growers to important occurrences in specific regions. General information on the relevant aphids will be added to the web site.



## **TECHNOLOGY TRANSFER**

This project is almost entirely connected with technology transfer. Information was passed to growers weekly in the form of aphid bulletins and news sheets. As yet, no information has been passed on via grower magazines. Although these will be of interest and will be submitted in due course, the nature of this project is to provide up to date information and this can only be achieved by direct, electronic communication methods.

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## **APPENDIX 1**

### **APHID NEWS SHEETS**

## **Aphid news 20<sup>th</sup> April 2001**

I doubt if it will surprise you that there is very little activity on the aphid front at present but, as an email was promised after Easter, here it is. Because of the low numbers of aphids flying, the first of our full data-sheet aphid bulletins will not be issued until 4<sup>th</sup> May.

In spite of the generally low level of aphid activity, there are two anomalies. The first is that three black bean aphids (*Aphis fabae*) have been caught in the suction traps, one at Askham Bryan (Yorkshire) and two at Preston (Lancashire). This is much earlier than usual. It is too early to say whether this heralds an unusually large influx of this species, but it's one we'll need to watch. The aphid normally overwinters as an egg on spindle trees. Our colleagues at Imperial College say that, from their observations in southern England, fewer eggs than usual were laid last autumn, and that egg mortality has been high during the winter, pointing to a low risk this season. The individual that hatches from the egg is wingless, and the first winged forms are the offspring of these. In order to be flying by early April, as these were, the eggs need to have hatched in November. This is inconceivable for a number of reasons. This raises the possibility that the aphids made it through the winter in the active form. This is highly unusual, especially in the north. A final possibility is that the trapped aphids are close relatives of the bean aphid, which is part of a highly complex taxonomic group. Thus we have something of a mystery to start the year, and will keep you informed!

The second surprise is the early appearance of carrot-willow aphid, *Cavariella aegopodii*, at Starcross, Devon. This is a month earlier than the 30-year average. Again, these cannot have come from eggs, but the species is known to be capable of passing the winter in the active stages, and the south-west is where this is most likely to happen. Again, we'll keep you posted.

A few cereal aphids have been trapped in the south. Although this is not unusual, it shows that over-wintering in the active stages has been possible.

**Actions:** None needed at present, just watch this space. Please feed back any information on aphids on crops when the time comes.

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Rosemary Collier, HRI Wellesbourne

## **Aphid news 27<sup>th</sup> April 2001**

The aphid season continues to get off to an incredibly slow start. Only three aphids were sampled by the suction trap network during the week ending 22<sup>nd</sup> April. One of these was the shallot aphid (*Myzus ascalonicus*). This is always amongst the first species to appear. Three have been trapped so far, at Silwood Park (Berkshire), Starcross (Devon) and Broom's Barn (Suffolk). The aphid has a very broad host range, which includes shallots, brassicas, chrysanthemums and tulips. It transmits a range of plant viruses.

**Actions:** None needed at present, just watch this space. Please feed back any information on aphids on crops when the time comes.

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## **Aphid news 4<sup>th</sup> May 2001**

This note is accompanied by our first aphid data bulletin of the season, which you could also view at <http://www.iacr.bbsrc.ac.uk/insect-survey/>. It is for the period 23<sup>rd</sup>-29<sup>th</sup> April. As you will see, there are only seven aphids featured. Of these, five are cereal aphids: one rose-grain aphid, *Metopolophium dirhodum* and four bird cherry-oat aphids, *Rhopalosiphum padi*. The other two are shallot aphids, *Myzus ascalonicus*. The cereal aphids must have over-wintered in the crop, as it has not been warm enough for winged aphids to develop from the wingless aphids that hatch from eggs. Normally by this time of year, things are somewhat more interesting, but a slow start was predicted on the basis of winter temperature and made inevitable by the lacklustre spring.

**Actions:** None needed at present, just watch this space. Please feed back any information on aphids on crops when the time comes.

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## **Aphid news 11<sup>th</sup> May 2001**

The first potato aphid, *Macrosiphum euphorbiae* and peach-potato aphid, *Myzus persicae* have made their appearances, both in the south west. The potato aphid was trapped at Starcross on 2nd May (six days earlier than last year but 17 days later than the ten-year average). The peach-potato aphid was trapped at Long Ashton on 3<sup>rd</sup> May, five days earlier than last year and three days later than the ten-year average.

Three more black bean aphids have been trapped at Preston. Sundry other species have appeared, mostly in the west where the sun has been. The current warmer weather is sure to boost numbers elsewhere.

The aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/)

**Actions:** Look out for potato aphids and peach-potato aphids in the south west. Please report any findings on crops so that we can warn others.

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## Aphid news 18 May 2001

A brief interlude of warm dry weather resulted in a flush of aphids in the suction traps during the week 7 – 13 /5, and there are sure to be more in the settled period forecast for the coming week.

The following table shows species of importance in horticulture which have appeared this week for the first time at specific sites, together with their time of their first appearance last year, and the average time of their first appearance over the past ten years.

|   | 2001 | 2000     | 1991-2000 |
|---|------|----------|-----------|
| <i>Brevicoryne brassicae</i> (cabbage aphid)      |      |          |           |
| Writtle   | 11/5 | 28/4     | 23/5      |
| Starcross   | 10/5 | 9/5      | 12/5      |
| <i>Cavariella aegopodii</i> (willow-carrot aphid) |      |          |           |
| Silwood   | 11/5 | 27/3-2/4 | *         |
| <i>Myzus persicae</i> (peach-potato aphid)        |      |          |           |
| Rothamsted  | 10/5 | 29/4     | 5/5       |
| Writtle   | 12/5 | 21/4     | 12/4      |
| Silwood   | 11/5 | 29/4     | *         |
| Starcross   | 12/5 | 28/4     | 7/5       |
| <i>Macrosiphum euphorbiae</i> (potato aphid)      |      |          |           |
| Long Ashton                                       | 8/5  | 13/3     | 19/4      |
| Silwood   | 8/5  | 20-26/3  | *         |
| Dundee  | 12/5 | 8/5      | 3/6       |

\* Silwood trap did not run 1991-99.

The peach-potato aphid, *Myzus persicae*, previously only trapped in the south west this year, has now made an appearance in the south east, two to three weeks later than last year. Likewise the potato aphid, *Macrosiphum euphorbiae*, and the willow-carrot aphid, *Cavariella aegopodii*, have been recorded at Silwood (Berkshire) this week, and continue to be found in the south west. Potato aphid has also been recorded at Dundee, somewhat earlier than expected.

The cabbage aphid, *Brevicoryne brassicae*, makes its first entry anywhere this year at Writtle, two weeks later than last year but 12 days earlier than the 10 year mean, and also at Starcross, Devon, where it is right on time.

The leaf-curling plum aphid, *Brachycaudus helichrysi*, a pest of chrysanthemums, is on the move in the south.

Pea aphid, *Acyrtosiphon pisum*, is flying in the south west.

In spite of the late start, the potential is there for a rapid build up of aphids given good weather, as the first generation of natural enemies is likely to have fared badly, resulting in low numbers later.

The full aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/)

**Actions:** Be on the look out for cabbage aphid, especially in the south. Please email news from the crops so that it can be circulated to others.

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## **Aphid news 25 May 2001**

No pest aphids of vegetables are flying in unusually large numbers for the time of year.

The week ending 20<sup>th</sup> May saw the first capture for the year of the **current-lettuce aphid**, *Nasonovia ribisnigri*. This was at Starcross (Devon) over a month earlier than last year and nearly three weeks earlier than the ten-year average.

The first **potato aphid**, *Macrosiphum euphorbiae*, at Rothamsted was recorded just three days earlier than predicted back in early March. Potato aphids are now widespread and another has been trapped at Dundee, as last week.

**Peach-potato aphid**, *Myzus persicae*, is still only flying in the south.

**Glasshouse and potato aphid**, *Aulacorthum solani*, is widespread throughout the south.

**Leaf-curling plum aphid**, *Brachycaudus helichrysi*, is building up throughout the southern half of England, as usual at this time of year.

**Cabbage aphid**, *Brevicoryne brassicae*, has appeared again this week at Writtle (Essex) and Starcross (Devon), the same two sites as last week.

**Willow-carrot aphid**, *Cavariella aegopodii*, has appeared at the four most southerly sites.

**Pea aphid**, *Acyrtosiphon pisum*, has still been found only in the south.

**Black bean aphid**, *Aphis fabae*, has flown in the south this week and previously in the north-west.

**Cereal aphids** are flying throughout the south.

It is interesting to note that, in general, although the weather has been better in the north than the south, aphid activity is more prevalent in the south, strengthening the theory that, at this time of year, activity is strongly dependent on the effect of winter conditions on populations.

Aphid monitoring on brassicas has begun at Kirton (Lincolnshire), but none has been found yet. Please email to inform us of any aphid activity on your crops.

The full aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/)

**Actions:** All the major aphid pests of field vegetables are on the move in the south, but not in exceptional numbers. Monitoring is worthwhile. Please report any findings.

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## **Aphid news 1<sup>st</sup> June 2001**

The numbers of pest aphids remain very low for the time of year, despite a very warm May. The table shows accumulated numbers of five species at traps in England for this year compared to last year and a ten year mean.

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The **potato aphid**, *Macrosiphum euphorbiae*, was caught for the first time at Kirton, Broom's Barn and Hereford about three weeks later than last year. One was also caught at Askham Bryan about a week later than last year. This aphid is now appearing in low numbers throughout the country.

**Peach-potato aphid**, *Myzus persicae*, remains low everywhere, with first arrivals this week at Kirton and Wye both a month later than last year.

**Willow-carrot aphid**, *Cavariella aegopodii*, is now widespread but in remarkably low numbers for this time of year.

**Cabbage aphid**, *Brevicoryne brassicae*, was caught for the first time at Preston and Long Ashton this week, 7 and 13 days later than last year, with further catches in the south.

**Currant – lettuce aphid**, *Nasonovia ribisnigri*, is still very scarce, with just one more being caught at Starcross, only the second individual anywhere this year.

**Leaf-curling plum aphid**, *Brachycaudus helichrysi*, numbers have increased substantially this week throughout most of England.

**Damson-hop aphid**, *Phorodon humuli*, was caught for the first time this year at Hereford and all traps further south except Starcross.

A **mealy plum aphid**, *Hyalopterus pruni*, was caught for the first time this year at Starcross.

The full aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/)

**Summary and actions:** All major aphid pests of field vegetables are on the move in the south, but in low numbers for the time of year. Monitoring is worthwhile. Please report any findings.

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## Aphid news 8<sup>th</sup> June 2001

A blustery week saw very little increase in the numbers of pest aphids found in the traps, which generally remain very low for the time of year. The table shows accumulated numbers of five species at traps in England for this year compared to last year and to a ten-year mean.

**ACCUMULATED FIGURES UP TO WEEK 28/5-3/6 [\* Silwood has only run for the last 2 years.]**

|       | B.brassicae |      |       | C.aegopodii |      |       | M.euphorbiae |      |       | M.persicae |      |       | N.ribisnigri |      |       |
|-------|-------------|------|-------|-------------|------|-------|--------------|------|-------|------------|------|-------|--------------|------|-------|
|       | 2001        | 2000 | 91-00 | 2001        | 2000 | 91-00 | 2001         | 2000 | 91-00 | 2001       | 2000 | 91-00 | 2001         | 2000 | 91-00 |
| N     | 0           | 0    | 0     | 0           | 0    | 3     | 0            | 4    | 2     | 0          | 3    | 1     | 0            | 0    | 0     |
| Ab/TA | 0           | 2    | 18    | 1           | 26   | 104   | 1            | 6    | 6     | 0          | 4    | 3     | 0            | 0    | 0     |
| P     | 1           | 8    | 3     | 2           | 168  | 270   | 1            | 8    | 10    | 0          | 7    | 6     | 0            | 0    | 2     |
| K     | 0           | 10   | 30    | 1           | 168  | 219   | 5            | 21   | 15    | 1          | 8    | 15    | 0            | 1    | 2     |
| BB    | 0           | 22   | 45    | 0           | 761  | 335   | 5            | 32   | 16    | 1          | 24   | 29    | 0            | 2    | 1     |
| H     | 0           | 107  | 115   | 0           | 103  | 159   | 3            | 28   | 17    | 1          | 18   | 9     | 0            | 1    | 1     |
| RT    | 1           | 19   | 33    | 1           | 159  | 131   | 3            | 7    | 16    | 4          | 5    | 31    | 0            | 1    | 1     |
| WR    | 7           | 50   | 263   | 1           | 117  | 220   | 7            | 47   | 41    | 2          | 12   | 89    | 0            | 0    | 1     |
| LA    | 6           | 17   | 18    | 3           | 70   | 166   | 7            | 20   | 18    | 6          | 16   | 17    | 0            | 2    | 1     |
| SP    | 0           | 12   | *     | 4           | 237  | *     | 18           | 26   | *     | 4          | 11   | *     | 0            | 4    | *     |
| W     | 0           | 11   | 96    | 3           | 63   | 144   | 1            | 4    | 12    | 2          | 16   | 40    | 0            | 1    | 1     |
| SX    | 21          | 14   | 21    | 11          | 135  | 162   | 16           | 18   | 19    | 5          | 6    | 5     | 2            | 0    | 1     |

The **potato aphid**, *Macrosiphum euphorbiae*, is present throughout central and southern England, but remains low almost everywhere.

The **peach – potato aphid**, *Myzus persicae*, remains low everywhere, with first arrivals this week at Hereford (three weeks later than last year), and Broom’s Barn (six weeks later than last year). However the first arrival at Broom’s Barn was only six days later than predicted back in early March.

**Willow – carrot aphid**, *Cavariella aegopodii*, is keeping a remarkably low profile for the time of year.

**Cabbage aphid**, *Brevicoryne brassicae*, was caught for the first time at Rothamsted 16 days later than last year, but just over a week earlier than average. This aphid is showing notable activity in south west England, as is the **glasshouse – potato aphid**, *Aulacorthum solani*, a pest of many ornamentals.

**Currant – lettuce aphid**, *Nasonovia ribisnigri*, was not caught anywhere last week.

**Leaf-curling plum aphid**, *Brachycaudus helichrysi*, numbers have increased this week throughout most of England, and continue to dominate most catches.

**Damson – hop aphid**, *Phorodon humuli*, numbers are building especially in the hop growing areas around Hereford and Wye.

The full aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/)

**Potato aphids and peach – potato aphids** have been found on brassica crops by an eagle-eyed HRI researcher at Kirton.

**Summary and actions:** All major aphid pests of field vegetables are on the move in the south, but still in low numbers for the time of year. Monitoring is worthwhile. Please report any findings.

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## Aphid news 14<sup>th</sup> June 2001

There was little change in the overall numbers of pest aphids found in the traps last week, which generally remain very low for the time of year. The table shows accumulated numbers of five species at traps in England for this year compared to last year and to a ten-year mean.

**ACCUMULATED FIGURES UP TO WEEK 4/6-10/6** [\* Silwood has only run for the last 2 years.]

|       | B.brassicacae |      |       | C.aegopodii |      |       | M.euphorbiae |      |       | M.persicae |      |       | N.ribisnigri |      |       |
|-------|---------------|------|-------|-------------|------|-------|--------------|------|-------|------------|------|-------|--------------|------|-------|
|       | 2001          | 2000 | 91-00 | 2001        | 2000 | 91-00 | 2001         | 2000 | 91-00 | 2001       | 2000 | 91-00 | 2001         | 2000 | 91-00 |
| N     | 0             | 0    | 0     | 0           | 7    | 8     | 0            | 6    | 4     | 0          | 3    | 2     | 0            | 0    | 0     |
| AB/Ta | 0             | 3    | 28    | 1           | 55   | 176   | 1            | 12   | 8     | 0          | 5    | 4     | 0            | 0    | 0     |
| P     | 1             | 8    | 3     | 2           | 212  | 409   | 1            | 12   | 13    | 0          | 7    | 7     | 0            | 0    | 2     |
| K     | 0             | 10   | 39    | 5           | 261  | 337   | 7            | 21   | 18    | 1          | 8    | 17    | 0            | 1    | 2     |
| BB    | 0             | 27   | 70    | 0           | 819  | 437   | 6            | 32   | 19    | 7          | 27   | 38    | 0            | 2    | 1     |
| H     | 1             | 142  | 152   | 0           | 152  | 233   | 3            | 33   | 21    | 1          | 21   | 12    | 0            | 1    | 1     |
| RT    | 1             | 24   | 41    | 2           | 203  | 170   | 5            | 7    | 19    | 4          | 6    | 35    | 0            | 1    | 2     |
| WR    | 9             | 60   | 355   | 2           | 162  | 266   | 10           | 50   | 50    | 2          | 20   | 111   | 0            | 0    | 1     |
| LA    | 9             | 18   | 23    | 4           | 95   | 225   | 9            | 25   | 24    | 8          | 16   | 21    | 0            | 2    | 1     |
| SP    | 3             | 16   | *     | 5           | 268  | *     | 19           | 26   | *     | 4          | 12   | *     | 0            | 4    | *     |
| W     | 0             | 11   | 107   | 5           | 86   | 185   | 2            | 4    | 16    | 3          | 20   | 54    | 0            | 1    | 2     |
| SX    | 34            | 18   | 24    | 17          | 241  | 196   | 21           | 19   | 22    | 8          | 7    | 6     | 2            | 0    | 1     |

The **potato aphid**, *Macrosiphum euphorbiae*, is present throughout central and southern England, but remains low almost everywhere.

The **peach – potato aphid**, *Myzus persicae*, remains low everywhere, with just a 'mini hotspot' at Broom's Barn. The first one was trapped at East Craigs, Edinburgh on 12<sup>th</sup> June, 12 days earlier than predicted and one day earlier than the long-term average.

**Willow – carrot aphid**, *Cavariella aegopodii*, is notable for its relative absence for this time of year.

**Cabbage aphid**, *Brevicoryne brassicae*, was caught for the first time at Hereford and at Silwood Park, both three weeks later than last year. This aphid continues to show notable activity in south-west England, as does the **glasshouse – potato aphid**, *Aulacorthum solani*, a pest of many ornamentals.

**Currant – lettuce aphid**, *Nasonovia ribisnigri*, was not caught anywhere last week. It is never caught in large numbers in the suction traps.

**Leaf-curling plum aphid**, *Brachycaudus helichrysi*, continues to dominate most samples in England.

**Damson – hop aphid**, *Phorodon humuli*, numbers are building especially in the hop growing areas around Hereford and Wye.

The full aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/)

Reports from the field show cabbage aphid in north-west Kent, which fits the finding of this species in the nearest suction trap at Writtle. There were also some green aphids. Parasitic wasps were present in small numbers, which is encouraging. Peach - potato aphid was present in brassicas near Spalding, but no cabbage aphids were reported. One winged cabbage aphid was found on sprouts at Kirton, Lincolnshire, but none has turned up in the suction trap there yet. Many thanks to those who sent in this information. Please keep it coming!

There has been an enquiry about lettuce - root aphid, *Pemphigus bursarius*. This is impossible to identify from suction traps because it appears identical to other species. HRI predict that this species will fly from poplar to lettuce when 672 day degrees above a threshold temperature of 4.4°C (air temperature) have accumulated since 1<sup>st</sup> February. So if you have weather data, you can do the calculation.

**Summary and actions:** All major aphid pests of field vegetables are on the move in the south, but still in low numbers for the time of year. Monitoring is worthwhile. Please report any findings.

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## Aphid news 21<sup>st</sup> June 2001

The week 11 – 17/6 was a ‘start/stop’ aphid flight period, the first four days fine and warm followed by three days of significant rainfall. The table shows accumulated numbers of five species at traps in England for this year compared to last year and to a ten-year mean. The figures for Starcross are for the first four days only.

**ACCUMULATED FIGURES UP TO WEEK 11/6-17/6 [\* Silwood has only run for the last 2 years.]**

|       | B.brassicae |      |       | C.aegopodii |      |       | M.euphorbiae |      |       | M.persicae |      |       | N.ribisnigri |      |       |
|-------|-------------|------|-------|-------------|------|-------|--------------|------|-------|------------|------|-------|--------------|------|-------|
|       | 2001        | 2000 | 91-00 | 2001        | 2000 | 91-00 | 2001         | 2000 | 91-00 | 2001       | 2000 | 91-00 | 2001         | 2000 | 91-00 |
| N     | 0           | 0    | 0     | 0           | 17   | 16    | 1            | 10   | 4     | 0          | 6    | 4     | 0            | 0    | 0     |
| AB/Ta | 0           | 15   | 34    | 2           | 88   | 222   | 5            | 19   | 10    | 1          | 8    | 6     | 0            | 0    | 0     |
| P     | 1           | 8    | 4     | 2           | 259  | 497   | 1            | 13   | 15    | 0          | 7    | 9     | 0            | 0    | 2     |
| K     | 0           | 18   | 45    | 17          | 323  | 402   | 8            | 22   | 20    | 2          | 10   | 19    | 1            | 1    | 3     |
| BB    | 2           | 31   | 93    | 4           | 881  | 492   | 7            | 36   | 23    | 10         | 35   | 56    | 0            | 3    | 1     |
| H     | 2           | 173  | 168   | 0           | 217  | 269   | 3            | 35   | 22    | 1          | 41   | 16    | 0            | 1    | 1     |
| RT    | 2           | 30   | 47    | 4           | 238  | 192   | 5            | 9    | 23    | 6          | 8    | 42    | 0            | 1    | 2     |
| WR    | 11          | 65   | 565   | 6           | 195  | 311   | 14           | 55   | 58    | 4          | 28   | 146   | 0            | 0    | 2     |
| LA    | 12          | 22   | 26    | 8           | 111  | 253   | 13           | 27   | 28    | 14         | 19   | 24    | 0            | 2    | 2     |
| SP    | 9           | 21   | *     | 7           | 305  | *     | 22           | 31   | *     | 6          | 13   | *     | 0            | 4    | *     |
| W     | 3           | 13   | 117   | 12          | 123  | 215   | 3            | 5    | 20    | 4          | 28   | 74    | 0            | 1    | 2     |
| SX    | 42          | 18   | 26    | 27          | 249  | 221   | 28           | 22   | 27    | 11         | 9    | 8     | 2            | 0    | 1     |

In almost all cases, numbers remain very low for the time of year.

The **potato aphid**, *Macrosiphum euphorbiae*, was caught for the first time at Newcastle a month later than last year and 11 days later than average. Numbers remain low everywhere with the exception of Starcross, which is about normal.

The **peach – potato aphid**, *Myzus persicae*, was caught for the first time at Askham Bryan two weeks later than last year. Numbers remain low everywhere, with just the south-west showing some activity.

**Willow – carrot aphid**, *Cavariella aegopodii*, was caught for the first time at Broom’s Barn, six weeks later than last year. This aphid is at last beginning to move in central and southern England but still in very low numbers for the time of year. There are reports of this species on protected parsley crops in West Sussex.

**Cabbage aphid**, *Brevicoryne brassicae*, was caught for the first time at Broom’s Barn and Wye, both about a month later than last year. This aphid at Starcross is above the ten-year mean accumulated to the 17<sup>th</sup> June.

**Currant – lettuce aphid**, *Nasonovia ribisnigri*, was caught for the first time at Kirton, twenty-six days later than last year. It is never caught in large numbers in the suction traps, and this is only the third individual caught this year.

**Leaf-curling plum aphid**, *Brachycaudus helichrysi*, remains the dominant aphid in the trap catches.

**Damson – hop aphid**, *Phorodon humuli*, numbers are building especially in the hop growing areas around Hereford and Wye.

The full aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/) from tomorrow afternoon.

**Summary and actions:** All major aphid pests of field vegetables are on the move in the south, but still in low numbers for the time of year. Monitoring is worthwhile. Please report any findings.

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## Aphid news 26<sup>th</sup> July 2001

The week 16/7 – 22/7 was notable for heavy rain in the early part, but it improved somewhat towards the weekend. Low numbers of aphids were caught in the suction traps for the time of year. A notable exception was a hot spot at Askham Bryan, Yorkshire. The table shows accumulated numbers of five species at traps in England for this year compared to last year and to a ten-year mean.

**ACCUMULATED FIGURES UP TO WEEK 16/7-22/7 [\* Silwood has only run for the last 2 years.]**

|        | B.brassicae |      |       | C.aegopodii |      |       | M.euphorbiae |      |       | M.persicae |      |       | N.ribisnigri |      |       |
|--------|-------------|------|-------|-------------|------|-------|--------------|------|-------|------------|------|-------|--------------|------|-------|
|        | 2001        | 2000 | 91-00 | 2001        | 2000 | 91-00 | 2001         | 2000 | 91-00 | 2001       | 2000 | 91-00 | 2001         | 2000 | 91-00 |
| N~     | 0           | 0    | 5     | 3           | 58   | 67    | 3            | 26   | 25    | 2          | 17   | 56    | 0            | 0    | 0     |
| AB/Ta~ | 20          | 44   | 626   | 11          | 251  | 383   | 82           | 52   | 81    | 21         | 41   | 94    | 0            | 0    | 1     |
| P~     | 5           | 10   | 20    | 9           | 426  | 670   | 29           | 30   | 54    | 22         | 24   | 61    | 0            | 0    | 3     |
| K      | 31          | 59   | 492   | 144         | 508  | 784   | 170          | 28   | 191   | 59         | 14   | 196   | 2            | 3    | 10    |
| BB     | 311         | 135  | 1026  | 40          | 985  | 711   | <b>153</b>   | 67   | 110   | <b>726</b> | 196  | 626   | 5            | 6    | 11    |
| H      | 179         | 253  | 914   | 5           | 354  | 387   | 41           | 53   | 131   | 43         | 57   | 138   | 3            | 2    | 4     |
| RT     | 130         | 65   | 829   | 14          | 284  | 275   | 52           | 25   | 76    | 106        | 51   | 478   | 3            | 2    | 4     |
| WR     | 308         | 138  | 2708  | 29          | 254  | 452   | 109          | 97   | 159   | 213        | 115  | 973   | 4            | 2    | 6     |
| LA~    | <b>216</b>  | 41   | 141   | 12          | 182  | 304   | 46           | 37   | 64    | 68         | 41   | 122   | 3            | 2    | 3     |
| SP~    | 109         | 28   | *     | 24          | 344  | *     | 42           | 38   | *     | 36         | 18   | *     | 8            | 4    | *     |
| W~     | <b>355</b>  | 32   | 285   | 86          | 181  | 316   | 79           | 15   | 68    | <b>352</b> | 80   | 259   | 2            | 1    | 4     |
| SX~    | <b>156</b>  | 41   | 118   | 57          | 277  | 302   | 76           | 38   | 86    | 71         | 24   | 59    | <b>11</b>    | 3    | 7     |

[~ a few days' data are missing from these traps this year]

Numbers remain low for the time of year in the North, and numbers in the Midlands and the South are slowing up because of the recent changeable weather and an increase in natural enemies, particularly hoverflies. This may all change with the return to 'summer' weather, but there are signs that aphid populations are crashing in many crops.

The numbers of the **potato aphid**, *Macrosiphum euphorbiae*, are right down this week, but remain above the ten year average at Broom's Barn and approaching normality for the time of year elsewhere.

The **peach – potato aphid**, *Myzus persicae*, was caught for the first time at Newcastle, over nine weeks later than last year. Numbers decreased almost everywhere, with the exception of hot spots at Broom's Barn and Wye. The traps at Broom's Barn, Wye and Starcross are showing activity above the ten year mean.

**Willow – carrot aphid**, *Cavariella aegopodii*, has almost stopped flying everywhere, and on past experience is not likely to make an appearance now.

**Cabbage aphid**, *Brevicoryne brassicae*, in the south west and south east is notably above the ten-year mean, and numbers at Wye, Kent this week are particularly noteworthy.

**Currant – lettuce aphid**, *Nasonovia ribisnigri*, was caught for the first time at Wye over nine weeks later than last year. It is never caught in large numbers in the suction traps, but numbers at Starcross are above the ten year mean.

**Pea aphid**, *Acyrtosiphon pisum*, numbers continue to increase throughout eastern England all the way up to Yorkshire.

The numbers of the **Black bean aphid**, *Aphis fabae* are slowly increasing in most traps this week.

Dominant in the trap catches this week were the **Grain aphid**, *Sitobion avenae* and the **Rose-grain aphid**, *Metopolophium dirhodum*. In most cases aphids trapped at this time are leaving maturing crops.

The full aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/).

**Summary and actions:** All major aphid pests of field vegetables are still on the move in eastern and southern England, but unfavourable weather has put the brakes on. Numbers remain low in the north for the time of year. Monitoring continues to be worthwhile in crops and susceptible growth stages.

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## Aphid news 9<sup>th</sup> August 2001

The table shows accumulated numbers of five species at traps in England for this year compared to last year and to a ten-year mean.

**ACCUMULATED FIGURES UP TO WEEK 30/7-5/8 [\* Silwood has only run for the last 2 years.]**

|        | B.brassicae |      |       | C.aegopodii |      |       | M.euphorbiae |      |       | M.persicae |      |       | N.ribisnigri |      |       |
|--------|-------------|------|-------|-------------|------|-------|--------------|------|-------|------------|------|-------|--------------|------|-------|
|        | 2001        | 2000 | 91-00 | 2001        | 2000 | 91-00 | 2001         | 2000 | 91-00 | 2001       | 2000 | 91-00 | 2001         | 2000 | 91-00 |
| N~     | 0           | 3    | 7     | 3           | 69   | 71    | 6            | 28   | 33    | 7          | 22   | 70    | 0            | 0    | 0     |
| AB/Ta~ | 82          | 48   | 648   | 11          | 252  | 388   | <b>172</b>   | 62   | 115   | 36         | 42   | 105   | <b>4</b>     | 0    | 1     |
| P~     | 11          | 13   | 22    | 9           | 429  | 673   | 39           | 33   | 70    | 26         | 24   | 71    | 0            | 0    | 4     |
| K      | 62          | 100  | 512   | 150         | 511  | 791   | 171          | 33   | 232   | 70         | 14   | 242   | 2            | 4    | 11    |
| BB     | 364         | 148  | 1061  | 44          | 989  | 713   | <b>156</b>   | 74   | 138   | 732        | 200  | 765   | 5            | 6    | 11    |
| H      | 186         | 262  | 1034  | 8           | 356  | 389   | 42           | 55   | 153   | 43         | 57   | 167   | 3            | 2    | 4     |
| RT     | 164         | 66   | 870   | 14          | 286  | 276   | 54           | 27   | 82    | 110        | 53   | 566   | 4            | 2    | 5     |
| WR     | 349         | 142  | 2721  | 29          | 254  | 453   | 110          | 99   | 194   | 206        | 116  | 1258  | 4            | 3    | 7     |
| LA~    | <b>218</b>  | 51   | 161   | 12          | 184  | 305   | 46           | 39   | 68    | 68         | 42   | 127   | 3            | 3    | 3     |
| SP~    | 117         | 29   | *     | 24          | 344  | *     | 42           | 38   | *     | 37         | 20   | *     | 8            | 4    | *     |
| W~     | <b>437</b>  | 35   | 293   | 86          | 184  | 319   | 82           | 16   | 90    | <b>363</b> | 80   | 333   | 2            | 1    | 5     |
| SX~    | <b>161</b>  | 73   | 150   | 57          | 283  | 306   | 76           | 41   | 98    | 73         | 90   | 85    | <b>11</b>    | 3    | 8     |

[~ a few days' data are missing from these traps this year]

Natural enemies, particularly hoverflies, remain very abundant at present. This plus a change to cooler conditions has meant a further reduction in aphid numbers trapped everywhere this week.

The numbers of the **potato aphid**, *Macrosiphum euphorbiae*, were high at Askham Bryan this week, keeping the total there and at Broom's Barn over the ten year mean. Elsewhere, few were trapped.

**Peach – potato aphid**, *Myzus persicae*, was caught in low numbers in the north, but very few were trapped elsewhere.

**Willow – carrot aphid**, *Cavariella aegopodii*, continues to keep a low profile.

**Cabbage aphid**, *Brevicoryne brassicae*, continues to fly in quite large numbers in most areas, but not in Scotland. Numbers are still above the ten year mean at Long Ashton, Wye and Starcross.

**Currant – lettuce aphid**, *Nasonovia ribisnigri*, was only caught at Askham Bryan this week.

**Pea aphid**, *Acyrtosiphon pisum*, is flying in particularly large numbers, especially in East Anglia and around Askham Bryan.

**Black bean aphid**, *Aphis fabae*, was found in most traps this week.

Still dominant in the trap catches this week was the **Grain aphid**, *Sitobion avenae*, with numbers of *Rhopalosiphum spp.* on the increase.

The full aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/).

**Summary and actions:** All major aphid pests of field vegetables are still on the move in most parts of England. Many of these will be leaving maturing crops, but still pose a threat to young crops and crops where cosmetic damage is important. If natural enemies are doing a good job, try to avoid spraying.

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## Aphid news 24<sup>th</sup> August 2001

The table shows accumulated numbers of five species at traps in England for this year compared to last year and to a ten-year mean.

**ACCUMULATED FIGURES UP TO WEEK 13/8-19/8 [\* Silwood has only run for the last 2 years.]**

|        | B.brassicae |      |       | C.aegopodii |      |       | M.euphorbiae |      |       | M.persicae |      |       | N.ribisnigri |      |       |
|--------|-------------|------|-------|-------------|------|-------|--------------|------|-------|------------|------|-------|--------------|------|-------|
|        | 2001        | 2000 | 91-00 | 2001        | 2000 | 91-00 | 2001         | 2000 | 91-00 | 2001       | 2000 | 91-00 | 2001         | 2000 | 91-00 |
| N~     | 0           | 4    | 10    | 3           | 69   | 73    | 11           | 29   | 42    | 8          | 23   | 82    | 0            | 0    | 0     |
| AB/Ta~ | 111         | 51   | 654   | 11          | 252  | 390   | 190          | 64   | 189   | 41         | 43   | 121   | <b>4</b>     | 0    | 1     |
| P~     | 13          | 16   | 24    | 9           | 431  | 674   | 41           | 36   | 86    | 29         | 25   | 84    | 0            | 0    | 5     |
| K      | 71          | 109  | 519   | 151         | 511  | 793   | 171          | 35   | 276   | 78         | 17   | 381   | 2            | 4    | 11    |
| BB     | 365         | 169  | 1068  | 44          | 991  | 714   | <b>156</b>   | 76   | 147   | 732        | 200  | 832   | 5            | 6    | 12    |
| H      | 190         | 264  | 1046  | 8           | 357  | 389   | 42           | 56   | 170   | 43         | 59   | 182   | 3            | 2    | 4     |
| RT     | 166         | 68   | 874   | 14          | 286  | 277   | 54           | 27   | 84    | 110        | 53   | 578   | 4            | 3    | 6     |
| WR     | 350         | 145  | 2723  | 29          | 254  | 454   | 110          | 103  | 200   | 206        | 116  | 1272  | 4            | 3    | 7     |
| LA~    | <b>219</b>  | 53   | 165   | 13          | 184  | 306   | 46           | 40   | 75    | 69         | 42   | 131   | 3            | 3    | 3     |
| SP~    | 118         | 31   | *     | 24          | 344  | *     | 43           | 39   | *     | 37         | 20   | *     | 8            | 4    | *     |
| W~     | <b>439</b>  | 37   | 295   | 86          | 187  | 320   | 82           | 16   | 93    | <b>363</b> | 80   | 341   | 2            | 2    | 5     |
| SX~    | <b>161</b>  | 95   | 162   | 58          | 283  | 307   | 76           | 41   | 100   | 73         | 176  | 101   | <b>11</b>    | 5    | 8     |

[~ a few days' data are missing from these traps this year]

Yet another week of very low winged aphid activity. The only notable aphid flights seems to be that of cereal aphids flying in the North but less so in the south where crop maturity and harvest are earlier.

It seems unlikely that there will be much change in the situation now until the autumn flights of cereal aphids get going in a month or so. Peach - potato aphid may reappear at the same time.

The full aphid data bulletin can be viewed at [www.iacr.bbsrc.ac.uk/insect-survey/](http://www.iacr.bbsrc.ac.uk/insect-survey/).

**Summary and actions:** The table shows that it has been an average to low season for aerial activity of most aphids of interest in field vegetables. It would be interesting to have some more feedback as to whether this has been mirrored in the crops. Average winter temperatures led to an average start to the season and natural enemies seem to have been doing a pretty good job latterly.

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