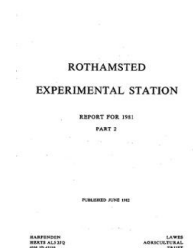


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ROTHAMSTED
EXPERIMENTAL STATION

REPORT FOR 1981

PART 2

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Results from the Woburn Reference Experiment.

III. Yields of the crops and recoveries of N, P, K and Mg from manures and soil, 1975–79

F. V. WIDDOWSON, A. PENNY and M. V. HEWITT

Abstract

The experiment, begun in 1960 on sandy-silty loam at Woburn, tested N, P, K and Mg fertilisers alone and with FYM on five arable crops and a long ley. Results from the fourth 5-year cycle (1975–79) and yield and crop uptake over 20 years are summarised. N increased yields greatly, P little and K more than N for sugar beet, potatoes and the clover-grass ley. Yields were largest where both FYM and NPK fertilisers were given. Nutrient balance sheets from 1975–79 showed that removals (kg ha^{-1}) ranged from 171 to 698 of N, 29 to 105 of P and 131 to 1101 of K. The soil supplied (kg ha^{-1}) 39 of N, 10.4 of P and 29 of K per annum in the final 5 years.

Introduction

The experiment was begun in 1960 on the sandy-silty loam (overlying Lower Greensand) of Stackyard Field at Woburn, Beds and continued with no change to the rotation and little change to the manuring until 1979. Its objective was to measure the effects of N, P and K fertilisers and of farmyard manure (FYM) applied alone and together on yields, crop nutrient uptakes and nutrient balances in the soil. Five arable crops (spring barley, clover-grass ley, potatoes, winter oats and sugar beet) were grown each year and in that sequence, so that during each 5-year cycle of the experiment each crop was grown once in each block. There were also blocks of long ley and soft fruit. The results obtained from 1960 to 1969 (Widdowson & Penny, 1967, 1972; Widdowson, Penny & Williams, 1967; Williams, 1973) and from 1970 to 1974 (Widdowson & Penny, 1979) have already been published and should be read in conjunction with the data given here, which are from the fourth and final 5-year cycle of the experiment. The test of magnesium fertiliser on sugar beet and potatoes, begun in 1967 following the confirmation of Mg deficiency in foliage, was continued.

This paper presents the data briefly and is intended to be used in conjunction with our previous results. However, it includes a crop nutrient balance sheet constructed from the data obtained during the entire 20-year life of the experiment.

Design and measurements

The five arable crops, the long ley and the soft fruit each received all combinations of two amounts (0 v. 1) of N, P and K fertilisers in the standard eight-plot factorial combination, and also a double amount of N (N_2) with P and K. Farmyard manure (FYM) was also tested alone (Code D), and together with fertilisers supplying either the single or double amount of N (DN1PK and DN2PK). However, the FYM was applied only for potatoes and sugar beet and not for the other three arable crops, which therefore measured its residues; it was applied annually for the long ley and the soft fruit. The arrangement

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of the twelve treatments in each block was restricted by using six rows of a 12 × 12 Latin Square. Individual plots were small (5.8 m²).

Each year the yields of each crop were measured and samples taken to measure dry matter and N, P and K contents. These values then were used to calculate dry matter yields and the amounts of N, P, K and Mg that the crops removed. These, together with the amounts of N, P, K and Mg added in fertilisers and in FYM were used to construct nutrient balance sheets over each 5-year cycle of the experiment. The amount of each nutrient that each crop removed was used to calculate the apparent efficiency of uptake of the N, P and K in the fertilisers and in the FYM. These uptakes also allowed us to measure the quantities of N, P and K supplied by this soil and to determine whether these changed with time. Additionally, the penultimate leaflets were removed from 20 stems on each half-plot of potatoes in July, to measure Mg concentrations, which also were measured in potato tubers and in sugar-beet tops at harvest.

Experimental method

Appropriate blocks of the arable rotation were dug in autumn after applying FYM for potatoes and sugar beet; it was applied to the long ley and to the fruit in spring. P and K were broadcast during winter and N and Mg in spring. The crop varieties chosen were: barley, Julia (ethirimol dressed); rotation ley, RVP Italian ryegrass and Hungaropoly red clover; potatoes, Pentland Crown; oats, Peniarth; sugar beet, Klein E. The long ley was a composite mixture of grasses and clovers; the strawberries, Cambridge Vigour; blackcurrants, Wellington XXX and gooseberries, Careless.

Manuring. 63 kg P₂O₅ ha⁻¹ (27.4 kg P) as triple superphosphate and 251 kg K₂O ha⁻¹ (208.5 kg K) as potassium bicarbonate were applied to appropriate plots of each crop in each year. Amounts of N (as ammonium nitrate) differed with crop and were (in kg ha⁻¹);

| | Spring barley | Rotation ley | Potatoes | Winter oats | Sugar beet | Long ley | Soft fruit |
|----|------------------|-----------------|----------|----------------|---------------|-------------|---------------|
| N1 | 63 | 31 | 126 | 63 | 126 | 188 | 63 |
| N2 | 126 | 63 | 251 | 126 | 251 | 376 | 126 |

The N was applied in one dressing for the rotation ley, but was divided into two equal dressings for barley, potatoes, oats and sugar beet and into three for the long ley. Epsom salts (MgSO₄·7H₂O) were broadcast (50 kg Mg ha⁻¹) over one half of each sugar-beet and potato plot in spring and to the other half after the crops had been harvested. Thus 100 kg Mg ha⁻¹ were applied in each 5-year cycle to every plot in the arable rotation; the same quantity was also given to the long ley and fruit. Basal calcium carbonate was broadcast in autumn 1974 to maintain soil pH at or near 7.0 and basal boron (5 kg ha⁻¹) was sprayed over sugar beet each spring after singling.

Chemical analyses of the crops

Nitrogen was determined after Kjeldahl digestion using CuSO₄ and K₂SO₄ as catalysts by Technicon AutoAnalyser, using Varley's (1966) method modified by adding citrate-tartrate buffer.

Phosphorus was measured by AutoAnalysis using the method of Fogg and Wilkinson (1958) after ashing and dissolving in 0.06 N-HCl.

Potassium was measured by Unicam SP.90A after dry ashing and solution in 0.06 N-HCl.

Magnesium was measured by atomic absorption, with strontium as releasing agent using a Unicam SP.90A flame spectrophotometer, after dry ashing and solution in 0.06 N-HCl.

WOBURN REFERENCE EXPERIMENT, 1975-79

Yields

Effects of N, P and K fertilisers and FYM. To allow direct comparisons between the abilities of the different crops to obtain nutrients from this soil, and between their relative responsiveness to added nutrients, most yields are presented as dry matter. However, to be able to judge the yields in conventional terms, Appendix Table 1 shows fresh yields of potato tubers and sugar beet roots and tops, the yield of sugar from the sugar beet and the yields of oats and barley grain at 15% moisture content. Though maximum yields were never large, they were largest where both FYM and fertilisers were given. The increases in yield from giving FYM were especially large for potatoes and sugar beet. Appendix Table 2 compares yields of the different crops as dry matter. The FYM and NPK fertilisers together increased yields of potatoes, sugar beet and the rotation ley four-fold and those of oats and barley grain three-fold, though straw yields were increased by more. The largest total dry matter yield (15.21 t ha⁻¹) was obtained from sugar-beet tops plus roots; winter oats grain plus straw (11.38 t ha⁻¹) outyielded spring barley (9.53 t ha⁻¹) and all three crops out-yielded the potatoes (tubers only), the rotation ley and the long ley.

Main effects and interactions of N, P and K fertilisers. The data in Table 1 were obtained in the conventional way by subtracting yields from four of the eight factorial treatments

TABLE 1
Main effects and interactions of N, P and K fertilisers on five arable crops, 1975-79

| | Dry matter (t ha ⁻¹) | | | | | | | s.e. | Coefficient of variation (%) |
|------------|----------------------------------|-------|--------|-------|--------|------|------|--------|------------------------------|
| | N | P | K | NP | NK | PK | NPK | | |
| Oats | | | | | | | | | |
| grain | 1.45** | 0.22 | 0.01 | 0.18 | 0.06 | 0.04 | 0.02 | ±0.150 | 21.9 |
| straw | 1.97** | 0.39 | 0.59* | 0.26 | 0.38 | 0.20 | 0.10 | ±0.180 | 20.3 |
| Barley | | | | | | | | | |
| grain | 1.16** | 0.03 | 0.71** | -0.01 | 0.55** | 0.30 | 0.28 | ±0.122 | 19.2 |
| straw | 1.53** | 0.04 | 0.57** | 0.04 | 0.46** | 0.12 | 0.16 | ±0.089 | 13.7 |
| Potato | | | | | | | | | |
| tubers | 0.97 | 0.49 | 2.79** | 0.18 | 0.82 | 0.44 | 0.16 | ±0.439 | 44.2 |
| Sugar-beet | | | | | | | | | |
| roots | 1.69** | -0.36 | 1.81** | -0.30 | 1.06* | 0.16 | 0.32 | ±0.344 | 28.3 |
| tops | 1.55** | -0.15 | 0.31 | -0.09 | 0.30 | 0.12 | 0.23 | ±0.156 | 18.5 |
| Rotation | | | | | | | | | |
| ley | 1.29* | 0.53 | 2.75** | 0.08 | 0.00 | 0.46 | 0.22 | ±0.379 | 24.7 |

*, ** Significant at probability level of 1 and 0.1% respectively

(2³) from the other four. There were highly significant main effects from N on oats, barley and sugar beet, but not on potatoes, which followed the grass-clover rotation ley. The main effects of P were always small and never significant, whilst those of K were large for some part of each crop and especially so for potato tubers and sugar-beet roots. The main effect of K was larger than that of N on the two root crops. The NP interaction was always small and sometimes negative, whereas the NK interaction was mostly positive and significant for barley and for the sugar beet roots. Whilst the PK and the NPK interactions were always positive they never reached significance, though they were sometimes of the same order of magnitude as their standard error.

Responses to N, P and K. Table 2 shows yields of the crops during the period 1975 to 1979 from soil completely unmanured since 1960, and the increases in yield given by N,

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TABLE 2
Responses to N, P and K fertilisers (means for 1975–79)

Increases in the yield of dry matter (t ha⁻¹) from

| | Yields without fertiliser or FYM | Increases in the yield of dry matter (t ha ⁻¹) from | | | | |
|------------------|----------------------------------|---|-------------------|--|--------------|--------------|
| | | N1 (N1PK–PK) | N2–N1 (N2PK–N1PK) | N2–N1 (in presence of D) (DN2PK–DN1PK) | P (N1PK–N1K) | K (N1PK–N1P) |
| Barley grain | 1.34 | 1.98 | 0.74 | 0.45 | 0.60 | 1.84 |
| Barley straw | 1.20 | 2.18 | 1.15 | 0.97 | 0.36 | 1.31 |
| Oats grain | 1.46 | 1.70 | 0.65 | 1.11 | 0.45 | 0.13 |
| Oats straw | 1.70 | 2.71 | 1.15 | 1.95 | 0.95 | 1.28 |
| Potato tubers | 1.66 | 2.14 | 0.95 | 0.97 | 1.29 | 4.20 |
| Sugar-beet tops | 1.67 | 2.06 | 1.11 | 1.17 | 0.18 | 0.96 |
| Sugar-beet roots | 2.40 | 3.46 | 0.76 | 1.06 | 0.29 | 3.47 |
| Rotation ley | 2.74 | 1.58 | 0.21 | 0.92 | 1.28 | 3.42 |
| Long ley | 3.57 | 2.09 | 1.14 | 1.38 | 0.28 | 1.01 |

D = FYM was applied at 50 t ha⁻¹ for sugar beet and potatoes and at 25 t ha⁻¹ for long ley

by P and by K fertilisers on plots given the other two nutrients. Yields of all the crops were increased by the first increment of fertiliser N, but less by the second, which enhanced straw yields more than grain and the yield of sugar-beet tops more than roots. Where FYM also was given the second increment of N still increased yields even though yields then were larger, and it increased yields both of the rotation ley and of the long ley more than where fertilisers were given alone. Presumably this enhanced response to N in the presence of FYM was due to the large amount of additional K that the FYM added (Table 6). By comparison fertiliser P increased yields little, though all the crops responded to it, the largest responses being with oats, potatoes and the rotation ley. Shortage of K limited yields far more than shortage of P and responses to K were as large as or larger than those to N. Potassium was particularly important for potatoes, sugar-beet roots and the rotation ley; for potatoes the K response (4.20 t ha⁻¹) was roughly double that for N (2.14 t ha⁻¹).

Responses to farmyard manure. Table 3 shows that without fertilisers, FYM greatly increased the yield of every crop, especially in the year of application, though it very greatly increased yields of the grass-clover rotation ley two years afterwards. The increases in yield from FYM were greatly diminished when NPK fertilisers were also given, but doubling the amount of fertiliser N sometimes enhanced the benefit from the FYM. This happened with both root crops and with the long ley and oats, and may be explained by an interaction between the extra N given as fertiliser and the potassium supplied by the FYM. This implies that 251 kg K₂O ha⁻¹ added in fertiliser may have been too little for both sugar beet and potatoes, because the largest yields were obtained where FYM was dug down in autumn and NPK fertilisers were given in spring (Appendix Table 1).

Responses to Mg by potatoes and sugar beet. Appendix Table 3 shows the effects of giving Mg fertiliser to half of each sugar-beet and potato plot. Magnesium increased potato yields most where K, or N and K was given; doubling N diminished its effect. As Mg had been applied after harvesting each root crop to half-plots not given Mg in spring, each year from 1967 onwards, it is surprising that the response to Mg was so large on the

WOBURN REFERENCE EXPERIMENT, 1975-79

TABLE 3

The mean increases in yield ($t\ ha^{-1}$ of dry matter) from FYM (D) tested with and without NPK fertilisers from 1975-79

| | Without NPK fertiliser (D-0) | With NPK fertiliser | |
|----------------------------------|------------------------------|-------------------------------|-------------------------------|
| | | N at single rate (DN1PK-N1PK) | N at double rate (DN2PKN-2PK) |
| Direct effects | | | |
| Potato tubers | 4.52 | 1.52 | 1.54 |
| Sugar-beet | | | |
| tops | 1.47 | 0.77 | 0.83 |
| roots | 3.94 | 2.18 | 2.48 |
| Long ley | 1.96 | 0.75 | 0.99 |
| Residual effects (1 year later) | | | |
| Barley | | | |
| grain | 0.87 | 0.45 | 0.16 |
| straw | 0.84 | 0.64 | 0.46 |
| Oats | | | |
| grain | 0.76 | -0.07 | 0.39 |
| straw | 1.19 | 0.49 | 1.29 |
| Residual effects (2 years later) | | | |
| Rotation ley | 3.90 | 0.60 | -1.31 |

plots given fertiliser. However, the potatoes also responded to Mg on the plots given FYM, which supplied about $40\ kg\ Mg\ ha^{-1}$ twice in 5 years (Table 6). Thus these plots received a total of $180\ kg\ Mg\ ha^{-1}$, in each 5-year cycle of the experiment. Yields of sugar-beet roots, though not tops, were also appreciably increased by magnesium fertiliser, with a maximum response of $2.34\ t\ ha^{-1}$ where N2PK fertilisers were given. FYM diminished the response to magnesium by the sugar-beet roots. Table 4 shows

TABLE 4

Mean effects of Mg fertiliser on the yields of potatoes and sugar beet 1975-79 in the presence and absence of N, P and K fertilisers

| | Fertiliser tested | | | | | |
|--|--|-------|---------|------|---------|------|
| | N1 | | P | | K | |
| | Without | With | Without | With | Without | With |
| | Mean effects of Mg | | | | | |
| | Potatoes, total tubers ($t\ ha^{-1}$) fresh weight | | | | | |
| | 0.31 | 1.06 | 0.64 | 0.73 | -0.06 | 1.43 |
| | Sugar-beet roots ($t\ ha^{-1}$) fresh weight | | | | | |
| | 0.04 | 0.48 | 0.43 | 0.06 | -0.32 | 0.82 |
| | Sugar-beet tops ($t\ ha^{-1}$) fresh weight | | | | | |
| | 0.10 | -0.02 | -0.31 | 0.39 | -0.17 | 0.25 |

how N, P and K fertilisers affected the mean response to magnesium on the eight plots testing them in factorial combination (2³). For potatoes, both N and K greatly enhanced the response to magnesium, whilst P little affected it. This relationship applied also to sugar-beet roots, but the effect of P on Mg response was inconsistent.

Amounts of N, P, K and Mg applied 1975-79

By fertilisers. The amounts of N, P, K and Mg applied each year have been given previously.

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By FYM. Table 5 shows the percentage of dry matter and of N, P, K and Mg in each batch of FYM (always made by cattle in yards at Rothamsted) and Table 6 the amounts

TABLE 5
Chemical analyses of FYM, 1975-79

| Cropping year | Dry matter % | % in dry matter of | | | |
|---------------|--------------|--------------------|-------|------|-------|
| | | N | P | K | Mg |
| 1975 | 22.62 | 3.51 | 0.530 | 3.76 | 0.310 |
| 1976 | 20.63 | 3.16 | 0.429 | 3.76 | 0.340 |
| 1977 | 24.50 | 3.18 | 0.586 | 5.00 | 0.371 |
| 1978 | 25.88 | 2.88 | 0.487 | 4.24 | 0.336 |
| 1979 | 22.01 | 2.75 | 0.467 | 5.14 | 0.324 |
| Mean | 23.13 | 3.10 | 0.500 | 4.38 | 0.336 |

TABLE 6
Annual amounts (kg ha⁻¹) of N, P, K and Mg supplied by 50 t ha⁻¹ of FYM 1975-79

| Cropping year | N | P | K | Mg |
|---------------|-----|----|-----|----|
| 1975 | 399 | 60 | 427 | 35 |
| 1976 | 327 | 44 | 389 | 35 |
| 1977 | 392 | 72 | 615 | 46 |
| 1978 | 374 | 63 | 550 | 44 |
| 1979 | 304 | 52 | 568 | 36 |
| Mean | 359 | 58 | 510 | 39 |

added by the standard 50 t ha⁻¹ dressing. Both the dry matter and the nutrient content varied from year to year, but on average the two dressings of FYM in 5 years supplied amounts of P and K (116 kg P and 1020 kg K ha⁻¹) almost equal to those added in fertilisers over the same period. The magnesium in the FYM enhanced not only the yield, but also the concentration of Mg in the potato and sugar-beet tops (Appendix Table 5).

Amounts of N, P and K removed from the soil by individual crops, 1975-79. Table 7 shows the amounts of nutrient removed from the soil by crops given the other two major

TABLE 7
The mean annual amounts of N, P and K (kg ha⁻¹) removed from the soil by crops given the other two elements as fertiliser 1975-79

| | N | P | K |
|------------------|------|------|----|
| Barley grain | 20 | 8.0 | 8 |
| Barley straw | 5 | 1.1 | 6 |
| Oats grain | 22 | 8.5 | 14 |
| Oats straw | 6 | 2.1 | 14 |
| Potato tubers | 51 | 8.4 | 22 |
| Sugar-beet tops | 29 | 6.3 | 23 |
| Sugar-beet roots | 24 | 6.7 | 15 |
| Rotation ley | 123* | 11.0 | 41 |
| Mean | 39** | 10.4 | 29 |
| Long ley | 102* | 14.4 | 53 |

* Includes contribution by clover

** Excluding clover ley

WOBURN REFERENCE EXPERIMENT, 1975-79

elements. The mean annual amounts of N, obtained from the soil alone by four arable crops (excluding the rotation ley) and of P and K by all five arable crops were only 39.3, 10.4 and 28.6 kg ha⁻¹ respectively, thus explaining the large responses to N and to K shown in Table 1. The ability of this soil to supply N where none was given declined with time, the supply of P changed little until the final 5-year cycle, whilst that of K fell dramatically from 120 kg K ha⁻¹ in 1960 and in 1961 to 62 kg K ha⁻¹ in 1964 and finally to only 28 kg K ha⁻¹ (Table 8).

TABLE 8

Mean amounts of N, P and K supplied by the soil (kg ha⁻¹) in each 5-year cycle of the experiment 1960-79

| | 1960-64 | 1965-69 | 1970-74 | 1975-79 |
|----|---------|---------|---------|---------|
| N* | 59 | 49 | 43 | 39 |
| P | 14 | 14 | 14 | 10 |
| K | 89 | 53 | 37 | 29 |

* Values for N exclude grass-clover rotation ley

The values for the individual crops (Table 7) show that the potatoes (which followed the clover-grass ley) obtained almost twice as much N from this soil as did the two cereal crops. However, the sugar beet (which followed the barley) obtained as much N from the soil as the potatoes, presumably because the deep tap-roots of the sugar beet were able to take up NO₃-N in the subsoil. The rotation ley apparently fixed more than 100 kg N ha⁻¹, for roughly this amount was removed in the foliage. No proper estimate can be made of the amount of N fixed by the clover nodules that remained in the soil but the non-significant effect of fertiliser N on potato yields suggests that an appreciable part of the 51 kg ha⁻¹ shown in Table 7 came from the clover. Removal of P differed little with crop, whilst that of K varied appreciably. Spring barley obtained less K from this soil than winter oats, and sugar beet more than any other crop (48 kg K ha⁻¹).

Recovery of N, P and K from the fertilisers. Table 9 gives the apparent recoveries by the crops of N, P and K from fertilisers, calculated by subtracting the amounts of each

TABLE 9

The apparent (%) recoveries of N, P and K from fertilisers by five arable crops and a long ley, 1975-79

| Test crop | Percentage recovery of | | | |
|-----------------------------|------------------------|----|----|----|
| | N1 | N2 | P | K |
| Barley (grain and straw) | 60 | 56 | 12 | 22 |
| Oats (grain and straw) | 62 | 58 | 7 | 33 |
| Potato tubers | 32 | 21 | 8 | 48 |
| Sugar-beet (tops and roots) | 54 | 54 | 14 | 66 |
| Rotation ley | — | — | 16 | 60 |
| Long ley | — | — | 11 | 43 |
| Mean (arable crops) | 52 | 47 | 11 | 46 |

nutrient in crops grown without it, but with the other two, from amounts in crops given all three, and then expressing this difference as a percentage of that given as fertiliser.

The recovery of N by the two leys cannot be given because the plots given P and K, but not N, contained a large proportion of clover, which fixed 80-100 kg N ha⁻¹ per annum (Appendix Table 4). The recoveries of fertiliser N by oats and by barley were similar and both recovered almost the same proportion of the double as of the single dressing of N (57 and 61% respectively). Sugar beet recovered more of the applied N

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than the potatoes appeared to do, but as we did not harvest the potato tops, we do not know the total amount of N recovered by the potatoes. No more than 16% of the fertiliser P was recovered by any crop, with a mean value of only 11%. By contrast the crops recovered fertiliser K far more completely. Sugar beet apparently recovered 66% of the K applied for it, and the clover-grass rotation ley and the potatoes 60 and 48% respectively. The two cereals recovered far less, presumably because much of the K in the leaves and stems returned to the soil before harvest. Mean recovery of K was as large as that of N.

Recovery of N, P and K from FYM. In this experiment FYM was applied at 50 t ha⁻¹ for potatoes and sugar beet, but none was given for the other three arable crops; the long ley was given 25 t ha⁻¹ annually. The potatoes and the sugar beet recovered proportionally far less of the N and K applied in the FYM (Table 10) than they did from fertilisers

TABLE 10
The apparent recoveries (%) of the N, P and K in FYM (D) by five arable crops and a long ley, 1975-79

| | % recovery of | FYM applied | | | | | |
|---------------------------------------|---------------|-------------|------------------|---|---------------------------------------|----|---|
| | | N | Alone (D-0) P | K | With N2PK fertilisers (DN2PK-N2PK) | | |
| | | | | | N | P | K |
| FYM newly applied for | | | | | | | |
| Potatoes (tubers) | 16 | 14 | 23 | 8 | 6 | 17 | |
| Sugar-beet (roots and tops) | 16 | 17 | 24 | 8 | 11 | 24 | |
| Long ley | — | 11 | 16 | — | — | — | |
| FYM applied for root crops 1 year ago | | | | | | | |
| Barley (grain and straw) | 4 | 6 | 4 | 4 | 13 | 10 | |
| Oats (grain and straw) | 4 | 7 | 10 | 3 | 10 | 14 | |
| FYM applied for potatoes 2 years ago | | | | | | | |
| Rotation ley | 22 | 16 | 23 | 2 | 7 | 7 | |

(Table 9), but rather more of the P. However, even though more N was added in the FYM than in the fertilisers, yields from FYM and N1PK fertilisers were similar (Appendix Table 1) and total uptakes, especially of K, also were similar (Appendix Table 4). Thus, although much of 359 kg N ha⁻¹ applied in the FYM was apparently leached from the soil during winter, the K added in the two dressings of FYM was as effective as the K in fertiliser given annually, when judged by recovery during the 5-year arable rotation. Applying fertilisers with the FYM diminished the efficiency of uptake by the root crops of the N and P in the FYM, but hardly changed that of K. The oats and barley that followed the root crops recovered little of the N added in the FYM and this amount was not diminished by also giving N2PK fertilisers. However, the residues of the P and K from FYM were used more efficiently by the two cereal crops given N2PK fertilisers than by those that were not (Table 10).

Amounts of N, P and K taken up by individual crops. These are shown in Appendix Table 4. The amounts of nitrogen removed by barley and by oats ranged from 24 to 111 kg ha⁻¹, the largest values occurring on plots given both FYM and fertilisers, which also gave the largest yields (Appendix Table 1). Similar ranges in uptake occurred with sugar beet and potatoes, though the amounts removed were larger, because the ranges in yield were larger. Sugar-beet tops removed far more N than the roots and, with N2PK fertilisers, more than potato tubers. The amounts of P removed by the crops varied by a factor of five, with sugar beet and the long ley removing most (26.9 and 26.0 kg ha⁻¹

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TABLE 11

The total amounts (kg ha⁻¹) of nitrogen (N), phosphorus (P) and potassium (K) applied for and removed by five crops grown in rotation at Woburn, 1975-79

| | 0 | N1 | P | N1P | K | N1K | PK | N1PK | N2PK | D | DN1PK | DN2PK |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|
| Nitrogen | 0 | 408 | 0 | 408 | 0 | 408 | 0 | 408 | 816 | 718 | 1126 | 1534 |
| Added* | 171 | 295 | 181 | 277 | 262 | 406 | 280 | 463 | 605 | 392 | 557 | 698 |
| Removed | -171 | +113 | -181 | +131 | -262 | +2 | -280 | -55 | +211 | +326 | +569 | +836 |
| Difference | | | | | | | | | | | | |
| Phosphorus | 0 | 0 | 137 | 137 | 0 | 0 | 137 | 137 | 137 | 116 | 253 | 253 |
| Added* | 29 | 40 | 34 | 46 | 36 | 52 | 45 | 68 | 78 | 64 | 90 | 105 |
| Removed | -29 | -40 | +103 | +91 | -36 | -52 | +92 | +69 | +59 | +52 | +163 | +148 |
| Difference | | | | | | | | | | | | |
| Potassium | 0 | 0 | 0 | 0 | 1042 | 1042 | 1042 | 1042 | 1042 | 1020 | 2062 | 2062 |
| Added* | 131 | 171 | 134 | 143 | 372 | 557 | 406 | 620 | 734 | 560 | 888 | 1101 |
| Removed | -131 | -171 | -134 | -143 | +670 | +485 | +636 | +422 | +308 | +460 | +1174 | +961 |
| Difference | | | | | | | | | | | | |

* As fertiliser, excludes N added by clover in rotation ley

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year⁻¹ respectively). Maximum uptakes on the N2PK plots corresponded to 80% of the P applied. Because shortage of soil K greatly limited yields, uptakes of K were large only where either fertiliser K or FYM was given, then they were larger than the corresponding uptakes of N. Sugar-beet roots and tops together removed a maximum of 349, the long ley more than 250 and the potato tubers more than 210 kg K ha⁻¹.

Amounts of N, P and K added to and removed from the soil in 5 years. Table 11 shows the total amounts of each of the nutrients added by FYM and by fertilisers and the amounts removed by the five arable crops in one cycle of the experiment (1975–79). The nitrogen balance sheet takes no account of the fact that a large part of the total N removed by the five arable crops was in the clover-grass rotation ley (47–127 kg ha⁻¹ annually, Appendix Table 4). As this soil provided only 39 kg N ha⁻¹ per annum to the other four arable crops in the rotation (Table 8) and the clover-grass ley given P and K but no N removed 123 kg N ha⁻¹ it appears that the clover nodules fixed at least 84 kg N ha⁻¹. This is far less than the 160 kg N ha⁻¹ recorded in the previous 5-year cycle of the experiment, but may simply reflect the effect of seasons less favourable for the growth and development of the clover plants (the variety and cultural management were unchanged). Thus the negative nitrogen balance shown on plots given PK fertilisers alone should be diminished by more than 84 kg N ha⁻¹; also our data take no account of the N dug down in the clover roots and nodules. Wherever FYM was given there were large apparent balances of N remaining in the soil. However, the value of these N residues was small, whether judged by crop response (Table 3) or by N uptakes (Table 10) and so either this N was lost by leaching during winter or remained in the soil in a form unavailable to the crops. Balances of P and K are less difficult to interpret. Those of P were always positive where 27 kg P ha⁻¹ was given annually even for crops given N2PK fertilisers, though this amount of P was far less than usually would be given. By contrast, the amount of K that we applied each year (208.5 kg K ha⁻¹ = 1042 kg ha⁻¹ in 5 years) was far more than would usually be recommended. Crops given the N2PK fertiliser dressing removed a total of 734 kg K ha⁻¹ in 5 years, of which 145 kg ha⁻¹ was provided by the soil, leaving the balance (589 kg ha⁻¹) presumably to be provided by fertiliser. This represents an apparent recovery of 56% of the fertiliser given, almost identical with that obtained in the previous 5 years of the experiment (57%), but larger than that shown in Table 9 for crops given N1PK fertilisers. The data in Table 11 show that K uptakes by the larger crops, grown where both FYM and NPK fertilisers were given, were roughly 30% larger than with NPK alone. However, because the FYM was so rich in K (Table 6) it was then evidently no longer necessary to apply so much fertiliser K. The use of FYM should therefore have allowed considerable economy in the use of fertiliser K, had the experimental design allowed us to do so, and farmers with access to FYM should consider K balances in their farming systems carefully, to determine whether they can make savings.

Mg in potato leaves and tubers and in sugar-beet tops. Appendix Table 5 shows that % Mg in potato leaves was diminished by K, either in fertiliser or in FYM, and was increased only a little by applying Mg fertiliser to the seedbed. Table 12 shows how the N, P and K fertilisers changed % Mg in the potato leaves and tubers. Evidently the concentration in the leaves was a far better guide to Mg availability in the soil than % Mg in the tubers, which was diminished by giving K fertiliser, but not changed at all by giving Mg fertiliser.

The concentration of Mg in sugar-beet tops was decreased by the K in fertilisers and in FYM just as it was in potato leaves (Appendix Table 5), but giving Mg fertiliser did not always increase % Mg in the tops, in particular where FYM was given. Table 11

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TABLE 12
Mean percentages of Mg in potato leaves in July, in the mature potato tubers and in mature sugar-beet tops, together with mean uptakes, 1975-79

| | N | | P | | K | |
|------------|--|------|---------|------|---------|------|
| | Without | With | Without | With | Without | With |
| | % Mg in potato leaves | | | | | |
| Without Mg | 0.35 | 0.34 | 0.34 | 0.36 | 0.50 | 0.20 |
| With Mg | 0.40 | 0.40 | 0.39 | 0.41 | 0.57 | 0.23 |
| | % Mg in potato tubers | | | | | |
| Without Mg | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.08 |
| With Mg | 0.07 | 0.08 | 0.07 | 0.08 | 0.06 | 0.08 |
| | Mg (kg ha ⁻¹) in potato tubers | | | | | |
| Without Mg | 2.0 | 2.7 | 2.2 | 2.6 | 1.1 | 3.7 |
| With Mg | 2.2 | 3.0 | 2.4 | 2.9 | 1.1 | 4.1 |
| | % Mg in sugar-beet tops | | | | | |
| Without Mg | 0.28 | 0.37 | 0.32 | 0.34 | 0.42 | 0.24 |
| With Mg | 0.29 | 0.40 | 0.35 | 0.35 | 0.45 | 0.25 |
| | Mg (kg ha ⁻¹) in sugar-beet tops | | | | | |
| Without Mg | 4.7 | 12.0 | 8.5 | 8.2 | 10.0 | 6.6 |
| With Mg | 4.9 | 12.5 | 8.8 | 8.5 | 10.6 | 6.8 |

shows that the increases in Mg concentration from giving N and the decreases from giving K were far larger than the increases from Mg fertiliser. However, because Mg fertiliser increased yields, it also increased Mg uptakes.

Practical implications

The value of FYM on a sandy soil. The fact, previously noted, that the combination of FYM and NPK fertilisers produced the largest yield of all six crops was substantiated in the final 5-year cycle of the experiment (Table 13). Thus, for sugar beet and potatoes,

TABLE 13
Mean yields (t ha⁻¹) of crops grown without and with FYM, 1975-79

| FYM (D) | Potato tubers ⁽¹⁾ | | Winter oats grain ⁽²⁾ | | Sugar beet roots ⁽¹⁾ | | Spring barley grain ⁽²⁾ | | Clover-grass ley ⁽³⁾ | | Long ley ⁽³⁾ | |
|---------|------------------------------|------|----------------------------------|------|---------------------------------|------|------------------------------------|------|---------------------------------|------|-------------------------|------|
| | — | D | — | D | — | D | — | D | — | D | — | D |
| None | 6.6 | 25.2 | 1.72 | 2.61 | 10.4 | 26.4 | 1.58 | 2.60 | 2.74 | 6.64 | 3.57 | 5.53 |
| N1PK | 25.0 | 34.3 | 3.71 | 3.62 | 25.9 | 35.3 | 4.14 | 4.67 | 7.52 | 8.12 | 6.88 | 7.63 |
| N2PK | 28.1 | 37.9 | 4.47 | 4.93 | 30.6 | 41.0 | 5.01 | 5.20 | 7.73 | 9.04 | 8.02 | 9.01 |

(1)=fresh weight; (2)=weight at 15% moisture content; (3)=dry weight

the increase in yield from the double dose of N (N2PK) was as large or larger where FYM was applied, than where it was not. The combined effect of the two sources of nutrients was to increase yields of potato tubers and sugar-beet roots by a third, as compared with yields from N2PK fertilisers alone. The residues from the FYM dressings given for potatoes and sugar beet also enhanced the yields of the following crops, presumably because they improved not only the nutrient content of the soil, but also its structure and permeability (Williams, 1973). After 20 years, soil on plots given FYM twice in each 5-year cycle of the experiment was darker in colour, less dense and more friable, than soil on plots given NPK fertilisers alone. It is difficult to avoid the conclusion that on poorly structured soils like this one, organic manures are of real value, even where, as

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here, short duration clover-grass leys are grown, partly with the intention of maintaining soil structure and organic matter content.

The effects of NPK fertilisers alone and with FYM through time. Twenty years is not long in the history of a soil. However, the relationship between the smaller yields with NPK fertilisers alone and the larger yields with NPK and FYM shown in the first cycle of the experiment (1960–64) was maintained throughout its life (Table 14). The benefit given by FYM in terms of dry matter was greater in the second cropping cycle than in the first, but subsequently remained unchanged, both in absolute and in relative terms. The percentage gain in dry matter yield from FYM on plots also given NPK fertilisers was remarkably consistent (Table 14), with little change, either with time or with single

TABLE 14

Mean annual production of dry matter ($t\ ha^{-1}$) from five arable crops, in each 5-year cycle of the experiment, where NPK fertilisers were given alone and where FYM also was given, together with the % increases in yield given by the FYM

| Years | 1960–64 | 1965–69 | 1970–74 | 1975–79 | Mean |
|---|---------|---------|---------|---------|-------|
| Without FYM | | | | | |
| N1PK | 8.22 | 8.76 | 8.79 | 7.71 | 8.37 |
| N2PK | 9.07 | 10.61 | 10.08 | 9.05 | 9.70 |
| With FYM | | | | | |
| N1PK | 9.27 | 10.35 | 10.37 | 9.02 | 9.75 |
| N2PK | 10.53 | 12.49 | 11.89 | 10.74 | 11.41 |
| % increase in yield from FYM with: | | | | | |
| N1PK | 13 | 18 | 18 | 17 | 16 |
| N2PK | 16 | 18 | 18 | 19 | 18 |

and double amounts of fertiliser N (N1PK v. N2PK). FYM consistently increased mean annual dry matter production by 18%, over and above that obtained with N1PK or N2PK fertilisers alone. Since the additional response to N2 was far smaller than the response to N1 where fertilisers alone were given, we cannot assume that the nitrogen fertiliser dressings that we chose to give were too small. Table 1 shows that the response to N2 was larger where FYM was given than where it was not on four of the six crops, suggesting that some nutrient other than N was limiting yield, possibly K. However, we applied far more K for our crops than currently is recommended and our balance sheets showed that we always applied more K than the crops removed. We also applied magnesium basally twice in 5 years. This suggests that the FYM either enhanced the availability of nutrients already in this soil and of those in fertilisers (we measured increased uptakes of P where FYM was given, Tables 9 and 10) or so improved the soil structure that it allowed roots to make better use of available moisture. Certainly growth was much superior where both FYM and fertilisers were given, than where either was given alone. Clearly, an effect as large as this is important for evidently yields on soils like this, which initially contained only 0.68% C, will be limited unless organic manures are used. This experiment cannot fully explain the benefits that the FYM gave, but a larger and more comprehensive experiment on the same soil (Mattingly, 1974) has demonstrated that organic amendments have a large beneficial effect, for a range of arable crops, that cannot be explained by their crop nutrient contents alone.

Long-term nutrient balance sheets. Because both yield and nutrient content were measured each year for 20 years we have been able to construct a nutrient balance sheet averaged over the four complete 5-year cycles of the experiment (Appendix Table 6). This shows with considerable accuracy not only the amounts of N, P and K that the adequately manured crops removed and hence by inference required, but also the amounts of N, P and K that the crops were able to obtain from the soil alone. Thus the

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mean annual contributions (kg ha^{-1}) were 80 of N from soil and the activity of clover nodules together and 13.6 of P and 51.6 of K from soil alone. These values are larger than those obtained in the final 5-year cycle of the experiment (Table 8) and that for N is misleading, because it includes the contribution made by the clover-grass ley. However, the values given for P and K are probably the best estimates that we can make of soil supply in the absence of fertiliser residues.

Summary

The experiment was begun in 1960 on the sandy-silty loam of Stackyard Field at Woburn to test N, P, K and Mg fertilisers alone and with FYM on five arable crops grown in rotation and on a long ley and soft fruit. This paper gives results from the fourth and final 5-year cycle (1975–79) and summarises some yield and crop uptake data over the whole 20 years.

In this final cycle N continued greatly to increase yields of all crops except the clover-grass ley. P increased yields more than previously, but only little compared with K, which greatly enhanced yields of all 6 crops, but especially sugar beet, potatoes and the clover-grass ley, for all of which the effect of K was greater than that of N.

FYM was tested alone and with N1PK and N2PK fertilisers for potatoes, sugar beet and the long ley; the other crops valued its residues. Yields of all crops were largest where both FYM and NPK fertilisers were given and the effect of FYM was not diminished by doubling fertiliser N. Over the 20 years FYM increased mean yields by 16% with N1PK and by 18% with N2PK fertilisers.

Nutrient balance sheets for 1975–79 and for all 20 years showed that during each 5 years fertiliser K (1042 kg ha^{-1}) and the K applied in the FYM (1020 kg) were almost the same, as were amounts of P ($137 \text{ v. } 116 \text{ kg P ha}^{-1}$ respectively). The total amounts of nutrients removed (in kg ha^{-1}) by the five crops from 1975–79, ranged from 171 to 698 of N, 29 to 105 of P and 131 to 1101 of K, the largest uptakes being by the largest crops.

The experiment also measured the mean annual amounts of N, P and K supplied by the soil alone. These were (in kg ha^{-1}) 39 of N, 10.4 of P and 29 of K in the final 5 years and 48 of N, 13.6 of P and 52 of K over 20 years.

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APPENDIX TABLE 1
 Mean yields of agricultural produce from combinations of N, P and K fertilisers and FYM (D) tested on four arable crops and on soft fruit in the Woburn Reference experiment, 1975-79

| | Treatments | | | | | | | | | | | |
|-------------------|------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 0 | NI | P | NIP | K | NIK | PK | NIPK | N2PK | D | NIPKD | N2PKD |
| Potato tubers* | 6.64 | 7.37 | 6.74 | 7.76 | 13.44 | 19.71 | 16.53 | 24.99 | 28.14 | 25.18 | 34.29 | 37.91 |
| Sugar-beet roots* | 10.39 | 15.24 | 9.54 | 12.51 | 13.26 | 24.97 | 12.24 | 25.94 | 30.65 | 26.38 | 35.26 | 41.04 |
| Sugar-beet tops* | 7.96 | 16.54 | 8.27 | 14.11 | 8.44 | 18.66 | 8.54 | 20.57 | 28.98 | 17.80 | 26.35 | 35.98 |
| Barley | 1.58 | 2.64 | 1.61 | 1.98 | 1.74 | 3.44 | 1.81 | 4.14 | 5.01 | 2.60 | 4.67 | 5.20 |
| Oats | 1.72 | 3.16 | 1.74 | 3.55 | 1.64 | 3.18 | 1.71 | 3.71 | 4.47 | 2.61 | 3.62 | 4.93 |
| Sugar beet* | 1631 | 2393 | 1486 | 1911 | 2180 | 4234 | 1975 | 4442 | 4974 | 4526 | 6060 | 6768 |
| Gooseberries | 1.30 | 2.21 | 3.69 | 2.43 | 2.52 | 3.45 | 2.66 | 5.28 | 3.89 | 4.76 | 5.31 | 4.63 |
| Blackcurrants† | 2.40 | 2.11 | 2.47 | 3.25 | 3.08 | 3.18 | 3.42 | 4.75 | 3.52 | 3.10 | 3.45 | 5.32 |
| Strawberries | 0.70 | 0.74 | 0.89 | 1.40 | 0.95 | 1.29 | 1.31 | 1.30 | 1.07 | 1.27 | 1.11 | 0.57 |

* Averaged over without and with Mg on each treatment for all years (1975-79)

† Mean of 4 years (crop failure in 1977)

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APPENDIX TABLE 2
Mean yields of dry matter (t ha⁻¹) from combinations of N, P and K fertilisers and FYM (D) tested on five arable crops and a long ley in the Woburn Reference experiment, 1975-79

| | Treatments | | | | | | | | | | | |
|------------------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 0 | NI | P | NIP | K | NIK | PK | NIPK | N2PK | D | NIPKD | N2PKD |
| Potatoes total tubers* | 1.66 | 1.80 | 1.69 | 1.87 | 3.35 | 4.78 | 3.93 | 6.07 | 7.02 | 6.18 | 7.59 | 8.56 |
| Sugar-beet tops* | 1.67 | 3.17 | 1.67 | 2.78 | 1.78 | 3.56 | 1.68 | 3.74 | 4.85 | 3.14 | 4.51 | 5.68 |
| roots* | 2.40 | 3.51 | 2.20 | 2.82 | 3.11 | 6.00 | 2.83 | 6.29 | 7.05 | 6.34 | 8.47 | 9.53 |
| Barley grain | 1.34 | 2.24 | 1.37 | 1.68 | 1.48 | 2.92 | 1.54 | 3.52 | 4.26 | 2.21 | 3.97 | 4.42 |
| straw | 1.20 | 2.40 | 1.24 | 2.19 | 1.36 | 3.14 | 1.32 | 3.50 | 4.65 | 2.04 | 4.14 | 5.11 |
| Oats grain | 1.46 | 2.69 | 1.48 | 3.02 | 1.39 | 2.70 | 1.45 | 3.15 | 3.80 | 2.22 | 3.08 | 4.19 |
| straw | 1.70 | 3.13 | 1.74 | 3.47 | 1.81 | 3.80 | 2.04 | 4.75 | 5.90 | 2.89 | 5.24 | 7.19 |
| Rotation ley | 2.74 | 4.18 | 2.95 | 4.10 | 5.25 | 6.24 | 5.94 | 7.52 | 7.73 | 6.64 | 8.12 | 9.04 |
| Total in 5 years | 14.17 | 23.12 | 14.34 | 21.93 | 19.53 | 33.14 | 20.73 | 38.54 | 45.26 | 31.66 | 45.12 | 53.72 |
| Long ley | 3.57 | 5.78 | 2.89 | 5.87 | 4.75 | 6.60 | 4.79 | 6.88 | 8.02 | 5.53 | 7.63 | 9.01 |

* Averaged over without and with Mg on each treatment for all years (1975-79)

APPENDIX TABLE 3
Mean yields of potatoes and of sugar beet without magnesium and the increases from applying magnesium in the Woburn Reference experiment, 1975-79

| | Main treatments | | | | | | | | | | | |
|-------------------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 0 | NI | P | NIP | K | NIK | PK | NIPK | N2PK | D | NIPKD | N2PKD |
| Yields without Mg | 7.11 | 7.15 | 6.74 | 7.63 | 12.97 | 18.65 | 15.91 | 24.27 | 28.15 | 24.98 | 33.90 | 37.67 |
| Increases from Mg | -0.93 | 0.44 | -0.01 | 0.26 | 0.94 | 2.11 | 1.23 | 1.44 | -0.02 | 0.41 | 0.78 | 0.48 |
| Yields without Mg | 11.09 | 14.97 | 9.59 | 12.67 | 12.31 | 24.64 | 12.41 | 25.42 | 29.48 | 27.29 | 34.94 | 40.98 |
| Increases from Mg | -1.40 | 0.54 | -0.11 | -0.33 | 1.90 | 0.68 | -0.35 | 1.04 | 2.34 | -1.82 | 0.64 | 0.12 |
| Yields without Mg | 8.20 | 16.88 | 7.93 | 14.21 | 8.41 | 18.73 | 8.48 | 20.09 | 29.46 | 17.09 | 26.04 | 38.20 |
| Increases from Mg | -0.48 | -0.69 | 0.68 | -0.20 | 0.06 | -0.14 | 0.13 | 0.96 | -0.96 | 1.43 | 0.61 | -4.44 |

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APPENDIX TABLE 4

Mean annual amounts (kg ha⁻¹) of nitrogen (N), phosphorus (P), and potassium (K) taken up by five arable crops and by a long ley grown with combinations of N, P and K fertilisers and FYM (D) in the Woburn Reference experiment, 1975-79

| | 0 | Treatments | | | | | | | | | | |
|-----------------------|------|------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | NI | P | NIP | K | NIK | PK | NIPK | N2PK | D | NIPKD | N2PKD |
| Nitrogen | | | | | | | | | | | | |
| Barley grain | 18.7 | 38.5 | 19.2 | 29.3 | 20.3 | 43.7 | 20.4 | 50.7 | 73.2 | 30.9 | 60.2 | 81.4 |
| Barley straw | 4.9 | 13.0 | 5.4 | 13.8 | 4.8 | 12.1 | 4.7 | 12.3 | 21.6 | 7.1 | 15.3 | 28.4 |
| Oats grain | 23.1 | 45.0 | 24.4 | 48.2 | 20.9 | 41.7 | 22.2 | 51.0 | 71.6 | 34.8 | 51.9 | 76.6 |
| Oats straw | 5.2 | 11.1 | 5.7 | 12.4 | 5.8 | 12.8 | 5.9 | 16.2 | 29.1 | 8.8 | 22.4 | 35.1 |
| Potatoes total tubers | 22.5 | 31.2 | 23.0 | 34.0 | 43.5 | 67.9 | 50.6 | 90.4 | 104.1 | 78.2 | 117.2 | 133.2 |
| Sugar beet tops | 28.8 | 70.2 | 30.4 | 68.5 | 29.7 | 70.8 | 28.9 | 74.0 | 117.7 | 58.4 | 92.9 | 134.0 |
| Sugar beet roots | 18.1 | 29.4 | 20.2 | 23.4 | 28.2 | 52.4 | 24.1 | 46.4 | 70.8 | 46.1 | 74.3 | 84.5 |
| Rotation ley | 49.8 | 56.8 | 52.8 | 47.2 | 109.2 | 104.6 | 122.8 | 121.8 | 116.7 | 127.2 | 123.1 | 124.8 |
| Long ley | 72.7 | 102.8 | 56.5 | 100.9 | 100.1 | 106.3 | 102.2 | 114.3 | 161.5 | 100.3 | 122.3 | 182.3 |
| Phosphorus | | | | | | | | | | | | |
| Barley grain | 4.7 | 6.8 | 5.0 | 5.4 | 5.4 | 8.0 | 5.8 | 10.9 | 11.8 | 7.5 | 14.1 | 16.0 |
| Barley straw | 1.0 | 1.2 | 1.4 | 1.6 | 1.0 | 1.1 | 1.4 | 1.6 | 2.0 | 1.6 | 2.8 | 5.6 |
| Oats grain | 5.1 | 8.2 | 5.5 | 10.5 | 5.1 | 8.5 | 5.2 | 10.2 | 13.2 | 7.9 | 11.2 | 15.8 |
| Oats straw | 1.7 | 1.1 | 2.4 | 2.3 | 1.8 | 2.1 | 3.0 | 2.4 | 3.2 | 3.0 | 5.0 | 6.1 |
| Potatoes total tubers | 4.0 | 4.3 | 4.1 | 4.7 | 6.4 | 8.4 | 8.5 | 10.5 | 11.1 | 12.3 | 15.3 | 14.6 |
| Sugar beet tops | 3.5 | 6.7 | 4.8 | 8.3 | 3.3 | 6.3 | 4.3 | 9.1 | 11.9 | 7.9 | 11.7 | 14.3 |
| Sugar beet roots | 2.8 | 4.1 | 3.0 | 3.9 | 3.4 | 6.7 | 3.7 | 7.8 | 8.7 | 8.2 | 10.9 | 12.6 |
| Rotation ley | 5.9 | 8.1 | 7.9 | 9.4 | 9.7 | 11.0 | 13.5 | 15.5 | 15.9 | 15.1 | 18.9 | 19.8 |
| Long ley | 9.2 | 14.4 | 8.1 | 16.6 | 11.6 | 14.4 | 13.2 | 17.1 | 21.2 | 15.7 | 22.9 | 26.0 |
| Potassium | | | | | | | | | | | | |
| Barley grain | 7.2 | 10.7 | 7.8 | 8.5 | 8.8 | 14.2 | 9.2 | 17.9 | 21.4 | 12.3 | 21.5 | 24.9 |
| Barley straw | 7.3 | 7.3 | 8.5 | 5.5 | 16.9 | 39.0 | 16.3 | 41.1 | 58.0 | 24.9 | 67.8 | 106.1 |
| Oats grain | 7.6 | 12.3 | 7.5 | 14.2 | 7.3 | 14.1 | 7.3 | 16.4 | 20.2 | 11.7 | 16.3 | 22.6 |
| Oats straw | 13.8 | 16.0 | 13.9 | 13.7 | 39.5 | 68.5 | 43.8 | 80.8 | 119.1 | 61.0 | 126.6 | 189.8 |
| Potatoes total tubers | 21.8 | 22.8 | 23.0 | 22.5 | 73.3 | 99.8 | 90.3 | 121.8 | 129.8 | 137.0 | 190.4 | 214.8 |
| Sugar beet tops | 25.4 | 36.5 | 22.5 | 23.0 | 62.0 | 133.4 | 57.8 | 131.2 | 172.5 | 116.5 | 203.8 | 262.9 |
| Sugar beet roots | 14.8 | 20.6 | 13.3 | 14.8 | 23.8 | 45.8 | 23.0 | 43.5 | 53.1 | 47.8 | 66.3 | 86.0 |
| Rotation ley | 32.8 | 44.4 | 37.2 | 41.0 | 140.8 | 142.4 | 158.4 | 167.3 | 159.9 | 148.6 | 195.3 | 193.6 |
| Long ley | 59.5 | 56.2 | 45.7 | 52.9 | 108.0 | 144.8 | 113.3 | 143.5 | 168.0 | 141.1 | 208.9 | 250.7 |

WOBURN REFERENCE EXPERIMENT, 1975-79

APPENDIX TABLE 5
The mean percentages of magnesium and mean amounts (kg ha⁻¹) of magnesium in potato leaves, dry potato tubers, and dry sugar-beet tops, in the Woburn Reference experiment, 1975-79

| | Main treatments | | | | | | | | | | | | | |
|------------|-----------------|------|------|------|------|-------------------------------------|------|------|------|------|------|-------|-------|--|
| | 0 | N1 | P | NIP | K | % Mg in leaves in July (1975-79) | | | | N2PK | D | NIPKD | N2PKD | |
| | | | | | | NIK | PK | NIPK | N2PK | | | | | |
| Potatoes | | | | | | | | | | | | | | |
| Without Mg | 0.51 | 0.44 | 0.52 | 0.51 | 0.19 | 0.20 | 0.19 | 0.20 | 0.22 | 0.27 | 0.26 | 0.24 | 0.28 | |
| With Mg | 0.59 | 0.50 | 0.61 | 0.59 | 0.20 | 0.26 | 0.20 | 0.26 | 0.25 | 0.31 | 0.28 | 0.27 | 0.27 | |
| | | | | | | % Mg in tubers | | | | | | | | |
| Without Mg | 0.06 | 0.06 | 0.06 | 0.06 | 0.08 | 0.08 | 0.09 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | |
| With Mg | 0.06 | 0.06 | 0.06 | 0.07 | 0.08 | 0.08 | 0.09 | 0.08 | 0.09 | 0.08 | 0.09 | 0.09 | 0.09 | |
| | | | | | | Mg (kg ha ⁻¹) in tubers | | | | | | | | |
| Without Mg | 1.1 | 1.1 | 1.1 | 1.1 | 2.6 | 3.8 | 3.4 | 4.9 | 5.8 | 5.8 | 5.9 | 6.9 | 8.2 | |
| With Mg | 1.0 | 1.2 | 1.1 | 1.2 | 2.9 | 4.4 | 3.8 | 5.4 | 5.8 | 5.8 | 5.8 | 7.8 | 8.2 | |
| | | | | | | % Mg in tops | | | | | | | | |
| Sugar beet | | | | | | | | | | | | | | |
| Without Mg | 0.37 | 0.45 | 0.36 | 0.48 | 0.20 | 0.27 | 0.21 | 0.29 | 0.30 | 0.31 | 0.31 | 0.28 | 0.32 | |
| With Mg | 0.36 | 0.55 | 0.37 | 0.51 | 0.20 | 0.28 | 0.23 | 0.28 | 0.37 | 0.29 | 0.29 | 0.27 | 0.30 | |
| | | | | | | Mg (kg ha ⁻¹) in tops | | | | | | | | |
| Without Mg | 6.3 | 14.8 | 5.6 | 13.4 | 3.5 | 9.3 | 3.4 | 10.3 | 14.2 | 9.1 | 12.4 | 12.4 | 19.2 | |
| With Mg | 5.8 | 16.5 | 6.3 | 13.7 | 3.6 | 9.5 | 3.8 | 10.3 | 17.7 | 9.4 | 12.3 | 12.3 | 16.1 | |

APPENDIX TABLE 6
The mean amounts (kg ha⁻¹) of nitrogen (N), phosphorus (P) and potassium (K) applied for and removed by five arable crops during four 5-year periods of the experiment, 1960-79

| | Main treatments | | | | | | | | | | | | | |
|------------|-----------------|------|------|------|------|-----------------------------------|------|------|------|------|------|-------|-------|--|
| | 0 | N1 | P | NIP | K | Mg (kg ha ⁻¹) in tops | | | | N2PK | D | NIPKD | N2PKD | |
| | | | | | | NIK | PK | NIPK | N2PK | | | | | |
| Nitrogen | | | | | | | | | | | | | | |
| Added | 0 | 369 | 0 | 369 | 0 | 369 | 0 | 369 | 738 | 699 | 1068 | 1437 | | |
| Removed | 301 | 417 | 296 | 396 | 391 | 523 | 402 | 567 | 700 | 508 | 682 | 850 | | |
| Difference | -301 | -48 | -296 | -28 | -391 | -154 | -402 | -198 | +38 | +191 | +386 | +587 | | |
| Phosphorus | | | | | | | | | | | | | | |
| Added | 0 | 0 | 137 | 137 | 0 | 0 | 137 | 137 | 137 | 174 | 312 | 312 | | |
| Removed | 44 | 55 | 49 | 60 | 52 | 68 | 60 | 81 | 88 | 78 | 105 | 118 | | |
| Difference | -44 | -55 | +88 | +77 | -52 | -68 | +77 | +56 | +49 | +96 | +207 | +194 | | |
| Potassium | | | | | | | | | | | | | | |
| Added | 0 | 0 | 0 | 0 | 964 | 964 | 964 | 964 | 964 | 960 | 1924 | 1924 | | |
| Removed | 239 | 281 | 242 | 258 | 485 | 638 | 505 | 681 | 757 | 634 | 952 | 1144 | | |
| Difference | -239 | -281 | -242 | -258 | +479 | +326 | +459 | +283 | +207 | +326 | +972 | +780 | | |

Synoptic Monitoring for Migrant Insect Pests in Great Britain and Western Europe III. The Seasonal Distribution of Pest Aphids and the Annual Aphid Aerofauna over Great Britain 1975–80

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Abstract

To facilitate the recognition of alate aphid pest species and potential virus vectors in random samples of airborne migrants, the total aerial samples for all species between 1975 and 1980 are tabulated at 18 continuously operated sampling stations. Annual means for the geographical distributions of up to three seasonal cycles of migration of 27 species of alate aphids, including agricultural and forest pests, are mapped to verify annual life cycles and provide a basis for forecasting distribution.

Introduction

Since 1964, flying aphids have been monitored systematically at an increasing number of sites throughout Great Britain as part of an investigation into aerial populations of insects with special reference to agricultural and other pest species. An ultimate objective is to develop a forecasting system and a preliminary requisite is to establish the general level of the aerofauna in order to detect changes in populations prior to epidemics.

The sampling network has subsequently extended into Holland, Denmark, Northern Ireland, France and Belgium. This has made possible the comparison of the pest species and the total species present in the aphid aerofauna separated by ecological barriers of differing extent, such as the mountains of Wales and Scotland, the Northern Channel of the Irish Sea, the English Channel and especially the North Sea.

All the aphid species found in aerial samples from the 31 trap sites that have operated in Great Britain over a period of 16 years have been identified, the records collated, and the list of 317 species published in Part I of this paper (Taylor, French, Woiwod, Dupuch & Nicklen, 1981). For comparison, the species sampled near Copenhagen, in Denmark, between 1971 and 1976 have also been compiled and published in Part II of this paper (Heie, Philipsen & Taylor, 1981).

Not all pest aphids are well known and under constant observation. For example, increased damage to cereals over the last few decades has directed attention to some grass aphids previously ignored. It is not yet clear how much damage is done directly or by virus disease, nor which aphids are responsible in different regions and countries. Some potential vector species are rarely found on crops because they do not remain there long enough to build up populations and the chance of finding a visiting migrant during the brief moments of routine crop inspection is remote (Taylor, 1974). Nevertheless such aphids may feed long enough to transmit virus. Only by sampling and identifying all aphids in flight between crops can potential vectors be recognised because species not commonly associated with the crop concerned, or even with agricultural crops in general, may be unsuspected vectors.

Furthermore, a knowledge of the population dynamics of each pest is necessary to assess the risk of crop damage by infesting populations before they are controlled naturally by physical and biological means. Population dynamics theory is also needed to

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estimate the likely effects of treatment at a given place and time, and to assess its economic and environmental costs, such as the potential for developing insecticide resistance. Traditional approaches to population dynamics that focus on the stabilising properties balancing births and deaths in isolated elements of populations are not applicable to aphids, except possibly to a few monophagous tree-feeding species with atypical life cycles. For most aphid species, and for all those pests of annual crops, there are no persistent populations to stabilise, and hence no continuity that would make key factor or life-table analysis relevant (Gilbert, 1982). Populations of most pest aphid species become extinct on a given host two or three times each year, when they die or migrate to another host plant, often of different family, form and distribution. There, the aphid morphs, and their behaviour and dynamics, also differ. In addition, the rapid clonal multiplication of aphids leads to the successive domination of differing eco-types within the species, especially in pest species which respond to the selection pressure of changing cultivars and cropping rotations, by changes in host preference, reproductive rates and migration times (Daniels, 1981).

The geographical pattern of productivity of migrants arises from the success of the preceding cycle of apterous population growth. These distinct distributions which differ numerically, geographically and morphologically, must be known in order to predict the next population cycle.

Whatever sampling method is employed, pest-assessment requires a continuous and automatically updated concept of synoptic distribution, modified by changes in host-plant distribution throughout the seasonal cycle, by climate and biological controlling agents. This cannot be done on a local scale because aphids frequently infest crops hundreds of kilometres from their overwintering sites, and many of their parasitic organisms and predators are equally mobile. The system needs to be able to detect deficiencies in prognosis and to suggest solutions when mistakes are discovered. The historical component of changes, and the many ecological factors involved, usually require decades of continuous recording before such defects are discovered.

With such a synoptic view of populations, local deviations and field-scale factors begin to be measurable. Changes in the rate of population growth in different parts of the geographical range of each species, and on different crop hosts, can be more easily detected and analysed by comparison with changes in other areas.

Virus infection is difficult to forecast from crop samples because the range of vector aphids may be wide and unknown. Aerial samples detect the range of species necessary to recognise which vectors were responsible for infection after it has been observed. Forecasting may then depend on adequate subsampling for vector individuals (Plumb, 1981) of a wide range of species even for one virus (van Harten, 1981). Aerial sampling yields comparable population estimates for different places, crops and pest species. Results show the great variability in times and distribution of migration between different years and different places. They also show how the pattern of migration progresses over large areas, where major concentrations occur, and where the current risk is greatest (Bardner, French and Dupuch, 1981).

The numbers and distribution of aphids

This paper presents a list of all species that occurred in any of 18 major sample sites in Great Britain, Nos. 916, 907, 912, 923, 906, 905, 922, 919, 911, 904, 917, 901, 924, 914, 908, 903, 913, 910 (sites are listed and mapped in Fig. 1,* that operated between 1975 and 1980. Those 72 species that occurred five or less times are listed (Table 1, *see* pp. 36–38)

* Figs. 1–16 are in Pt I (Taylor *et al.*, *Rothamsted Experimental Station. Report for 1980*, Part 2,41–104). Figs. 17–35 are in Pt III (this paper), pp. 102–121.

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with the site, year and sample number. Those 186 species that occurred more frequently are fully tabulated (Table 2, *see pp.* 39–101) to show their changing migrant population with time and regional distribution. Some species are explosive in their annual productivity. *Aploneura lentisci* (530), for example, occurred in modest numbers, mainly in the south, in 1975. Samples increased to thousands in 1976 and the population expanded to cover the island of Great Britain. In 1977 the species had almost disappeared, diminishing further during 1978 and 1979, and disappearing altogether in 1980. In contrast *Schizolachnus pineti* (4) occurred in small numbers almost everywhere in 1975 and 1976, disappeared in 1977, reappeared in the midlands in 1978 and 1979 and reached its maximum numbers in 1980. The pest species are discussed in more detail below.

The 6-year mean geographical distributions (1975–80) for each of the migratory cycles of 27 species of special concern are mapped in Figs. 17–35 based on 18 sample sites. The number of maps presented for each species is based on the known life-history, the size of the samples and the seasonal cycle of migration in Figs. 3–9.

The basic life-histories and interpretation of the species are listed below in the same sequence as the maps. This sequence is determined partly by convenience in figure arrangement and partly to illustrate relevant features of distribution pattern.

The number of maps for a given species is based on what was already known about its ecology, or what has been found from the aerial samples. In the classical cycle of arable crop pests in temperate maritime climates, there are three seasonal cycles of migration; spring emigration of migrants from the overwintering woody hosts, if the species is holocyclic, to the developing crop; summer migration of alienicolae from the ripening crop to other herbaceous secondary hosts; autumn return migration of sexuparae from the secondary hosts to the primary overwintering hosts. This pattern is typified by *Aphis fabae* and is clearly recognisable in many species by the phenology of migration which shows three cycles, and in the maps which reflect the different distribution of the three hosts. This pattern is also recognisable in anholocyclic populations when the crop host generates a disproportionately large and geographically concentrated summer emigration. The autumn return migration is often diffuse, reflecting the widely distributed and wide host-species range of polyphagous alienicolae. The spring migration then shows how the species distribution has become concentrated by the restricted primary host range of holocyclic species and the success in overwintering survival of anholocyclic species.

When the holocyclic species remain longer, into the late spring, on the primary host and develop larger populations, the secondary host population may also grow slowly and the summer migration may then be late enough to form the sexuparous return migration. When, as in *Phorodon humuli*, the secondary host range is also botanically and geographically restricted, the resulting two migrations are clearly recognisable.

Monophagous tree aphids, like *Elatobium abietinum*, may have only one clear-cut migratory cycle.

All three classes of migration include species with less precise migratory mechanisms so that there are species with indeterminate systems not yet understood. This is evident from the maps, taken in conjunction with the phenologies shown in Figs. 3–9. In interpreting these figures, it is relevant that there are no samples from the north-west of Scotland, so the maps there are distorted. Also, the maps are based on sample means over several years, so that annual variation in timing or population distribution tends to smooth the pattern. Individual years often show greater differences between seasonal migration distributions than appears from these means.

132, *Aphis fabae* Scopoli, 1763 (Black Bean Aphid) (Figs. 8a and 17) is holocyclic in Britain, overwintering in the egg stage mainly on spindle, *Euonymus europaeus*, in the

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southern half of Britain; small numbers occur on the guelder rose, *Viburnum opulus* and possibly *Philadelphus*. Eggs hatch between late February and early April and alatae are produced in May; these migrate in late May and early June to field beans and sugar beet, on which large colonies may develop causing direct feeding damage, and also to wild plants such as dock, poppies, goosefoot and fat-hen. Alatae are produced on these secondary hosts in response to crowding which reinfest the same crop or migrate to other crops and wild plants. This summer migration is particularly noticeable in East Anglia and represents the migration from field beans and sugar beet. In the autumn *A. fabae* migrates back to *E. europaeus* where eggs are laid.

A reliable forecast of the likelihood of infestations of *A. fabae* causing damage to field beans is based on large-scale sampling of winter host plants. Suction-trap samples can also forecast infestation of bean crops (Way, Cammell, Taylor & Woiwod, 1981). It should be possible to expand this forecast to indicate the initial infestation of sugar beet and forecast direct damage. *A. fabae* is also an important pest of sugar beet because it spreads beet yellows virus and beet mosaic virus after its introduction to the crop. It is a known vector of more than 30 viruses.

The *Aphis* spp. are difficult to separate quickly, especially the males, and *fabae* grp. (132) includes several other possible species that are known to be so rare as not seriously to affect the samples. The taxonomy of this group of species is still uncertain.

The three classical migration cycles show clearly in the maps. The summer migration, mainly from agricultural crops is dominant in East Anglia and eastern Scotland. The subsequent autumn migration from wild herbaceous annuals is more diffuse, whilst the following spring migration, mainly from *Euonymus*, is concentrated near to the southern chalk downs.

389, *Acyrtosiphon pisum* (Harris, 1776) (Pea Aphid) (Figs. 7c and 18) is holocyclic or anholocyclic in Britain and is autoecious on legumes, overwintering as an egg low on the haulm of sainfoin, trefoil and lucerne or, in mild winters, active stages may survive. Eggs hatch in February and March, and alatae, produced in May, migrate to the growing points of peas, on which this aphid is a pest, and other legumes. Numbers reach a peak on peas in late June and early July shortly before peak numbers are found in the trap samples in the pea growing areas of the south-east and East Anglia. The trap samples also indicate a small autumn migration, probably of sexuparae; sexuales have been found on *Ononis*, *Lathyrus*, *Trifolium* and *Medicago*. *A. pisum* is a vector of more than 30 plant viruses, both persistent and non-persistent, including pea enation mosaic, pea leaf roll and bean leaf roll.

Whether or not damaging infestations of *A. pisum* occur on peas is partly dependent on the initial infestation of the crop. This is likely to be associated with the numbers migrating in the spring and early summer, whereas the species' success on peas can be measured by the numbers migrating from the crop in the summer. There is no known economic threshold for *A. pisum* on peas.

There are many different recognised races or biotypes, some differentiated by colour, and known to have different host preferences, reproductive rates and behaviour.

Although pea aphid has no systematic host-alternating migrations, the maps clearly show overwintering survival confined to the south and East Anglia; dominant summer populations in arable areas and totally diffuse, fairly small, autumn migration, not unlike bean aphid.

322, *Myzus* (*S. Nectarosiphon*) *persicae* (Sulzer, 1776) (Peach/Potato Aphid) (Figs. 7a and 19) is the most important pest and vector aphid in Britain due to its wide host range and its proficiency in transmitting more than 120 plant viruses. It is anholocyclic on many

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herbaceous plants and brassicas, but is also holocyclic on peach, *Prunus persica*, hence confined to small numbers in gardens in southern Britain. The survival of the anholocyclic population during the winter is particularly important in determining the timing and level of infestation of crops in the spring, and the subsequent spread of virus diseases. Alatae develop in spring and migrate to potatoes and sugar beet, as well as to other herbaceous plants. *M. persicae* does not usually form dense colonies, but tends to migrate by walking to infest other parts of the same and neighbouring plants. The anholocyclic life-cycle and the tendency to move between plants contribute greatly to the importance of this species as a vector of potato leaf-roll virus and potato virus Y, on seed potato crops, of beet yellows virus and beet mild yellowing virus on sugar beet, and a number of viruses on other crops. Numbers may sometimes increase rapidly to reach tens of thousands per plant on potato. Alatae develop during the second half of July and migrate to other crops or to wild herbaceous plants. This migration predominates in the eastern arable areas where there is the largest acreage of sugar beet and potatoes. There is a further redistribution of *M. persicae* in the autumn between herbaceous plants and brassicas, and it is on these plants that the aphids overwinter.

The spring weather at Rothamsted Experimental Station can be used to predict accurately the incidence of virus yellows in sugar beet throughout the country during the coming summer (Watson, Heathcote, Lauckner & Sowray, 1975). Analysis of the change in the distributions of the autumn and spring migrations suggest that *M. persicae* overwinters most successfully in the south-east and the London basin and this may explain these Watson-Hurst virus-incidence equations (Taylor, 1977a).

Few *M. persicae* are found in the trap samples, but those that fly early in the year give an indication of potential virus infection of crops and should therefore be included in any virus index on potatoes (van Harten, 1981) or sugar beet. This aphid damages peach directly in the Mediterranean region and can also kill potatoes when uncontrolled or insecticide-resistant.

The timing of seasonal migration cycles of peach/potato aphid differ in the north and south, but the maps reflect a similar general pattern to bean aphid. Major summer emigrations are from arable crop areas. The autumn migration tends to be rather more westerly, but by the spring, the overwintering population has been greatly reduced in the north and west, with maximum survival in the south-east.

358, *Hyperomyzus lactucae* (Linnaeus, 1758) (Current/Sowthistle Aphid) (Figs. 6c and 20) is heteroecious and holocyclic, spending the winter as an egg on black currants and occasionally on red currants. Eggs hatch in March and early April and the subsequent generations may cause damage to currants. Including necrotic yellows on lettuce, this aphid is a known vector of about ten viruses. Few alatae develop in the second generation, but more in the third generation and these migrate in late May and June to sowthistle. The suction-trap samples suggest there may be further migration between secondary hosts from late June to the end of August. In autumn the return migration to *Ribes* reaches peak numbers in early October. The numbers migrating in the autumn may indicate likely damage to currants the following spring.

The migratory cycles in spring are not very clearly separated, but overwintering is mainly in southern Britain. The summer migration reflects the distribution of *Sonchus* and the autumn migration is slightly higher in the southern half of Great Britain. There is an appreciable increase in population in the south by the next spring.

420, (*Macrosiphum*) *S. Sitobion avenae* (Fabricius, 1775) (Grain Aphid) (Figs. 8c and 21) is autoecious and can be a serious pest on cereals, particularly on wheat. This species is usually anholocyclic in Britain, but a small proportion of the population overwinters

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holocyclically as eggs on Gramineae. Eggs hatch and alatae fly in May and June to reinfest the same crop or migrate to other Gramineae. Alatae produced throughout the summer, in response to increasing density and declining food quality, may reinfest crops or migrate to other Gramineae. The later migrants infest grasses, and it is from these that the small autumn migration arises which infests early-sown winter cereals as well as grasses. Those that infest cereals can introduce barley yellow dwarf virus, but also establish overwintering populations which can develop rapidly in the spring if conditions are favourable.

The suction-trap samples in the autumn and spring indicate the numbers of *S. avenae* infesting crops, but as damage occurs some time after this initial infestation, when aphids are emigrating from crops, the samples are not ideal for monitoring the development on crops. However, development models are being devised to predict the maximum population on wheat, which use the number of aphids in the trap samples as a starting point (Carter & Dewar, 1981). The monitoring of the autumn migration to cereals is becoming increasingly important as the trend towards planting winter cereals earlier results in a larger proportion of the acreage becoming infested in the autumn.

The spring migration is much greater in southern England, diminishing northwards. The vast summer migration has a concentration in Norfolk, but is widespread at very high densities throughout the lowlands; even the highlands of the south-western peninsula, Wales, northern England and Scotland have very great aerial populations. The autumn migration is modest and diffuse so that the population increases considerably in the south during winter.

114, *Rhopalosiphum padi* (Linnaeus, 1758) (Bird-cherry Aphid) (Figs. 9d and 22) is mainly holocyclic in northern Britain, but in the south it is also anholocyclic. Eggs laid on *Prunus padus* from September to November hatch the following April. Alatae begin to migrate in early May to Gramineae, including wheat, barley and oats, where large colonies may occasionally develop, and some other monocotyledons. Alatae also migrate from anholocyclic populations at this time. The summer migration is mainly from cereals to grasses, particularly in eastern Britain, but also between grasses in western Britain. The timing of the autumn migration to *P. padus* for the holocyclic population, and to early-sown cereals and grasses for the anholocyclic population, is dependent on day length. Those aphids that migrate to the ever-increasing acreage of early sown winter cereals, are often the primary source of infection for barley yellow dwarf virus. The survival of the anholocyclic population on cereals during the winter greatly affects the subsequent spread of BYDV.

Suction-trap samples in the autumn, combined with a measure of the proportion of aphids transmitting virus, are used to give an indication of the potential risk of BYDV infection in early-sown crops in different areas of Britain (Plumb, 1981). This aphid is a vector for at least seven viruses. Its aerial populations far exceed those of any other aphid species in Britain and, in common with only *Rhopalosiphum insertum* and the *Pemphigus* spp., its cycles of migration increase progressively through the year. The losses over winter are very great and survival is maximal in the extreme east and west, unlike most aphids.

396, *Metopolophium dirhodum* (Walker, 1848) (Rose/Grain Aphid) (Figs. 8b and 23) is heteroecious and holocyclic although it may overwinter anholocyclically. Eggs laid on wild and cultivated roses in October and November hatch in the spring. Alatae migrate to grasses, especially *Bromus* spp., and cereals, particularly wheat, where the population can build up to epidemic proportions (Dewar, Woiwod & Choppin de Janvry, 1980). Alatae are produced on cereals in response to increasing population density and reinfest

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the crops or migrate to other grasses. *M. dirhodum* is a poor vector of barley yellow dwarf virus, although it can spread the virus within fields, and of radish yellows.

The suction traps monitor the small migration from roses to cereals and so give an indication of the initial infestation. However, subsequent population development is dependent on a number of factors. The suction traps monitor the emigration from cereals and grasses of alatae produced in response to increasing density and declining food quality.

In common with many crop aphids, the summer migration is much the largest but it is atypical in its distribution, maximal in the north-west and south-east, reflecting its grass hosts as well as cereals. The autumn migration is also unusual being greater in the north. By spring the distribution has reversed, overwintering evidently being more successful in the south.

111, *Rhopalosiphum insertum* (Walker, 1849) (Apple/Grass Aphid) (Figs. 9c and 24) is heteroecious and holocyclic overwintering as an egg mainly on apple, but also on pears, rowan, medlar and hawthorn. Eggs hatch in April and the developing population on apple may cause some damage in exceptional years. Alatae migrate to grasses during May and June where they colonise the roots. There is a large summer migration during which other grasses are colonised. In the autumn there is a large migration back to apple. This species transmits barley yellow dwarf virus and may be responsible for some of the initial infection of early-sown cereal crops in the autumn. Autumn suction-trap samples have been related to the number of oviparae on apple in the autumn and so to damage the following spring (Taylor, 1977b; Light, 1980). These autumn samples can now be used to warn of potential damage to apples in the following spring.

The three well-marked seasonal migrations increase progressively in size and their distributions show no regional characteristics, except that the spring migration tends to diminish slightly towards the east and west coasts. Unusually there is hardly any latitudinal segregation, overwintering losses being generally distributed throughout the island.

410, *Macrosiphum euphorbiae* (Thomas C. A., 1878) (Potato Aphid) (Figs. 7d and 25) is polyphagous and anholocyclic in Britain and only on rare occasions do sexual forms lay eggs on Rosaceae. Apterae overwinter on many species of weeds. Alatae migrate in May and June to new hosts, including potatoes on which they are a pest. If infestations are heavy there may be a second dispersal migration in July. Infestations are usually widespread on potatoes, but only occasionally reach large numbers when it causes 'false top roll'. There is a small migration of *M. euphorbiae* in the autumn. The timing and size of infestation on potatoes in the spring and early summer is dependent on the overwintering survival of the anholocyclic population which would appear to be least successful in Scotland and northern England. *M. euphorbiae* is a poor vector of potato virus Y, but may be common enough to be included in a virus index for the probable infection of potato seed crops. It is a vector of more than 50 viruses, both persistent and non-persistent, including pea mosaic, onion yellow dwarf, beet mosaic and dock viruses. It is more highly polyphagous than most aphids, on monocotyledons as well as dicotyledons; it is of American origin, introduced to Europe about 1917.

The summer migration is the largest; both it and the smaller autumn migration are widespread over Great Britain. Only the spring migration is concentrated in the south where overwintering is apparently most successful.

421, (*Macrosiphum*) *Sitobion fragariae* (Walker, 1848) (Blackberry/Grain Aphid) (Figs. 7b and 26) is heteroecious and holocyclic, overwintering as an egg on blackberry. Eggs hatch in spring and alatae migrate to grasses in late spring and early summer. *S. fragariae* may be found on the ears of wheat, but is much less common than *S. avenae*. Alatae

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which are produced during the summer presumably migrate to other species of Gramineae.

The spring migration is mainly in the south-west and quite prominent. The summer migration is maximal in the midlands of England. The autumn return migration to blackberry is late and mainly in the south and west, but not so concentrated as in spring.

355, *Nasonovia ribisnigri* (Mosley, O., 1841) (Currant/Lettuce Aphid) (Figs. 6a and 27) may be a pest on both its primary and secondary host. In northern Britain it is normally holocyclic, overwintering as an egg on any part of gooseberries and currants, including the fallen leaves, but in the south this species can be anholocyclic on Compositae especially lettuce, on which it is the most important aphid pest, chicory, hawkweed and speedwell. Eggs hatch on the primary host in March and alatae that develop migrate, from mid-May to June, to lettuce where large colonies stunt growth and prevent hearting. Although the numbers in the trap samples are generally small, there is a suggestion of further redistribution of alatae during the summer, presumably between secondary hosts. There is a third migration in the autumn to the overwintering hosts which can be either gooseberries and currants or lettuce. As numbers in the trap samples are usually small, it may only be possible to give an indication of seasons in which either exceptionally large, or small, numbers are expected.

The three discernible migrations in this species are all diffuse and spread widely over Great Britain.

243, *Brachycaudus helichrysi* (Kaltenbach, 1843) (Leaf-curling Plum Aphid) (Figs. 5a and 28) is holocyclic. The primary hosts are various *Prunus* species, particularly plums and damson on which it can be a serious pest. Eggs hatch in February and March and alatae are produced in the latter half of May which migrate to a number of secondary hosts including clover, asters and chrysanthemums. The migration from *Prunus* is usually complete by early July. The return migration to *Prunus* begins in the latter half of August and continues until the end of October. It is the progeny of those aphids that successfully find *Prunus* in the autumn that develop into damaging infestations the following spring. It may therefore be possible to give an indication of the potential levels of infestation in the spring from the numbers of aphids migrating the previous autumn.

B. helichrysi is a vector of a number of virus diseases including plum pox and potato virus Y. Although a poor vector of PVY, *B. helichrysi* occurs in sufficiently large numbers to cause large infections of potato seed crops (Govier, pers. comm.) and has been included in an index assessing the potential risk to seed crops (van Harten, 1981).

Separate maps have been made for weeks 1–26 and 27–33, and these maps show a marked shift in distribution from south- and west-midland to east-midland England. They are not clearly segregated in time and the aphids ecology suggests they are both part of the primary migration. The smaller return migration is uniformly distributed over Great Britain, with no population growth in the north before spring because of the southerly distribution of the primary hosts.

292, *Cavariella aegopodii* (Scopoli, 1763) (Willow/Carrot Aphid) (Figs. 4a and 29) is heteroecious between willow species and various umbelliferous plants. Eggs laid on the young shoots of willow in the autumn hatch between February and early April. Alatae, developed in May, migrate over a 5- or 6-week period to umbellifers including carrots, parsnips, celery and parsley on which the aphid is a pest. In late seasons the migration from the primary host may be delayed by 2 or 3 weeks. As populations develop on carrot crops, the alatae produced migrate to hedgerow umbellifers. By the end of July few aphids can be found on carrots. In the autumn, sexuparae migrate back to willow where eggs are laid. An anholocyclic population also remains on overwintering umbellifers such as

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late lifted carrots and carrot seed crops. Spring alatae from anholocyclic populations migrate to umbelliferous crops earlier than those from willow. However, the proportions of the population overwintering holocyclically and anholocyclically are not known. *C. aegopodii* is a vector of persistent carrot motley dwarf virus and semi-persistent parsnip yellow fleck, and a number of non-persistent viruses.

The numbers migrating in the autumn may be reflected in the numbers migrating from willow the following spring. However, the spring migration from the umbellifers will depend on overwintering success. It is therefore important to know the proportions of the population that overwinter holocyclically and anholocyclically.

The primary migration is widespread throughout England and fairly heavy. The second map (weeks 27–37) may be secondary migrants, but is not yet clearly distinguished. The autumn return migration is uniformly distributed.

308, *Phorodon humuli* (Schrank, 1801) (Damson/Hop Aphid) (Figs. 5b and 30) is heteroecious and holocyclic, laying eggs in the autumn on blackthorn, *Prunus spinosa*, and damson and plum, *P. domestica*. Eggs hatch between late February and April, and the developing population on plums may cause some damage. The migration from *Prunus* to hops begins in late May and continues until late July or early August. Some aphids may remain on the sucker growth of plums throughout the summer. *P. humuli* is a pest of hops every year and therefore the timing of the migration to hops is probably of greater importance to growers than the size of the migration. The dates of the beginning and end of the migration can be obtained from the suction-trap samples. No alatae are produced on hops until gynoparae and males develop in the autumn and these migrate back to *Prunus*. This migration is concentrated in the two hop-growing regions of Britain (Taylor, Woivod & Taylor, 1979). The size of the autumn migration may give an indication of potential damage to plums the following spring and the subsequent migration to hops.

Like *Brachycaudus helichrysi*, this species has two clearly segregated migrations, the first reflecting the overwintering *Prunus* host distribution. The profound difference in the distribution of their return migrations shows clearly the accumulative effect of intense cultivation of the primary and secondary hosts in close proximity. *P. humuli* transmits a number of plant viruses including plum pox and hop mosaic.

264, *Brevicoryne brassicae* (Linnaeus, 1758) (Cabbage Aphid) (Figs. 6b and 30) is autoecious on brassicas and produces sexual forms in the autumn. In the milder parts of the south and west the winter may be passed anholocyclically. The eggs laid on the stems of brassicas in the autumn hatch between the end of February and the end of April, and alatae are produced from the end of May to July which migrate to newly planted brassica crops such as cabbage, cauliflower, Brussels sprouts, kale, rape, radish, swedes and mustard. The aphids are heavily wax-coated. Dense colonies may develop on the leaves, or on the flower of seed crops, causing considerable damage, particularly in warm dry weather. Alatae, produced throughout the summer, infest other brassicas. In the autumn infestations in the heads of cabbage, cauliflower and Brussels sprouts reduce market value. *B. brassicae* is a vector of cauliflower mosaic virus and cabbage black ring spot as well as about 14 other plant viruses.

Few *B. brassicae* are found in the trap samples but the number recorded early in the year might indicate seasons of either exceptionally large or small infestations.

There is no pronounced seasonal segregation of migration in this species but the pattern of migration in weeks 1–34 suggests that agricultural practice is a major factor in perpetuating distribution.

110, *Hyalopterus pruni* (Geoffroy, 1762) (Mealy Plum Aphid) (Figs. 8d and 31) is hetero-

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ecious and holocyclic with eggs being laid on *Prunus* species, mainly plums, but also peaches, apricots and almonds. The eggs hatch in April, and the aphids developing on plums can cause serious damage curling the young leaves. Alatae of *H. pruni*, which develop later than those of other aphid pests of plums, migrate to waterside grasses and reeds from the beginning of June. The population on plums continues to increase until July, and the peak migration is observed between early July and mid-August. Some alatae migrating from plums may form new colonies on other plum trees. The return migration to *Prunus* begins in September. The small autumn migration may give an indication of the level of infestation on plums the following spring. *H. pruni* is a vector of plum pox.

The primary migration of this aphid is surprisingly easterly in its distribution in England, as compared with *Phorodon humuli* and *Brachycaudus helichrysi*, and requires further investigation.

500, *Eriosoma (Schizoneura) ulmi* (Linnaeus, 1758) (Currant Root Aphid) (Figs. 3c and 31) is heteroecious and holocyclic, overwintering as eggs on *Ulmus*. The eggs hatch in the spring and the fundatrices form galls on elm. Alatae migrate, after the beginning of June, to gooseberries where aphids may seriously check growth, and also to red and black currants. The alatae larviposit on the soil near the base of stems, and the larvae work their way through the soil to infest the roots. Alatae develop on gooseberry late in the autumn and migrate back to *Ulmus* where eggs are laid. The numbers of aphids migrating in the autumn and spring may indicate subsequent infestation of gooseberries.

The autumn migration reflects the distribution of soft fruit, but the decline of elm in the south seems to be reflected in the annual totals in the samples (Table 2cc) and may change the pattern progressively northward in the future.

91, *Drepanosiphum platanoidis* (Schrank, 1801) (Sycamore Aphid) (Figs. 3d and 32) is holocyclic and autoecious on sycamore, *Acer pseudoplatanus*. During the summer all adults are alate and active. There is a migration of the aphid in spring and early summer which is larger in the north of England and Scotland than in the south. This species is of no known agricultural importance. Much work has been done on the population dynamics of this species in the field and laboratory (Dixon, 1979). However, the distribution of the migrations in the two halves of the year differ more regionally than might be expected from what is known and suggest some overriding factor not yet evident.

397, *Metopolophium festucae* (Theobald, 1917) (Fescue Aphid) (Figs. 4b and 32) is autoecious on grasses, especially meadow grasses where the life cycle is anholocyclic except in the extreme north where it may be holocyclic. Alatae are produced from May to July which migrate to other grasses and cereals. This species may stunt winter oats if attacked early but is not usually a pest of cereals; heavy infestations may develop on grass seed crops particularly in the Midlands.

Distribution is widespread and undistinguished in either part of the year.

112, *Rhopalosiphum maidis* (Fitch, 1856) (Cereal Leaf Aphid) (Figs. 6d and 33) is anholocyclic feeding on leaf blades of grasses, and occasionally occurs on barley and maize in the summer in Britain. The trap samples indicate a small summer migration which may originate in cultivated cereals, particularly as it is concentrated in eastern Britain, but it occurs sporadically over the whole country.

376, *Aulacorthum solani* (Kaltenbach, 1843) (Glasshouse/Potato Aphid) (Figs. 4d and 33) is almost entirely anholocyclic in Britain occurring on a wide variety of plants particularly

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Digitalis. When sexual forms and eggs occur, they are found on many different plant species. It is a pest of potatoes but seldom occurs in sufficiently large numbers to cause direct feeding damage. However, it transmits more than 30 plant viruses including potato leaf roll and potato virus Y, though less efficiently than *Myzus persicae*.

The few *A. solani* found in trap samples probably give little indication of potential damage to potatoes. The overwintering survival and the time that aphids move to potatoes is of greater importance. The number of *A. solani* in trap samples together with their efficiency of transmission are incorporated in an index indicating potential risk of virus spread in potato seed crops (van Harten, 1981).

Its distribution is indeterminate.

234, *Dysaphis (S. Pomaphis) plantaginea* (Passerini, 1860) (Rosy Apple Aphid) (Figs. 5d and 34) is heteroecious and holocyclic spending the winter in the egg stage on apple, pear, hawthorn and *Sorbus* species. Eggs hatch from mid-March to early April, the subsequent aphid populations cause the most serious aphid damage to apples, severe leaf curling. Alatae on the primary host are produced in July which migrate mainly to plantain but also to umbellifers and docks. However, the suction-trap samples indicate that migration begins about a month earlier. Some aphids may remain on apples until August, or even for the whole year. The return migration to apple in the autumn begins at the end of August, but most are found in the trap samples in the last half of September and the first half of October. Trap samples in the autumn indicate the levels of infestation expected the following spring.

During both primary and return migration this species remains mainly in the southern half of the island.

78, *Phyllaphis fagi* (Linnaeus, 1767) (Beech Aphid) (Figs. 5c and 34) is autoecious on beech. There is a redistribution of alatae from May to July, and another migration in the autumn which comprises sexuparae.

The summer migration is consistently larger than the autumn migration. Distribution is quite uniform in the autumn migration.

290, *Elatobium abietinum* (Walker, 1849) (Green Spruce Aphid) (Figs. 3a and 35) is autoecious on *Picea* species, particularly *P. sitchensis* on which it is a pest. In Britain it is almost exclusively anholocyclic; sexual forms or eggs only having been recorded on rare occasions. Alatae develop during the spring and early summer in response to the changing nutritional status of the host plant. They migrate from late April to the end of July to other spruce trees where they aestivate until the plants are again in a favourable condition.

The duration of the migration increases from south to north and its median date is associated with temperature (Carter & Cole, 1977). The size of the migration, together with the severity of winter weather, indicates the levels of damage expected the following year. There is a pronounced longitudinal graduation in distribution, with a maximum in the west, in contrast to the arable aphids.

318, *Myzus (S. Nectarosiphon) ascalonicus* Doncaster, 1946 (Shallot Aphid) (Figs. 3b and 35) lives anholocyclically on a wide variety of host plants and it may be a pest on a number of crops including strawberries, onions, shallots, lettuce and cabbage. Little seems to be known of its biology but it develops large populations at low temperatures. It is often one of the first aphids found in trap samples in the spring when redistribution flights begin and continues to migrate until mid-July. There is also a small autumn migration. The distribution reflects that of arable crops.

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315, *Myzus ornatus* Laing, 1932 (Violet Aphid) (Figs. 9b and 35) is anholocyclic on a wide variety of plants. Alatae develop in the spring and migrate from May to July to potatoes and other plants. Large infestations may develop on old and damaged leaves of potatoes in late August and September. A few alatae may be produced on potatoes, but few are found in the suction-trap samples throughout the year. In the laboratory *M. ornatus* has been shown to transmit a number of plant viruses including sugar beet yellows and potato leaf roll.

Occurs mainly in the south.

319, *Myzus (S. Nectarosiphon) certus* (Walker, 1849) (Violet/Dianthus Aphid) (Figs. 4c and 35) is difficult to separate taxonomically from *M. persicae* and little is known of its life history. It is most likely to be found on chickweed and violets. Few are found in the suction-trap samples, but most are found between mid-May and the end of July, and mainly in the midlands and central southern England.

1506, *Pemphigus (Prociphilines)* (Poplar-root Aphids) (Fig. 9a) includes a number of species which are difficult to separate taxonomically, including *P. bursarius* which is a root pest of out-door lettuces, and *P. phenax* which is occasionally a pest of carrots. Eggs are laid on poplar in autumn and hatch in March and April when the buds break. The aphids form galls on poplar in which the alatae develop in June. *P. bursarius* migrates to lettuces in July where it infests the roots. Sexuparae, which develop at the end of August, migrate back to poplar in late summer and autumn. Some aphids spend the winter anholocyclically on the roots of lettuce or even in the soil where they will colonise lettuce planted in the same soil the following year. It is difficult to give information concerning a single *Pemphigus* species from the suction-trap samples until the proportion of each species in the sample is known.

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TABLE 1

Annual total sample for aphid species that occurred five or less times at 12.2 m, at any of the 16 sites listed in Table 2 during 1975–80 (excluding sites 904 and 911)

- 24 *Maculolachnus submacula* (Walker, 1848)
1978, 919 (2); 1979, 908 (1); 1980, 924 (1).
- 31 *Neotrama caudata* (Del Guercio, 1909)
1975, 901 (1).
- 33 *Trama rara* Mordvilko, 1908
1979, 923 (1).
- 48 *Chaitophorus tremulae* Koch, C. L., 1854
1976, 908 (1); 1977, 908 (1); 1979, 919 (1); 1980, 906 (2).
- 52 *Sipha kurdjumovi* Mordvilko, 1921
1976, 903 (2); 1980, 908 (2).
- 60 *Callaphis juglandis* (Goeze, 1778)
1978, 917 (1).
- 61 *Chromaphis juglandicola* (Kaltenbach, 1843)
1975, 924 (1); 1976, 903 (1); 1980, 901 (1).
- 65 *Myzocallis boernerii* Stroyan, 1957
1977, 912 (7); 1980, 912 (7).
- 71 *Tinocallis platani* (Kaltenbach, 1843)
1976, 910 (1); 1976, 913 (4); 1977, 913 (3); 1979, 913 (4).
- 73 *Takecallis arundinariae* (Essig, 1917)
1975, 903 (1); 1977, 908 (2); 1977, 913 (1); 1980, 913 (3); 1980, 917 (2).
- 86 *Symydobius oblongus* (von Heyden, C. H. G., 1837)
1979, 903 (2).
- 89 *Drepanosiphum acerinum* (Walker, 1848)
1975, 914 (1); 1977, 917 (2); 1978, 917 (1); 1978, 924 (1); 1979, 917 (2).
- 93 *Therioaphis ononidis* (Kaltenbach, 1843)
1978, 914 (1).
- 731 *Therioaphis riehmi* (Börner, C., 1949)
1979, 919 (2); 1980, 919 (2).
- 96 *Allaphis thripsoides* (Hille Ris Lambers, 1939)
1976, 919 (1); 1979, 919 (2).
- 107 *Plocamaphis bituberculata* (Theobald, 1912)
1976, 917 (2).
- 750 *Rhopalosiphum pilipes* Ossiannilsson, 1959
1976, 917 (2); 1978, 903 (1); 1979, 903 (2); 1979, 908 (1).
- 115 *Euschizaphis palustris* (Theobald, 1929)
1975, 923 (2); 1976, 916 (2).
- 116 *Schizaphis graminum* (Rondani, 1847)
1975, 923 (1); 1978, 910 (1).
- 154 *Aphis ruborum* (Börner, C., 1931)
1978, 910 (1).
- 155 *Aphis schneideri* (Börner, C., 1940)
1978, 914 (1).
- 163 *Aphis craccivora* Koch, C. L., 1854
1979, 901 (1); 1979, 903 (2); 1979, 908 (3); 1979, 924 (1); 1980, 924 (2).
- 196 *Aphis tormentillae* Passerini, 1879
1979, 912 (1).
- 204 *Aphis taraxacicola* (Börner, C., 1940)
1978, 923 (1).
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- 208 *Toxoptera aurantii* (Boyer de Fonscolombe, 1841)
1975, 908 (1); 1976, 908 (1); 1976, 910 (1); 1980, 910 (1).
- 244 *Brachycaudus jacobi* Stroyan, 1957
1976, 914 (1); 1978, 919 (1); 1978, 924 (1),
- 747 *Brachycaudus populi* (Del Guercio, 1911)
1977, 922 (1); 1979, 919 (2).
- 254 *Thuleaphis sedi* (Jacob, 1964)
1975, 907 (1); 1976, 919 (1); 1976, 924 (2).
- 255 *Brachycolus cerastii* (Kaltenbach, 1846)
1976, 908 (1); 1976, 910 (1).
- 262 *Hayhurstia cucubali* (Passerini, 1863)
1980, 910 (1).
- 274 *Decorosiphon corynothrix* Börner, C., 1939
1976, 908 (2); 1976, 923 (1); 1979, 923 (1); 1980, 910 (1); 1980, 924 (2).
- 278 *Coloradoa achilleae* Hille Ris Lambers, 1939
1976, 924 (2); 1977, 901 (2).
- 280 *Coloradoa rufomaculata* (Wilson, 1908)
1976, 901 (2); 1976, 905 (1); 1977, 914 (1); 1977, 922 (1); 1979, 919 (1).
- 748 *Coloradoa inodorella* Ossiannilsson, 1959
1978, 908 (1); 1978, 923 (1); 1979, 906 (1).
- 284 *Ericaphis ericae* (Börner, C., 1933)
1975, 908 (1); 1975, 913 (2); 1976, 912 (1); 1976, 916 (2); 1977, 906 (1)
- 288 *Chaetosiphon S. Pentatrachopus potentillae* (Walker, 1850)
1977, 917 (2); 1977, 924 (1); 1979, 922 (2).
- 304 *Ovatus mentharius* (van der Goot, 1913)
1976, 910 (1); 1978, 914 (1).
- 305 *Ovatus S. Ovatooides inulae* (Walker, 1849)
1975, 910 (1); 1978, 908 (1)
- 321 *Myzus S. Nectarosiphon myosotidis* (Börner, C., 1950)
1977, 919 (1).
- 341 *Capitophorus carduinus* (Walker, 1850)
1978, 922 (1); 1980, 907 (1).
- 349 *Pleotrichophorus duponti* Hille Ris Lambers, 1935
1978, 924 (1).
- 356 *Nasonovia S. Neokakimia dasyphylli* Stroyan, 1957
1976, 908 (1).
- 364 *Myzotoxoptera wimshurstae* Theobald, 1927
1975, 906 (1).
- 370 *Rhopalosiphoninus S. Submegoura heikinheimoi* (Börner, C., 1952)
1975, 901 (1); 1979, 908 (1); 1980, 908 (2).
- 375 *Aulacorthum rufum* Hille Ris Lambers, 1947
1975, 908 (1); 1975, 922 (1); 1977, 901 (1); 1977, 924 (1).
- 394 *Subacyrthosiphon cryptobius* Hille Ris Lambers, 1947
1977, 903 (2); 1977, 907 (1); 1977, 919 (1); 1979, 908 (1); 1979, 924 (1).
- 405 *Anthracosiphon hertae* Hille Ris Lambers, 1947
1975, 912 (1); 1976, 914 (1); 1978, 923 (1).
- 408 *Macrosiphum cholodkovskyi* Mordvilko, 1909
1978, 907 (1).
- 426 *Dactynotus achilleae* (Koch, C. L., 1855)
1980, 912 (1).
- 449 *Dactynotus S. Uromelan taraxaci* (Kaltenbach, 1843)
1979, 912 (5); 1980, 912 (8).

ROTHAMSTED REPORT FOR 1981, PART 2

- 455 *Macrosiphoniella pulvera* (Walker, 1848)
1978, 901 (1).
- 459 *Macrosiphoniella usquertensis* Hille Ris Lambers, 1935
1979, 908 (4).
- 464 *Macrosiphoniella S. Asterobium asteris* (Walker, 1849)
1976, 903 (1); 1978, 907 (1); 1978, 914 (1).
- 475 *Masonaphis S. Ericobium goldamaryae* (Knowlton, 1938)
1975, 913 (1); 1975, 917 (2); 1977, 908 (2); 1980, 903 (2).
- 476 *Masonaphis S. Ericobium morrisoni* (Swain, 1918)
1975, 908 (1); 1975, 910 (1); 1976, 922 (1); 1978, 924 (1); 1979, 908 (2).
- 479 *Wahlgreniella vaccinii* (Theobald, 1924)
1975, 919 (2); 1978, 912 (1).
- 483 *Anoecia vagans* (Koch, C. L., 1856)
1976, 903 (1); 1978, 914 (1); 1978, 924 (1).
- 487 *Glyphina betulae* (Linnaeus, 1758)
1975, 908 (1).
- 507 *Prociphilus fraxini* (Geoffroy, 1762)
1975, 903 (1); 1975, 916 (6); 1976, 908 (4); 1976, 919 (1).
- 526 *Smynthuroides betae* Westwood, 1849
1975, 914 (1); 1977, 910 (2); 1977, 913 (2); 1977, 914 (2).
- 532 *Geoica setulosa* (Passerini, 1860)
1976, 901 (2); 1976, 908 (2); 1976, 914 (4); 1978, 903 (1).
- 533 *Geoica eragrostidis* (Passerini, 1860)
1975, 908 (2); 1975, 914 (3); 1976, 908 (1); 1977, 901 (1).
- 727 *Melanaphis pyraria* (Passerini, 1861)
1978, 901 (1); 1978, 914 (1); 1979, 914 (2).
- 728 *Semiaphis dauci* (Fabricius, 1775)
1975, 910 (3); 1978, 910 (1); 1979, 910 (1); 1980, 901 (2).

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

TABLE 2

Annual total sample for aphid species that occurred on more than five occasions at 12.2 m, at any of 18 sites during 1975–80. Zero catches are recorded 0; dashes indicate no record.

see pages 40–101.

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|----------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 4 <i>Schizolachnus pineti</i> | | | | | | | | | |
| 1975 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |
| 1976 | 17 | 11 | 5 | 1 | 0 | 0 | 4 | 8 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1979 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 8 |
| 1980 | 108 | 3 | 2 | 0 | 0 | 16 | 11 | 32 | 1 |
| 23 <i>Tuberolachnus salignus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 8 | 0 |
| 1977 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 <i>Protrama flavescens</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 <i>Protrama ranunculi</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1978 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 1980 | 0 | 1 | 0 | 1 | 0 | 0 | 6 | 2 | 0 |
| 34 <i>Trama troglodytes</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 <i>Periphyllus acericola</i> | | | | | | | | | |
| 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1978 | 0 | 3 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1979 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(a)

| | 904 Broom's Barn | 917 Hereford | 901 Rothamsted | 924 Writtle | 914 Long Ashton | 908 Silwood Park | 903 Wye, Kent | 913 Starcross | 910 Rosewarne |
|---|------------------|--------------|----------------|-------------|-----------------|------------------|---------------|---------------|---------------|
| — | — | 0 | 3 | 6 | 10 | 28 | 8 | 1 | 0 |
| — | — | 2 | 8 | 16 | 5 | 54 | 17 | 2 | 0 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| — | — | 4 | 2 | 0 | 0 | 7 | 2 | 0 | 0 |
| — | — | 12 | 23 | 15 | 4 | 173 | 31 | 4 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 0 | 0 | 5 | 2 | 5 | 1 | 40 | 0 | 0 | 0 |
| 2 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 1 |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 1 | 2 | 0 | 2 | 3 | 1 | 2 | 2 | 0 | 0 |
| — | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| — | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| — | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| — | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| — | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| — | 0 | 1 | 0 | 7 | 3 | 2 | 2 | 2 | 1 |
| — | 4 | 2 | 3 | 3 | 2 | 2 | 0 | 0 | 0 |
| — | 0 | 2 | 1 | 6 | 2 | 1 | 0 | 0 | 1 |
| — | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 1 |
| — | 0 | 5 | 0 | 5 | 5 | 2 | 5 | 2 | 2 |
| — | 2 | 4 | 4 | 6 | 4 | 0 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| — | 0 | 1 | 1 | 0 | 21 | 2 | 0 | 0 | 0 |
| — | 0 | 65 | 1 | 0 | 0 | 2 | 1 | 0 | 0 |
| — | 0 | 1 | 1 | 0 | 23 | 1 | 1 | 0 | 0 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| — | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 |

4 *Schizolachnus pineti*

1975
1976
1977
1978
1979
1980

23 *Tuberolachnus salignus*

1975
1976
1977
1978
1979
1980

28 *Protrama flavescens*

1975
1976
1977
1978
1979
1980

30 *Protrama ranunculi*

1975
1976
1977
1978
1979
1980

34 *Trama troglodytes*

1975
1976
1977
1978
1979
1980

35 *Periphyllus acericola*

1975
1976
1977
1978
1979
1980

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|------------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 36 <i>Periphyllus xanthomelas</i> | | | | | | | | | |
| 1975 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 38 <i>Periphyllus hirticornis</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 7 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 <i>Periphyllus lyropictus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 41 <i>Periphyllus testudinatus</i> | | | | | | | | | |
| 1975 | 3 | 4 | 7 | 0 | 0 | 0 | 15 | 3 | 1 |
| 1976 | 2 | 8 | 24 | 5 | 1 | 6 | 16 | 21 | 39 |
| 1977 | 0 | 0 | 5 | 1 | 2 | 3 | 3 | 17 | 1 |
| 1978 | 1 | 10 | 34 | 11 | 0 | 5 | 5 | 34 | 14 |
| 1979 | 2 | 12 | 7 | 5 | 0 | 7 | 3 | 127 | 6 |
| 1980 | 7 | 12 | 131 | 14 | 7 | 46 | 27 | 35 | 7 |
| 42 <i>Chaitophorus beuthani</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 3 | 4 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 0 |
| 1979 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 14 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 43 <i>Chaitophorus capreae</i> | | | | | | | | | |
| 1975 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 1976 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(b)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|----|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|---------------------------------|
| 36 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | <i>Periphyllus xanthomelas</i> |
| | — | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 1 | 0 | 6 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1977 |
| | — | 0 | 0 | 1 | 0 | 5 | 0 | 1 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| 38 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | <i>Periphyllus hirticornis</i> |
| | — | 0 | 1 | 1 | 0 | 13 | 5 | 0 | 0 | 1975 |
| | — | 11 | 7 | 8 | 2 | 3 | 11 | 0 | 0 | 1976 |
| | — | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 1977 |
| | — | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 1 | 2 | 0 | 2 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 39 | — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | <i>Periphyllus lyropictus</i> |
| | — | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 41 | 1 | 23 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | <i>Periphyllus testudinatus</i> |
| | 66 | 748 | 52 | 49 | 147 | 27 | 82 | 0 | 0 | 1975 |
| | 34 | 112 | 30 | 69 | 12 | 16 | 24 | 2 | 0 | 1976 |
| | 37 | 290 | 43 | 49 | 41 | 30 | 94 | 8 | 2 | 1977 |
| | 60 | 1003 | 145 | 193 | 62 | 109 | 35 | 10 | 0 | 1978 |
| | 114 | 273 | 141 | 227 | 61 | 5 | 116 | 4 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| 42 | — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | <i>Chaitophorus beuthani</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 3 | 6 | 0 | 0 | 9 | 6 | 0 | 0 | 1976 |
| | — | 2 | 2 | 4 | 0 | 3 | 2 | 0 | 0 | 1977 |
| | — | 2 | 0 | 2 | 0 | 5 | 0 | 0 | 1 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| 43 | — | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | <i>Chaitophorus capreae</i> |
| | — | 8 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 1975 |
| | — | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | 1976 |
| | — | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1977 |
| | — | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|------------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 45 <i>Chaitophorus populeti</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1976 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 6 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 2 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 |
| 1980 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| 46 <i>Chaitophorus populiabae</i> | | | | | | | | | |
| 1975 | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 2 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 |
| 1978 | 2 | 0 | 0 | 1 | 0 | 1 | 6 | 11 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 17 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 12 | 0 |
| 47 <i>Chaitophorus salicti</i> | | | | | | | | | |
| 1975 | 0 | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 9 | 0 |
| 1978 | 0 | 2 | 0 | 2 | 0 | 0 | 4 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 8 | 0 |
| 1980 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | 9 | 0 |
| 49 <i>Chaitophorus truncatus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 50 <i>Chaitophorus versicolor</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 1976 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 16 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 742 <i>Chaitophorus leucomelas</i> | | | | | | | | | |
| 1975 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 1978 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 0 |
| 1979 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 30 | 0 |
| 1980 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(c)

| | 904 Broom's Barn | 917 Hereford | 901 Rothamsted | 924 Writtle | 914 Long Ashton | 908 Silwood Park | 903 Wye, Kent | 913 Starcross | 910 Rosewarne | |
|---|------------------|--------------|----------------|-------------|-----------------|------------------|---------------|---------------|---------------|------------------------------------|
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 <i>Chaitophorus populeti</i> |
| — | — | 4 | 8 | 10 | 0 | 64 | 9 | 2 | 0 | 1975 |
| — | — | 2 | 2 | 18 | 0 | 13 | 8 | 0 | 0 | 1976 |
| — | — | 4 | 2 | 1 | 4 | 2 | 4 | 0 | 0 | 1977 |
| — | — | 8 | 3 | 24 | 0 | 76 | 0 | 1 | 0 | 1978 |
| — | — | 2 | 2 | 2 | 12 | 3 | 1 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | — | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 46 <i>Chaitophorus populiabae</i> |
| — | — | 0 | 2 | 0 | 0 | 4 | 1 | 0 | 0 | 1975 |
| — | — | 2 | 6 | 1 | 1 | 7 | 18 | 1 | 1 | 1976 |
| — | — | 3 | 4 | 8 | 0 | 11 | 8 | 0 | 6 | 1977 |
| — | — | 5 | 3 | 4 | 0 | 17 | 15 | 0 | 5 | 1978 |
| — | — | 0 | 0 | 2 | 0 | 1 | 6 | 0 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| — | — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 47 <i>Chaitophorus salicti</i> |
| — | — | 0 | 0 | 9 | 0 | 4 | 2 | 0 | 0 | 1975 |
| — | — | 3 | 2 | 4 | 0 | 3 | 11 | 0 | 0 | 1976 |
| — | — | 1 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 1977 |
| — | — | 4 | 0 | 3 | 0 | 5 | 6 | 6 | 0 | 1978 |
| — | — | 0 | 0 | 0 | 0 | 4 | 2 | 1 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 49 <i>Chaitophorus truncatus</i> |
| — | — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | — | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1976 |
| — | — | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1977 |
| — | — | 0 | 1 | 4 | 0 | 0 | 4 | 0 | 0 | 1978 |
| — | — | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | — | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 50 <i>Chaitophorus versicolor</i> |
| — | — | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 1975 |
| — | — | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1976 |
| — | — | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 1977 |
| — | — | 0 | 4 | 0 | 2 | 3 | 0 | 0 | 0 | 1978 |
| — | — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 742 <i>Chaitophorus leucomelas</i> |
| — | — | 0 | 0 | 1 | 0 | 6 | 0 | 0 | 0 | 1975 |
| — | — | 3 | 3 | 10 | 6 | 4 | 8 | 0 | 0 | 1976 |
| — | — | 0 | 1 | 0 | 0 | 1 | 5 | 0 | 0 | 1977 |
| — | — | 14 | 0 | 3 | 2 | 17 | 2 | 5 | 0 | 1978 |
| — | — | 0 | 0 | 2 | 0 | 4 | 2 | 1 | 0 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|-----------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 51 <i>Sipha glyceriae</i> | | | | | | | | | |
| 1975 | 9 | 1 | 0 | 4 | 1 | 4 | 59 | 28 | 1 |
| 1976 | 2 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1979 | 5 | 1 | 0 | 1 | 7 | 0 | 22 | 14 | 2 |
| 1980 | 18 | 1 | 0 | 0 | 3 | 1 | 111 | 14 | 3 |
| 59 <i>Atheroides serrulatus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 |
| 63 <i>Myzocallis castanicola</i> | | | | | | | | | |
| 1975 | 0 | 6 | 2 | 3 | 0 | 0 | 2 | 0 | 6 |
| 1976 | 0 | 3 | 0 | 0 | 0 | 4 | 6 | 10 | 20 |
| 1977 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 6 |
| 1978 | 0 | 20 | 0 | 1 | 0 | 1 | 7 | 3 | 4 |
| 1979 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 4 | 28 |
| 1980 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 64 <i>Myzocallis coryli</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 1 | 0 | 4 | 9 | 6 | 0 |
| 1977 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 5 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 3 | 3 | 7 | 1 | 10 | 36 |
| 1980 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 5 |
| 68 <i>Tuberculoides annulatus</i> | | | | | | | | | |
| 1975 | 16 | 275 | 71 | 26 | 18 | 10 | 26 | 98 | 62 |
| 1976 | 51 | 172 | 139 | 123 | 190 | 208 | 569 | 694 | 443 |
| 1977 | 5 | 26 | 5 | 12 | 19 | 9 | 70 | 282 | 2 |
| 1978 | 9 | 509 | 4 | 17 | 206 | 111 | 310 | 274 | 131 |
| 1979 | 15 | 43 | 0 | 24 | 56 | 25 | 85 | 393 | 117 |
| 1980 | 83 | 79 | 0 | 3 | 13 | 28 | 65 | 122 | 88 |
| 758 <i>Tuberculoides borealis</i> | | | | | | | | | |
| 1975 | — | — | — | — | — | — | — | — | — |
| 1976 | — | — | — | — | — | — | — | — | — |
| 1977 | 8 | 24 | 36 | 16 | 22 | 0 | 84 | 106 | 0 |
| 1978 | 22 | 217 | 7 | 13 | 195 | 63 | 457 | 107 | 0 |
| 1979 | 9 | 34 | 0 | 16 | 33 | 19 | 91 | 215 | 0 |
| 1980 | 132 | 121 | 0 | 2 | 35 | 17 | 75 | 84 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(d)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|-----|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|--------------------------------|
| 51 | 0 | 10 | 1 | 2 | 13 | 5 | 0 | 9 | 43 | <i>Sipha glyceriae</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1975 |
| | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1976 |
| | 0 | 1 | 0 | 3 | 1 | 3 | 0 | 0 | 0 | 1977 |
| | 1 | 6 | 0 | 2 | 9 | 4 | 4 | 2 | 0 | 1978 |
| | 0 | 0 | 0 | 0 | 27 | 1 | 2 | 2 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| 59 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | <i>Atheroides serrulatus</i> |
| | — | 4 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1976 |
| | — | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1977 |
| | — | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1978 |
| | — | 4 | 6 | 0 | 0 | 0 | 2 | 1 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 63 | 1 | 0 | 0 | 0 | 0 | 3 | 5 | 1 | 8 | <i>Myzocallis castanicola</i> |
| | 4 | 22 | 24 | 86 | 8 | 156 | 319 | 26 | 35 | 1975 |
| | 5 | 12 | 3 | 4 | 0 | 61 | 13 | 57 | 7 | 1976 |
| | 11 | 18 | 5 | 29 | 0 | 16 | 453 | 33 | 70 | 1977 |
| | 16 | 24 | 15 | 87 | 11 | 467 | 487 | 100 | 6 | 1978 |
| | 20 | 0 | 1 | 29 | 2 | 43 | 40 | 13 | 32 | 1979 |
| | | | | | | | | | | 1980 |
| 64 | 5 | 6 | 2 | 5 | 2 | 1 | 5 | 2 | 1 | <i>Myzocallis coryli</i> |
| | 2 | 41 | 19 | 73 | 55 | 13 | 147 | 5 | 9 | 1975 |
| | 5 | 324 | 67 | 327 | 19 | 29 | 120 | 5 | 6 | 1976 |
| | 4 | 40 | 31 | 27 | 35 | 11 | 143 | 3 | 2 | 1977 |
| | 4 | 56 | 22 | 33 | 50 | 15 | 33 | 12 | 0 | 1978 |
| | 1 | 8 | 20 | 4 | 16 | 2 | 22 | 2 | 4 | 1979 |
| | | | | | | | | | | 1980 |
| 68 | 375 | 112 | 229 | 293 | 43 | 207 | 222 | 46 | 11 | <i>Tuberculoides annulatus</i> |
| | 361 | 1493 | 885 | 2567 | 306 | 1215 | 1152 | 231 | 71 | 1975 |
| | 569 | 3489 | 806 | 1795 | 155 | 1480 | 200 | 272 | 11 | 1976 |
| | 1132 | 757 | 1267 | 1042 | 80 | 205 | 799 | 106 | 24 | 1977 |
| | 1207 | 864 | 460 | 2080 | 126 | 2833 | 761 | 259 | 6 | 1978 |
| | 203 | 252 | 293 | 239 | 60 | 215 | 363 | 68 | 8 | 1979 |
| | | | | | | | | | | 1980 |
| 758 | — | — | — | — | — | — | — | — | — | <i>Tuberculoides borealis</i> |
| | — | — | — | — | — | — | — | — | — | 1975 |
| | — | 5047 | 199 | 1015 | 97 | 527 | 68 | 76 | 3 | 1976 |
| | — | 279 | 313 | 444 | 50 | 104 | 278 | 31 | 13 | 1977 |
| | — | 493 | 147 | 648 | 80 | 1520 | 432 | 126 | 2 | 1978 |
| | — | 159 | 185 | 245 | 48 | 176 | 374 | 49 | 7 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 Elgin | 907 Dundee | 912 Edinburgh | 923 Auchincruive | 906 Newcastle | 905 High Mowthorpe | 922 Preston | 919 Shardlow | 911 Aberystwyth |
|---|-----------|------------|---------------|------------------|---------------|--------------------|-------------|--------------|-----------------|
| 759 <i>Tuberculoides neglectus</i> | | | | | | | | | |
| 1975 | — | — | — | — | — | — | — | — | — |
| 1976 | — | — | — | — | — | — | — | — | — |
| 1977 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 1 | 39 |
| 1978 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 69 <i>Tuberculatus querceus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| 70 <i>Eucallipterus tiliae</i> | | | | | | | | | |
| 1975 | 1 | 13 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 1 | 2 | 0 | 0 | 1 | 2 | 22 | 10 | 0 |
| 1977 | 0 | 0 | 1 | 0 | 3 | 0 | 4 | 22 | 0 |
| 1978 | 0 | 3 | 1 | 0 | 1 | 1 | 5 | 4 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 152 | 0 |
| 1980 | 0 | 2 | 7 | 0 | 0 | 0 | 2 | 4 | 0 |
| 72 <i>Takecallis arundicolens</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75 <i>Pterocallis alni</i> | | | | | | | | | |
| 1975 | 37 | 17 | 8 | 3 | 1 | 4 | 47 | 3 | 0 |
| 1976 | 2 | 1 | 1 | 4 | 4 | 1 | 56 | 2 | 0 |
| 1977 | 1 | 1 | 0 | 1 | 1 | 0 | 6 | 14 | 0 |
| 1978 | 6 | 0 | 2 | 0 | 12 | 7 | 70 | 17 | 0 |
| 1979 | 1 | 0 | 0 | 2 | 2 | 0 | 22 | 4 | 2 |
| 1980 | 0 | 5 | 0 | 0 | 0 | 0 | 14 | 0 | 1 |
| 78 <i>Phyllaphis fagi</i> | | | | | | | | | |
| 1975 | 32 | 326 | 185 | 101 | 10 | 29 | 13 | 0 | 2 |
| 1976 | 40 | 41 | 17 | 12 | 195 | 42 | 34 | 47 | 43 |
| 1977 | 6 | 15 | 41 | 17 | 8 | 0 | 7 | 10 | 3 |
| 1978 | 13 | 59 | 22 | 4 | 8 | 15 | 42 | 30 | 5 |
| 1979 | 20 | 23 | 16 | 4 | 12 | 17 | 7 | 27 | 2 |
| 1980 | 173 | 269 | 1258 | 85 | 38 | 23 | 35 | 6 | 4 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(e)

| | 904 Broom's Barn | 917 Hereford | 901 Rothamsted | 924 Writtle | 914 Long Ashton | 908 Silwood Park | 903 Wye, Kent | 913 Starcross | 910 Rosewarne | |
|--|------------------|--------------|----------------|-------------|-----------------|------------------|---------------|---------------|---------------|------------------------------------|
| | — | — | — | — | — | — | — | — | — | 759 <i>Tuberculoides neglectus</i> |
| | — | — | — | — | — | — | — | — | — | 1975 |
| | — | 8 | 1 | 11 | 0 | 0 | 2 | 1 | 0 | 1976 |
| | — | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 69 <i>Tuberculatus querceus</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | 0 | 1 | 2 | 2 | 0 | 2 | 0 | 0 | 0 | 1976 |
| | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 1977 |
| | 0 | 0 | 0 | 0 | 0 | 11 | 4 | 0 | 0 | 1978 |
| | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 1979 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| | 4 | 0 | 31 | 17 | 4 | 14 | 5 | 1 | 0 | 70 <i>Eucallipterus tiliae</i> |
| | 0 | 0 | 16 | 22 | 14 | 23 | 0 | 4 | 1 | 1975 |
| | 1 | 20 | 107 | 35 | 7 | 26 | 7 | 1 | 0 | 1976 |
| | 1 | 0 | 9 | 9 | 1 | 7 | 9 | 0 | 0 | 1977 |
| | 78 | 0 | 11 | 25 | 0 | 62 | 4 | 1 | 0 | 1978 |
| | 1 | 0 | 20 | 18 | 0 | 6 | 8 | 0 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 1 | 6 | 0 | 0 | 1 | 6 | 10 | 72 <i>Takecallis arundicolens</i> |
| | — | 0 | 0 | 0 | 2 | 8 | 0 | 0 | 8 | 1975 |
| | — | 0 | 0 | 14 | 1 | 1 | 0 | 3 | 5 | 1976 |
| | — | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 5 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 2 | 0 | 18 | 0 | 0 | 6 | 1980 |
| | — | 5 | 0 | 3 | 0 | 3 | 14 | 8 | 2 | 75 <i>Pterocallis alni</i> |
| | — | 43 | 6 | 11 | 18 | 30 | 335 | 2 | 15 | 1975 |
| | — | 205 | 10 | 41 | 7 | 33 | 149 | 1 | 1 | 1976 |
| | — | 28 | 0 | 4 | 3 | 2 | 681 | 11 | 3 | 1977 |
| | — | 52 | 0 | 6 | 10 | 22 | 338 | 17 | 0 | 1978 |
| | — | 24 | 0 | 0 | 2 | 4 | 122 | 1 | 5 | 1979 |
| | | | | | | | | | | 1980 |
| | 4 | 2 | 2 | 0 | 11 | 8 | 4 | 2 | 3 | 78 <i>Phyllaphis fagi</i> |
| | 100 | 40 | 107 | 35 | 81 | 723 | 43 | 10 | 2 | 1975 |
| | 16 | 6 | 29 | 10 | 4 | 28 | 62 | 5 | 0 | 1976 |
| | 10 | 11 | 9 | 7 | 12 | 11 | 12 | 12 | 4 | 1977 |
| | 22 | 6 | 19 | 30 | 9 | 188 | 25 | 15 | 0 | 1978 |
| | 39 | 1 | 15 | 12 | 15 | 55 | 71 | 3 | 0 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 Elgin | 907 Dundee | 912 Edinburgh | 923 Auchincruive | 906 Newcastle | 905 High Mowthorpe | 922 Preston | 919 Shardlow | 911 Aberystwyth |
|--|-----------|------------|---------------|------------------|---------------|--------------------|-------------|--------------|-----------------|
| 79 <i>Callipterinella calliptera</i> | | | | | | | | | |
| 1975 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80 <i>Callipterinella minutissima</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 82 <i>Kallistaphis basalis</i> | | | | | | | | | |
| 1975 | 0 | 9 | 10 | 6 | 5 | 0 | 13 | 4 | 0 |
| 1976 | 1 | 0 | 2 | 1 | 24 | 11 | 28 | 2 | 1 |
| 1977 | 4 | 2 | 0 | 3 | 0 | 0 | 9 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 2 | 2 | 0 | 21 | 0 | 0 |
| 1979 | 0 | 8 | 1 | 7 | 2 | 0 | 1 | 4 | 0 |
| 1980 | 16 | 16 | 0 | 6 | 5 | 3 | 6 | 0 | 0 |
| 83 <i>Kallistaphis betulicola</i> | | | | | | | | | |
| 1975 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 2 | 0 | 0 | 2 | 20 | 2 | 0 | 0 | 0 |
| 1977 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 1978 | 0 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 0 |
| 1980 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 84 <i>Betulaphis quadrituberculata</i> | | | | | | | | | |
| 1975 | 1 | 11 | 34 | 7 | 0 | 1 | 33 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 3 | 4 | 0 | 20 | 0 | 2 |
| 1977 | 0 | 2 | 5 | 1 | 0 | 0 | 8 | 3 | 1 |
| 1978 | 5 | 36 | 6 | 3 | 1 | 2 | 26 | 6 | 0 |
| 1979 | 4 | 24 | 6 | 9 | 2 | 3 | 10 | 36 | 4 |
| 1980 | 143 | 125 | 112 | 19 | 79 | 8 | 32 | 12 | 0 |
| 87 <i>Clethrobium comes</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 4 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(f)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|----|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|-------------------------------------|
| 79 | — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | <i>Callipterinella calliptera</i> |
| | — | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | 1975 |
| | — | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 0 | 0 | | | | | 1980 |
| 80 | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | <i>Callipterinella minutissima</i> |
| | — | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 1 | 0 | 4 | 1 | 3 | 0 | 0 | 1977 |
| | — | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | — | 0 | | | | | | | | 1980 |
| 82 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 6 | <i>Kallistaphis basalis</i> |
| | 0 | 15 | 4 | 6 | 0 | 35 | 45 | 0 | 2 | 1975 |
| | 1 | 0 | 5 | 15 | 2 | 19 | 7 | 9 | 0 | 1976 |
| | 0 | 0 | 1 | 3 | 2 | 5 | 24 | 2 | 13 | 1977 |
| | 0 | 6 | 4 | 4 | 2 | 11 | 68 | 8 | 0 | 1978 |
| | 1 | 0 | 0 | 2 | 0 | 6 | 12 | 4 | 9 | 1979 |
| | | | | | | | | | | 1980 |
| 83 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | <i>Kallistaphis betulicola</i> |
| | 0 | 0 | 0 | 4 | 0 | 4 | 17 | 0 | 0 | 1975 |
| | 0 | 1 | 0 | 2 | 0 | 6 | 1 | 0 | 0 | 1976 |
| | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 1977 |
| | 0 | 0 | 0 | 0 | 0 | 9 | 43 | 2 | 0 | 1978 |
| | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 84 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 0 | 0 | <i>Betulaphis quadrituberculata</i> |
| | 4 | 12 | 0 | 0 | 4 | 8 | 5 | 0 | 0 | 1975 |
| | 0 | 4 | 7 | 16 | 1 | 0 | 36 | 1 | 0 | 1976 |
| | 44 | 11 | 2 | 4 | 5 | 1 | 49 | 0 | 0 | 1977 |
| | 46 | 14 | 11 | 22 | 13 | 29 | 58 | 11 | 0 | 1978 |
| | 0 | 1 | 0 | 7 | 2 | 3 | 15 | 2 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 87 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | <i>Clethrobium comes</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | 0 | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 0 | 1979 |
| | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
|-------------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
| 88 <i>Euceraphis punctipennis</i> | | | | | | | | | |
| 1975 | 65 | 107 | 21 | 16 | 14 | 1 | 35 | 8 | 17 |
| 1976 | 16 | 20 | 14 | 15 | 69 | 19 | 29 | 69 | 55 |
| 1977 | 71 | 50 | 38 | 21 | 39 | 26 | 19 | 37 | 17 |
| 1978 | 277 | 77 | 29 | 14 | 98 | 50 | 173 | 124 | 37 |
| 1979 | 12 | 52 | 46 | 18 | 38 | 20 | 11 | 143 | 29 |
| 1980 | 422 | 288 | 230 | 138 | 219 | 123 | 90 | 175 | 26 |
| 90 <i>Drepanosiphum aceris</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 91 <i>Drepanosiphum platanoidis</i> | | | | | | | | | |
| 1975 | 261 | 458 | 1056 | 69 | 142 | 124 | 747 | 816 | 127 |
| 1976 | 441 | 1646 | 3650 | 213 | 2527 | 1244 | 3566 | 2633 | 2631 |
| 1977 | 163 | 543 | 315 | 117 | 219 | 275 | 1382 | 442 | 41 |
| 1978 | 418 | 4136 | 5961 | 552 | 160 | 282 | 1414 | 320 | 747 |
| 1979 | 328 | 434 | 672 | 330 | 318 | 1066 | 1248 | 2178 | 366 |
| 1980 | 1101 | 2391 | 9000 | 543 | 2185 | 4128 | 3126 | 1839 | 1742 |
| 754 <i>Drepanosiphum dixon.</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | — |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | — |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 92 <i>Therioaphis luteola</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 95 <i>Trichocallis cyperi</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 1 | 0 |
| 1976 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1980 | 1 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(g)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|--|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|-------------------------------------|
| | 1 | 3 | 10 | 27 | 6 | 22 | 21 | 13 | 3 | 88 <i>Euceraphis punctipennis</i> |
| | 56 | 34 | 59 | 123 | 55 | 586 | 93 | 17 | 1 | 1975 |
| | 78 | 54 | 96 | 160 | 102 | 267 | 187 | 66 | 63 | 1976 |
| | 132 | 47 | 97 | 169 | 71 | 88 | 111 | 43 | 14 | 1977 |
| | 122 | 98 | 70 | 192 | 65 | 1268 | 164 | 35 | 0 | 1978 |
| | 56 | 27 | 46 | 77 | 49 | 197 | 65 | 29 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 <i>Drepanosiphum aceris</i> |
| | — | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 1978 |
| | — | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | 91 | 130 | 18 | 51 | 139 | 35 | 25 | 110 | 129 | 91 <i>Drepanosiphum platanoidis</i> |
| | 582 | 374 | 254 | 263 | 588 | 839 | 335 | 412 | 943 | 1975 |
| | 87 | 367 | 92 | 172 | 81 | 222 | 185 | 43 | 43 | 1976 |
| | 109 | 437 | 20 | 81 | 589 | 22 | 292 | 107 | 208 | 1977 |
| | 727 | 992 | 565 | 272 | 827 | 1550 | 244 | 186 | 108 | 1978 |
| | 2018 | 526 | 635 | 645 | 979 | 594 | 437 | 196 | 525 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 754 <i>Drepanosiphum dixonii</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 2 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 <i>Therioaphis luteola</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1978 |
| | — | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| | — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 95 <i>Trichocallis cyperi</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
|----------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
| 100 <i>Juncobia leegei</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102 <i>Pterocomma pilosum</i> | | | | | | | | | |
| 1975 | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 2 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 1 |
| 1977 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 1 |
| 1979 | 1 | 0 | 0 | 6 | 1 | 1 | 3 | 7 | 0 |
| 1980 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 0 |
| 103 <i>Pterocomma populeum</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 |
| 1976 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 3 |
| 1977 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1978 | 0 | 1 | 0 | 0 | 1 | 0 | 5 | 0 | 1 |
| 1979 | 0 | 0 | 1 | 3 | 0 | 0 | 2 | 6 | 1 |
| 1980 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 6 |
| 104 <i>Pterocomma salicis</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105 <i>Pterocomma steinheili</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 110 <i>Hyalopterus pruni</i> | | | | | | | | | |
| 1975 | 11 | 2135 | 80 | 33 | 13 | 20 | 20 | 50 | 2 |
| 1976 | 45 | 1198 | 102 | 58 | 94 | 166 | 327 | 285 | 64 |
| 1977 | 25 | 170 | 68 | 60 | 8 | 33 | 197 | 1524 | 87 |
| 1978 | 7 | 121 | 14 | 12 | 17 | 57 | 149 | 361 | 19 |
| 1979 | 3 | 301 | 10 | 2 | 21 | 297 | 191 | 1749 | 37 |
| 1980 | 18 | 385 | 77 | 23 | 78 | 171 | 350 | 474 | 24 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(h)

| | Broom's Barn | Hereford | Rothamsted | Writtle | Long Ashton | Silwood Park | Wye, Kent | Starcross | Rosewarne | |
|-----|--------------|----------|------------|---------|-------------|--------------|-----------|-----------|-----------|----------------------------------|
| | 904 | 917 | 901 | 924 | 914 | 908 | 903 | 913 | 910 | |
| 100 | — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | <i>Juncobia leegei</i> |
| | — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 6 | 0 | 0 | 23 | 0 | 1976 |
| | — | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 102 <i>Pterocomma pilosum</i> |
| | 0 | 0 | 0 | 0 | 4 | 7 | 1 | 0 | 0 | 1975 |
| | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1976 |
| | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 2 | 1977 |
| | 1 | 12 | 0 | 1 | 3 | 4 | 1 | 0 | 0 | 1978 |
| | 0 | 0 | 1 | 2 | 0 | 4 | 1 | 1 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 2 | 103 <i>Pterocomma populeum</i> |
| | — | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1976 |
| | — | 1 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 1977 |
| | — | 9 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 1978 |
| | — | 2 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 104 <i>Pterocomma salicis</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1978 |
| | — | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 105 <i>Pterocomma steinheili</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 11 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 1979 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| | 111 | 15 | 29 | 127 | 34 | 18 | 73 | 61 | 3 | 110 <i>Hyalopterus pruni</i> |
| | 575 | 240 | 476 | 1710 | 191 | 486 | 599 | 177 | 59 | 1975 |
| | 589 | 918 | 1733 | 1711 | 1130 | 830 | 1769 | 960 | 107 | 1976 |
| | 304 | 115 | 201 | 337 | 114 | 161 | 408 | 101 | 12 | 1977 |
| | 3463 | 410 | 1747 | 2782 | 648 | 1549 | 5299 | 231 | 69 | 1978 |
| | 167 | 36 | 121 | 161 | 60 | 195 | 324 | 60 | 7 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|------------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 111 <i>Rhopalosiphum insertum</i> | | | | | | | | | |
| 1975 | 93 | 448 | 469 | 521 | 248 | 220 | 595 | 659 | 528 |
| 1976 | 358 | 1544 | 745 | 2261 | 1699 | 314 | 2113 | 259 | 764 |
| 1977 | 595 | 1134 | 1010 | 1481 | 1396 | 387 | 2439 | 1936 | 313 |
| 1978 | 468 | 3534 | 1607 | 2680 | 2942 | 1945 | 6561 | 5787 | 6402 |
| 1979 | 2791 | 3192 | 2686 | 933 | 6524 | 4320 | 8702 | 7483 | 9133 |
| 1980 | 3136 | 4827 | 1011 | 3752 | 2320 | 1198 | 10986 | 2002 | 1849 |
| 112 <i>Rhopalosiphum maidis</i> | | | | | | | | | |
| 1975 | 19 | 28 | 31 | 28 | 48 | 84 | 11 | 19 | 3 |
| 1976 | 6 | 3 | 13 | 2 | 4 | 7 | 8 | 1 | 2 |
| 1977 | 3 | 7 | 11 | 3 | 3 | 4 | 5 | 13 | 14 |
| 1978 | 6 | 5 | 4 | 2 | 6 | 2 | 9 | 7 | 17 |
| 1979 | 29 | 153 | 9 | 5 | 69 | 313 | 124 | 160 | 105 |
| 1980 | 2 | 12 | 0 | 6 | 7 | 4 | 7 | 0 | 10 |
| 113 <i>Rhopalosiphum nymphaeae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 65 | 2 |
| 1977 | 0 | 0 | 1 | 0 | 0 | 2 | 6 | 11 | 1 |
| 1978 | 0 | 0 | 1 | 0 | 0 | 0 | 14 | 1 | 0 |
| 1979 | 0 | 1 | 0 | 0 | 2 | 3 | 5 | 27 | 0 |
| 1980 | 0 | 1 | 0 | 0 | 1 | 0 | 33 | 2 | 0 |
| 114 <i>Rhopalosiphum padi</i> | | | | | | | | | |
| 1975 | 2332 | 4784 | 5516 | 1879 | 1197 | 681 | 10839 | 2720 | 2779 |
| 1976 | 2107 | 11779 | 5383 | 3633 | 6012 | 3916 | 3215 | 4379 | 976 |
| 1977 | 17887 | 10571 | 4356 | 4298 | 4552 | 2020 | 14580 | 13201 | 5253 |
| 1978 | 18805 | 41677 | 10434 | 4317 | 7511 | 4797 | 14703 | 22840 | 10662 |
| 1979 | 11301 | 15667 | 8028 | 1913 | 3361 | 4240 | 5949 | 7857 | 2197 |
| 1980 | 2620 | 6243 | 4543 | 3693 | 3782 | 2591 | 11569 | 21658 | 2766 |
| 739 <i>Rhopalosiphum rufulum</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | — |
| 1979 | 0 | 0 | 0 | 0 | 0 | 4 | 56 | 68 | — |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 121 <i>Paraschizaphis scirpi</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 4 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(i)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 |
|-------|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|
| 218 | 171 | 124 | 208 | 194 | 167 | 679 | 259 | 532 | |
| 93 | 266 | 214 | 193 | 126 | 203 | 382 | 181 | 91 | |
| 1268 | 1060 | 1981 | 2227 | 540 | 2028 | 2320 | 1101 | 294 | |
| 5198 | 14537 | 5939 | 3108 | 6015 | 4626 | 6998 | 5646 | 3026 | |
| 1033 | 8702 | 1104 | 710 | 1600 | 1702 | 2244 | 1407 | 813 | |
| 1044 | 844 | 858 | 620 | 1623 | 890 | 1029 | 1043 | 1815 | |
| 18 | 8 | 14 | 16 | 5 | 5 | 18 | 31 | 12 | |
| 3 | 2 | 3 | 5 | 8 | 0 | 15 | 6 | 6 | |
| 31 | 5 | 27 | 66 | 12 | 9 | 30 | 33 | 37 | |
| 12 | 1 | 2 | 4 | 7 | 3 | 17 | 7 | 7 | |
| 977 | 77 | 186 | 255 | 38 | 75 | 804 | 88 | 224 | |
| 18 | 2 | 1 | 4 | 10 | 2 | 9 | 11 | 6 | |
| 0 | 0 | 2 | 2 | 6 | 5 | 5 | 1 | 0 | |
| 0 | 4 | 3 | 20 | 14 | 24 | 30 | 7 | 2 | |
| 0 | 0 | 6 | 5 | 7 | 6 | 10 | 1 | 0 | |
| 0 | 1 | 0 | 1 | 5 | 1 | 16 | 0 | 3 | |
| 0 | 7 | 0 | 16 | 3 | 37 | 3 | 2 | 0 | |
| 1 | 6 | 5 | 8 | 26 | 12 | 116 | 2 | 2 | |
| 5421 | 3974 | 1079 | 2728 | 1701 | 2153 | 1657 | 3273 | 2516 | |
| 3846 | 3196 | 1992 | 5644 | 2175 | 4046 | 5596 | 4586 | 473 | |
| 12177 | 7721 | 8149 | 15700 | 8723 | 10301 | 10054 | 13384 | 5385 | |
| 9628 | 9785 | 3254 | 3782 | 8924 | 5799 | 35749 | 10639 | 1762 | |
| 18815 | 6226 | 3807 | 6835 | 5480 | 3800 | 9313 | 6452 | 634 | |
| 4756 | 4417 | 2720 | 3741 | 3878 | 2688 | 5295 | 2202 | 675 | |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| — | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | |
| — | 3 | 3 | 1 | 0 | 9 | 0 | 0 | 0 | |
| — | 0 | 6 | 2 | 0 | 10 | 1 | 0 | 0 | |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | |
| — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | |
| — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | |
| — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | |
| — | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | |

111 *Rhopalosiphum insertum*
1975
1976
1977
1978
1979
1980

112 *Rhopalosiphum maidis*
1975
1976
1977
1978
1979
1980

113 *Rhopalosiphum nymphaeae*
1975
1976
1977
1978
1979
1980

114 *Rhopalosiphum padi*
1975
1976
1977
1978
1979
1980

739 *Rhopalosiphum rufulum*
1975
1976
1977
1978
1979
1980

121 *Paraschizaphis scirpi*
1975
1976
1977
1978
1979
1980

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|----------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 125 <i>Aphis sambuci</i> | | | | | | | | | |
| 1975 | 1 | 27 | 317 | 14 | 2 | 4 | 2 | 17 | 8 |
| 1976 | 0 | 0 | 4 | 5 | 2 | 6 | 5 | 22 | 4 |
| 1977 | 1 | 8 | 11 | 18 | 2 | 3 | 20 | 35 | 0 |
| 1978 | 2 | 68 | 121 | 8 | 6 | 8 | 8 | 3 | 0 |
| 1979 | 0 | 7 | 8 | 0 | 1 | 2 | 10 | 180 | 0 |
| 1980 | 2 | 42 | 420 | 6 | 4 | 6 | 13 | 8 | 0 |
| 132 <i>Aphis fabae</i> | | | | | | | | | |
| 1975 | 56 | 195 | 157 | 187 | 48 | 7 | 2 | 13 | 5 |
| 1976 | 34 | 95 | 16 | 148 | 132 | 10 | 13 | 19 | 19 |
| 1977 | 41 | 211 | 88 | 185 | 16 | 11 | 137 | 613 | 79 |
| 1978 | 180 | 1432 | 193 | 108 | 847 | 238 | 528 | 1024 | 421 |
| 1979 | 35 | 47 | 50 | 39 | 161 | 1852 | 294 | 2401 | 84 |
| 1980 | 58 | 359 | 195 | 29 | 410 | 19 | 118 | 49 | 47 |
| 137 <i>Aphis rumicis</i> | | | | | | | | | |
| 1975 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 4 | 0 |
| 1976 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1978 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 7 | 1 | 17 | 12 | 0 |
| 1980 | 8 | 3 | 4 | 1 | 0 | 0 | 1 | 0 | 0 |
| 142 <i>Aphis corniella</i> | | | | | | | | | |
| 1975 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 1 |
| 1976 | 0 | 4 | 1 | 0 | 5 | 6 | 109 | 25 | 31 |
| 1977 | 0 | 1 | 9 | 6 | 1 | 0 | 11 | 60 | 0 |
| 1978 | 0 | 0 | 1 | 0 | 1 | 0 | 8 | 14 | 0 |
| 1979 | 0 | 18 | 2 | 0 | 7 | 3 | 5 | 138 | 0 |
| 1980 | 0 | 13 | 9 | 2 | 6 | 0 | 9 | 2 | 0 |
| 150 <i>Aphis idaei</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 152 <i>Aphis nasturtii</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(j)

| | 904 Broom's Barn | 917 Hereford | 901 Rothamsted | 924 Writtle | 914 Long Ashton | 908 Silwood Park | 903 Wye, Kent | 913 Starcross | 910 Rosewarne | |
|------|------------------|--------------|----------------|-------------|-----------------|------------------|---------------|---------------|---------------|----------------------------|
| — | — | 0 | 6 | 8 | 3 | 12 | 5 | 5 | 5 | 125 <i>Aphis sambuci</i> |
| — | — | 1 | 11 | 41 | 14 | 28 | 15 | 0 | 56 | 1975 |
| — | — | 19 | 41 | 72 | 21 | 87 | 34 | 7 | 3 | 1976 |
| — | — | 0 | 13 | 13 | 4 | 18 | 4 | 3 | 1 | 1977 |
| — | — | 8 | 43 | 27 | 26 | 51 | 24 | 4 | 3 | 1978 |
| — | — | 0 | 2 | 13 | 7 | 9 | 30 | 0 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| 292 | 15 | 505 | 151 | 13 | 32 | 50 | 32 | 20 | | 132 <i>Aphis fabae</i> |
| 22 | 12 | 155 | 238 | 48 | 162 | 149 | 77 | 57 | | 1975 |
| 1164 | 511 | 1388 | 4939 | 470 | 1511 | 985 | 299 | 56 | | 1976 |
| 2001 | 407 | 187 | 640 | 133 | 114 | 327 | 95 | 28 | | 1977 |
| 8709 | 825 | 793 | 1508 | 340 | 501 | 763 | 181 | 6 | | 1978 |
| 133 | 53 | 25 | 110 | 51 | 41 | 135 | 12 | 15 | | 1979 |
| | | | | | | | | | | 1980 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 137 <i>Aphis rumicis</i> |
| — | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 20 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 0 | 0 | 3 | 4 | 2 | 5 | 6 | 0 | 0 | | 142 <i>Aphis corniella</i> |
| 2 | 0 | 5 | 26 | 10 | 8 | 20 | 5 | 0 | | 1975 |
| 0 | 5 | 5 | 10 | 14 | 14 | 5 | 5 | 0 | | 1976 |
| 6 | 6 | 2 | 1 | 12 | 5 | 7 | 6 | 2 | | 1977 |
| 19 | 1 | 10 | 45 | 7 | 71 | 20 | 1 | 0 | | 1978 |
| 2 | 6 | 1 | 2 | 2 | 13 | 4 | 2 | 0 | | 1979 |
| | | | | | | | | | | 1980 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 150 <i>Aphis idaei</i> |
| — | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1975 |
| — | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1977 |
| — | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 152 <i>Aphis nasturtii</i> |
| — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1975 |
| — | 0 | 5 | 4 | 2 | 0 | 0 | 0 | 1 | 0 | 1976 |
| — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 76 | 26 | 12 | 2 | 20 | 26 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|----------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 153 <i>Aphis pomi</i> | | | | | | | | | |
| 1975 | 2 | 43 | 370 | 5 | 1 | 1 | 1 | 11 | 1 |
| 1976 | 0 | 1 | 4 | 3 | 2 | 7 | 11 | 41 | 0 |
| 1977 | 4 | 2 | 0 | 13 | 1 | 0 | 16 | 40 | 0 |
| 1978 | 3 | 70 | 0 | 3 | 7 | 3 | 3 | 2 | 0 |
| 1979 | 0 | 1 | 3 | 3 | 0 | 1 | 8 | 80 | 0 |
| 1980 | 4 | 53 | 98 | 12 | 5 | 1 | 14 | 18 | 0 |
| 211 <i>Ceruraphis eriophori</i> | | | | | | | | | |
| 1975 | 4 | 8 | 9 | 34 | 4 | 0 | 4 | 3 | 46 |
| 1976 | 31 | 45 | 84 | 511 | 8 | 0 | 20 | 5 | 143 |
| 1977 | 35 | 9 | 18 | 42 | 2 | 0 | 38 | 2 | 50 |
| 1978 | 8 | 6 | 13 | 18 | 46 | 7 | 169 | 24 | 497 |
| 1979 | 49 | 22 | 57 | 21 | 55 | 7 | 159 | 35 | 234 |
| 1980 | 92 | 54 | 38 | 132 | 115 | 14 | 37 | 19 | 94 |
| 234 <i>Dysaphis plantaginea</i> | | | | | | | | | |
| 1975 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 4 | 14 |
| 1976 | 1 | 0 | 0 | 2 | 2 | 5 | 15 | 30 | 125 |
| 1977 | 0 | 0 | 5 | 5 | 1 | 2 | 7 | 39 | 37 |
| 1978 | 0 | 0 | 0 | 2 | 0 | 2 | 3 | 14 | 49 |
| 1979 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 6 | 64 |
| 1980 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 14 | 7 |
| 235 <i>Dysaphis pyri</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 |
| 1976 | 0 | 1 | 0 | 1 | 0 | 0 | 7 | 17 | 1 |
| 1977 | 2 | 0 | 0 | 0 | 0 | 2 | 7 | 66 | 0 |
| 1978 | 0 | 1 | 0 | 7 | 0 | 0 | 1 | 3 | 0 |
| 1979 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 14 | 0 |
| 1980 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 4 | 0 |
| 238 <i>Anuraphis farfarae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 239 <i>Anuraphis subterranea</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 |
| 1977 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 |
| 1978 | 2 | 5 | 0 | 2 | 0 | 1 | 0 | 0 | 1 |
| 1979 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1980 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(k)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|----|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|----------------------------------|
| — | — | 4 | 8 | 12 | 8 | 31 | 11 | 6 | 10 | 153 <i>Aphis pomi</i> |
| — | — | 6 | 28 | 64 | 39 | 86 | 22 | 5 | 2 | 1975 |
| — | — | 18 | 14 | 45 | 43 | 53 | 27 | 18 | 7 | 1976 |
| — | — | 1 | 7 | 10 | 14 | 11 | 9 | 3 | 4 | 1977 |
| — | — | 6 | 14 | 8 | 33 | 57 | 6 | 7 | 2 | 1978 |
| — | — | 2 | 7 | 4 | 26 | 11 | 14 | 3 | 4 | 1979 |
| | | | | | | | | | | 1980 |
| — | — | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 211 <i>Ceruraphis eriophori</i> |
| — | — | 0 | 0 | 2 | 3 | 7 | 6 | 10 | 0 | 1975 |
| — | — | 5 | 3 | 1 | 6 | 19 | 8 | 26 | 14 | 1976 |
| — | — | 34 | 11 | 4 | 35 | 29 | 42 | 24 | 10 | 1977 |
| — | — | 43 | 4 | 5 | 27 | 30 | 15 | 13 | 2 | 1978 |
| — | — | 15 | 2 | 5 | 19 | 7 | 1 | 12 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| 27 | 10 | 11 | 2 | 35 | 20 | 4 | 29 | 0 | | 234 <i>Dysaphis plantaginea</i> |
| 44 | 79 | 36 | 70 | 172 | 71 | 79 | 22 | 5 | | 1975 |
| 63 | 70 | 37 | 32 | 40 | 51 | 22 | 17 | 18 | | 1976 |
| 14 | 12 | 13 | 6 | 31 | 86 | 15 | 27 | 29 | | 1977 |
| 33 | 6 | 19 | 8 | 9 | 22 | 11 | 6 | 2 | | 1978 |
| 43 | 0 | 2 | 11 | 7 | 10 | 4 | 3 | 1 | | 1979 |
| | | | | | | | | | | 1980 |
| — | — | 1 | 0 | 2 | 2 | 8 | 1 | 2 | 0 | 235 <i>Dysaphis pyri</i> |
| — | — | 4 | 18 | 13 | 13 | 36 | 10 | 2 | 2 | 1975 |
| — | — | 3 | 12 | 55 | 8 | 33 | 22 | 1 | 0 | 1976 |
| — | — | 1 | 2 | 0 | 7 | 12 | 4 | 0 | 2 | 1977 |
| — | — | 3 | 2 | 0 | 13 | 16 | 17 | 2 | 0 | 1978 |
| — | — | 0 | 2 | 4 | 2 | 2 | 2 | 1 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 238 <i>Anuraphis farfarae</i> |
| — | — | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 1975 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1976 |
| — | — | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| — | — | 0 | 2 | 1 | 1 | 2 | 0 | 2 | 0 | 239 <i>Anuraphis subterranea</i> |
| — | — | 1 | 1 | 3 | 2 | 2 | 4 | 1 | 0 | 1975 |
| — | — | 2 | 3 | 2 | 1 | 0 | 5 | 0 | 0 | 1976 |
| — | — | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 1977 |
| — | — | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 1 | 1978 |
| — | — | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|------------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 241 <i>Brachycaudus cardui</i> | | | | | | | | | |
| 1975 | 0 | 4 | 0 | 4 | 1 | 3 | 15 | 9 | 8 |
| 1976 | 2 | 7 | 0 | 5 | 1 | 0 | 1 | 16 | 0 |
| 1977 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 5 | 3 |
| 1978 | 2 | 4 | 1 | 0 | 0 | 0 | 5 | 4 | 5 |
| 1979 | 0 | 2 | 1 | 2 | 5 | 0 | 1 | 12 | 0 |
| 1980 | 2 | 1 | 0 | 2 | 0 | 0 | 3 | 8 | 4 |
| 243 <i>Brachycaudus helichrysi</i> | | | | | | | | | |
| 1975 | 71 | 181 | 432 | 106 | 103 | 1148 | 635 | 1357 | 146 |
| 1976 | 113 | 120 | 231 | 143 | 78 | 155 | 361 | 637 | 138 |
| 1977 | 59 | 96 | 240 | 147 | 74 | 63 | 270 | 1321 | 754 |
| 1978 | 23 | 414 | 92 | 185 | 142 | 524 | 590 | 625 | 747 |
| 1979 | 59 | 58 | 57 | 9 | 44 | 120 | 315 | 1083 | 149 |
| 1980 | 92 | 242 | 197 | 82 | 172 | 391 | 446 | 808 | 718 |
| 245 <i>Brachycaudus klugkisti</i> | | | | | | | | | |
| 1975 | 0 | 0 | 1 | 0 | 0 | 5 | 2 | 2 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 9 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 249 <i>Brachycaudus persicae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1980 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 253 <i>Thuleaphis rumexicolens</i> | | | | | | | | | |
| 1975 | 3 | 2 | 10 | 5 | 7 | 5 | 7 | 123 | 0 |
| 1976 | 9 | 7 | 15 | 13 | 37 | 74 | 170 | 900 | 10 |
| 1977 | 2 | 0 | 0 | 1 | 0 | 3 | 2 | 121 | 0 |
| 1978 | 2 | 1 | 1 | 0 | 3 | 2 | 2 | 28 | 0 |
| 1979 | 8 | 3 | 0 | 0 | 2 | 11 | 1 | 8 | 0 |
| 1980 | 13 | 10 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 259 <i>Diuraphis muehlei</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(i)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|------|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|------------------------------------|
| | 8 | 14 | 8 | 10 | 27 | 22 | 3 | 4 | 6 | 241 <i>Brachycaudus cardui</i> |
| | 14 | 8 | 6 | 8 | 9 | 7 | 5 | 5 | 2 | 1975 |
| | 3 | 7 | 20 | 4 | 17 | 25 | 15 | 13 | 2 | 1976 |
| | 1 | 8 | 5 | 6 | 15 | 9 | 0 | 4 | 0 | 1977 |
| | 4 | 1 | 0 | 2 | 7 | 3 | 5 | 2 | 0 | 1978 |
| | 0 | 8 | 1 | 8 | 10 | 17 | 5 | 6 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 1428 | 1129 | 1178 | 2293 | 760 | 1202 | 1815 | 383 | 216 | | 243 <i>Brachycaudus helichrysi</i> |
| 227 | 734 | 416 | 465 | 960 | 445 | 607 | 327 | 360 | | 1975 |
| 921 | 597 | 1083 | 1306 | 428 | 855 | 593 | 550 | 109 | | 1976 |
| 728 | 1210 | 971 | 1296 | 1649 | 943 | 1240 | 408 | 105 | | 1977 |
| 899 | 2054 | 473 | 656 | 723 | 466 | 421 | 166 | 129 | | 1978 |
| 1919 | 622 | 1626 | 2737 | 1085 | 713 | 1359 | 475 | 101 | | 1979 |
| | | | | | | | | | | 1980 |
| — | 1 | 0 | 1 | 5 | 1 | 3 | 4 | 9 | | 245 <i>Brachycaudus klugkisti</i> |
| — | 1 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | | 1975 |
| — | 1 | 4 | 2 | 0 | 0 | 0 | 0 | 1 | | 1976 |
| — | 1 | 0 | 2 | 1 | 1 | 1 | 0 | 2 | | 1977 |
| — | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | | 1978 |
| — | 4 | 0 | 0 | 4 | 2 | 0 | 16 | 8 | | 1979 |
| | | | | | | | | | | 1980 |
| — | 0 | 3 | 5 | 4 | 20 | 4 | 2 | 1 | | 249 <i>Brachycaudus persicae</i> |
| — | 0 | 5 | 11 | 0 | 7 | 0 | 4 | 0 | | 1975 |
| — | 1 | 4 | 4 | 1 | 13 | 2 | 6 | 1 | | 1976 |
| — | 2 | 5 | 5 | 2 | 10 | 1 | 0 | 0 | | 1977 |
| — | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 0 | | 1978 |
| — | 2 | 8 | 21 | 2 | 11 | 5 | 0 | 0 | | 1979 |
| | | | | | | | | | | 1980 |
| — | 15 | 60 | 157 | 86 | 136 | 10 | 21 | 3 | | 253 <i>Thuleaphis rumexicolens</i> |
| — | 36 | 193 | 424 | 47 | 269 | 55 | 21 | 10 | | 1975 |
| — | 13 | 33 | 106 | 59 | 30 | 17 | 24 | 10 | | 1976 |
| — | 4 | 12 | 13 | 7 | 28 | 17 | 13 | 0 | | 1977 |
| — | 4 | 9 | 79 | 4 | 10 | 10 | 3 | 0 | | 1978 |
| — | 0 | 10 | 37 | 2 | 7 | 2 | 1 | 0 | | 1979 |
| | | | | | | | | | | 1980 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 259 <i>Diuraphis muehleii</i> |
| — | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | | 1975 |
| — | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | | 1976 |
| — | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | | 1977 |
| — | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
|------------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
| 261 <i>Hayhurstia atriplicis</i> | | | | | | | | | |
| 1975 | 41 | 19 | 2 | 1 | 1 | 3 | 1 | 0 | 4 |
| 1976 | 33 | 4 | 1 | 1 | 11 | 7 | 23 | 61 | 77 |
| 1977 | 9 | 5 | 0 | 0 | 3 | 18 | 24 | 102 | 0 |
| 1978 | 10 | 7 | 2 | 4 | 2 | 2 | 2 | 3 | 1 |
| 1979 | 0 | 2 | 0 | 0 | 0 | 11 | 2 | 10 | 0 |
| 1980 | 0 | 6 | 0 | 0 | 0 | 1 | 6 | 22 | 0 |
| 264 <i>Brevicoryne brassicae</i> | | | | | | | | | |
| 1975 | 4 | 31 | 22 | 6 | 1 | 5 | 24 | 218 | 13 |
| 1976 | 465 | 50 | 24 | 50 | 18 | 88 | 31 | 1810 | 37 |
| 1977 | 0 | 1 | 3 | 1 | 2 | 3 | 20 | 15 | 71 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 7 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1980 | 0 | 37 | 2 | 0 | 0 | 2 | 0 | 70 | 15 |
| 267 <i>Lipaphis erysimi</i> | | | | | | | | | |
| 1975 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 1976 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 1 |
| 1977 | 3 | 23 | 1 | 1 | 0 | 0 | 1 | 2 | 0 |
| 1978 | 136 | 7 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| 1979 | 36 | 9 | 18 | 0 | 0 | 1 | 3 | 34 | 1 |
| 1980 | 16 | 3 | 12 | 0 | 0 | 2 | 2 | 0 | 0 |
| 269 <i>Lipamyzodes matthiolae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 271 <i>Hyadaphis foeniculi</i> | | | | | | | | | |
| 1975 | 4 | 15 | 39 | 5 | 20 | 28 | 19 | 140 | 10 |
| 1976 | 113 | 24 | 66 | 6 | 74 | 48 | 49 | 94 | 13 |
| 1977 | 1 | 0 | 3 | 1 | 0 | 2 | 6 | 37 | 2 |
| 1978 | 1 | 0 | 3 | 1 | 1 | 2 | 4 | 7 | 0 |
| 1979 | 0 | 0 | 0 | 1 | 3 | 0 | 2 | 14 | 0 |
| 1980 | 0 | 1 | 5 | 0 | 0 | 1 | 6 | 6 | 0 |
| 273 <i>Staegeriella necopinata</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(m)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|-----|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|--------------------------------|
| 261 | 0 | 21 | 0 | 0 | 4 | 1 | 5 | 18 | 0 | <i>Hayhurstia atriplicis</i> |
| | 43 | 588 | 16 | 25 | 146 | 86 | 199 | 189 | 192 | 1975 |
| | 4 | 156 | 13 | 26 | 141 | 26 | 2 | 27 | 1 | 1976 |
| | 6 | 4 | 0 | 1 | 2 | 2 | 2 | 3 | 3 | 1977 |
| | 351 | 70 | 24 | 48 | 10 | 10 | 30 | 167 | 7 | 1978 |
| | 60 | 8 | 2 | 4 | 4 | 16 | 6 | 1 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| 264 | 258 | 431 | 405 | 1350 | 108 | 788 | 347 | 337 | 65 | <i>Brevicoryne brassicae</i> |
| | 232 | 475 | 365 | 643 | 407 | 1166 | 430 | 291 | 296 | 1975 |
| | 70 | 11 | 5 | 49 | 20 | 7 | 3 | 117 | 1 | 1976 |
| | 81 | 260 | 19 | 59 | 18 | 41 | 246 | 1185 | 25 | 1977 |
| | 353 | 6 | 1 | 38 | 1 | 8 | 10 | 21 | 1 | 1978 |
| | 109 | 31 | 14 | 65 | 42 | 63 | 14 | 76 | 4 | 1979 |
| | | | | | | | | | | 1980 |
| 267 | — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | <i>Lipaphis erysimi</i> |
| | — | 0 | 1 | 0 | 6 | 1 | 1 | 1 | 2 | 1975 |
| | — | 0 | 6 | 0 | 1 | 0 | 1 | 1 | 0 | 1976 |
| | — | 1 | 0 | 0 | 2 | 1 | 0 | 3 | 2 | 1977 |
| | — | 32 | 8 | 0 | 8 | 15 | 37 | 61 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 269 | — | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | <i>Lipamyzodes matthiolae</i> |
| | — | 0 | 6 | 6 | 0 | 2 | 1 | 0 | 0 | 1975 |
| | — | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 8 | 0 | 1 | 4 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 271 | 142 | 106 | 122 | 230 | 216 | 161 | 89 | 96 | 47 | <i>Hyadaphis foeniculi</i> |
| | 110 | 80 | 117 | 101 | 88 | 123 | 64 | 37 | 17 | 1975 |
| | 70 | 16 | 39 | 94 | 30 | 55 | 57 | 51 | 5 | 1976 |
| | 5 | 5 | 7 | 15 | 18 | 31 | 17 | 5 | 3 | 1977 |
| | 3 | 4 | 14 | 22 | 44 | 21 | 52 | 6 | 1 | 1978 |
| | 23 | 8 | 23 | 49 | 25 | 20 | 12 | 7 | 3 | 1979 |
| | | | | | | | | | | 1980 |
| 273 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | <i>Staegeriella necopinata</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 8 | 2 | 1 | 2 | 1976 |
| | — | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 2 | 2 | 2 | 2 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|--|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 275 <i>Pseudacaudella rubida</i> | | | | | | | | | |
| 1975 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 276 <i>Hyalopteroides humilis</i> | | | | | | | | | |
| 1975 | 1 | 0 | 4 | 0 | 0 | 2 | 3 | 15 | 1 |
| 1976 | 0 | 6 | 6 | 0 | 3 | 0 | 3 | 16 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 1 | 1 | 11 | 16 | 0 |
| 283 <i>Longicaudus trirhodus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1979 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1980 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| 286 <i>Myzaphis rosarum</i> | | | | | | | | | |
| 1975 | 0 | 2 | 2 | 0 | 0 | 1 | 2 | 8 | 4 |
| 1976 | 1 | 2 | 3 | 0 | 0 | 3 | 0 | 30 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 1978 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1980 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 7 |
| 287 <i>Pentatrichopus fragaefolii</i> | | | | | | | | | |
| 1975 | 4 | 153 | 1 | 0 | 0 | 1 | 1 | 5 | 0 |
| 1976 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |
| 1980 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 289 <i>Pentatrichopus tetraerhodus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(n)

| | 904 | 917 | 901 | 924 | 914 | 908 | 903 | 913 | 910 | |
|---|--------------|----------|------------|---------|-------------|--------------|-----------|-----------|-----------|---------------------------------------|
| | Broom's Barn | Hereford | Rothamsted | Writtle | Long Ashton | Silwood Park | Wye, Kent | Starcross | Rosewarne | |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 275 <i>Pseudacaudella rubida</i> |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1980 |
| — | — | 2 | 3 | 0 | 0 | 14 | 0 | 0 | 0 | 276 <i>Hyalopteroides humilis</i> |
| — | — | 3 | 2 | 3 | 2 | 3 | 4 | 1 | 8 | 1975 |
| — | — | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1976 |
| — | — | 3 | 2 | 1 | 4 | 4 | 1 | 0 | 0 | 1977 |
| — | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1978 |
| — | 10 | 6 | 1 | 0 | 0 | 7 | 16 | 0 | 0 | 1979 |
| — | — | — | — | — | — | — | — | — | — | 1980 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 283 <i>Longicaudus trirhodus</i> |
| 0 | 0 | 2 | 2 | 0 | 4 | 2 | 0 | 0 | 0 | 1975 |
| 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 1977 |
| 0 | 0 | 4 | 2 | 1 | 4 | 17 | 0 | 0 | 0 | 1978 |
| 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1979 |
| 0 | — | — | — | — | — | — | — | — | — | 1980 |
| 3 | 2 | 13 | 15 | 11 | 11 | 6 | 4 | 6 | 6 | 286 <i>Myzaphis rosarum</i> |
| 0 | 0 | 15 | 27 | 19 | 17 | 2 | 2 | 2 | 2 | 1975 |
| 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1976 |
| 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1977 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| 0 | 0 | 1 | 4 | 1 | 1 | 2 | 0 | 0 | 0 | 1980 |
| 0 | 4 | 0 | 1 | 4 | 1 | 0 | 5 | 0 | 0 | 287 <i>Pentatrichopus fragaefolii</i> |
| 0 | 2 | 3 | 4 | 8 | 2 | 0 | 3 | 1 | 1 | 1975 |
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1976 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| 0 | 0 | 0 | 8 | 0 | 0 | 0 | 5 | 1 | 1 | 1980 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 289 <i>Pentatrichopus tetrarhodus</i> |
| — | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1975 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|-------------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 290 <i>Elatobium abietinum</i> | | | | | | | | | |
| 1975 | 475 | 304 | 131 | 103 | 156 | 32 | 111 | 20 | 1821 |
| 1976 | 471 | 93 | 106 | 173 | 284 | 162 | 8 | 12 | 631 |
| 1977 | 11 | 19 | 7 | 45 | 82 | 0 | 98 | 2 | 887 |
| 1978 | 1 | 18 | 31 | 106 | 11 | 30 | 55 | 20 | 307 |
| 1979 | 34 | 5 | 5 | 81 | 3 | 2 | 3 | 2 | 1061 |
| 1980 | 2116 | 705 | 952 | 2765 | 1393 | 149 | 79 | 22 | 2391 |
| 291 <i>Liosomaphis berberidis</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 |
| 1976 | 2 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 8 |
| 292 <i>Cavariella aegopodii</i> | | | | | | | | | |
| 1975 | 26 | 18 | 33 | 8 | 11 | 69 | 64 | 104 | 7 |
| 1976 | 162 | 93 | 232 | 41 | 187 | 282 | 676 | 220 | 104 |
| 1977 | 456 | 40 | 43 | 26 | 26 | 68 | 472 | 1016 | 127 |
| 1978 | 11 | 70 | 21 | 20 | 68 | 125 | 141 | 520 | 55 |
| 1979 | 217 | 191 | 86 | 14 | 104 | 451 | 464 | 2930 | 28 |
| 1980 | 10 | 20 | 14 | 7 | 14 | 11 | 92 | 54 | 12 |
| 293 <i>Cavariella archangelicae</i> | | | | | | | | | |
| 1975 | 0 | 13 | 6 | 29 | 2 | 1 | 46 | 3 | 1 |
| 1976 | 4 | 10 | 5 | 3 | 3 | 0 | 10 | 3 | 1 |
| 1977 | 3 | 9 | 0 | 8 | 4 | 2 | 48 | 4 | 24 |
| 1978 | 0 | 6 | 1 | 19 | 15 | 1 | 49 | 10 | 22 |
| 1979 | 0 | 5 | 0 | 5 | 4 | 5 | 37 | 59 | 9 |
| 1980 | 5 | 14 | 22 | 13 | 12 | 4 | 29 | 2 | 10 |
| 295 <i>Cavariella konoii</i> | | | | | | | | | |
| 1975 | 0 | 0 | 2 | 1 | 0 | 0 | 2 | 0 | 0 |
| 1976 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| 1977 | 0 | 1 | 0 | 2 | 1 | 0 | 3 | 0 | 0 |
| 1978 | 6 | 2 | 2 | 1 | 1 | 0 | 4 | 2 | 1 |
| 1979 | 0 | 4 | 1 | 1 | 2 | 4 | 84 | 76 | 10 |
| 1980 | 0 | 7 | 21 | 6 | 1 | 0 | 12 | 2 | 0 |
| 296 <i>Cavariella pastinacae</i> | | | | | | | | | |
| 1975 | 12 | 6 | 6 | 16 | 4 | 6 | 43 | 9 | 8 |
| 1976 | 18 | 201 | 59 | 45 | 127 | 191 | 222 | 23 | 22 |
| 1977 | 8 | 30 | 55 | 30 | 11 | 6 | 165 | 312 | 139 |
| 1978 | 65 | 147 | 47 | 44 | 122 | 96 | 172 | 310 | 42 |
| 1979 | 10 | 100 | 164 | 37 | 163 | 1002 | 270 | 2432 | 47 |
| 1980 | 36 | 96 | 73 | 12 | 38 | 3 | 50 | 6 | 5 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(o)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|--|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|-------------------------------------|
| | 12 | 180 | 19 | 11 | 111 | 86 | 60 | 84 | 58 | 290 <i>Elatobium abietinum</i> |
| | 6 | 163 | 42 | 8 | 57 | 237 | 178 | 76 | 6 | 1975 |
| | 3 | 14 | 2 | 0 | 10 | 75 | 5 | 17 | 12 | 1976 |
| | 46 | 118 | 91 | 20 | 150 | 789 | 122 | 24 | 49 | 1977 |
| | 7 | 18 | 6 | 4 | 11 | 35 | 25 | 22 | 26 | 1978 |
| | 17 | 741 | 37 | 26 | 381 | 153 | 179 | 184 | 85 | 1979 |
| | | | | | | | | | | 1980 |
| | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 291 <i>Liosomaphis berberidis</i> |
| | 3 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 1975 |
| | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1976 |
| | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1977 |
| | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1978 |
| | 0 | 2 | 0 | 0 | 2 | 3 | 6 | 1 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | 126 | 9 | 49 | 252 | 31 | 69 | 94 | 63 | 26 | 292 <i>Cavariella aegopodii</i> |
| | 569 | 334 | 166 | 256 | 295 | 316 | 467 | 364 | 27 | 1975 |
| | 976 | 865 | 807 | 1803 | 453 | 1771 | 461 | 928 | 169 | 1976 |
| | 250 | 292 | 273 | 396 | 135 | 167 | 305 | 52 | 20 | 1977 |
| | 631 | 1417 | 822 | 762 | 767 | 1055 | 634 | 82 | 14 | 1978 |
| | 161 | 63 | 81 | 159 | 281 | 128 | 145 | 77 | 15 | 1979 |
| | | | | | | | | | | 1980 |
| | 0 | 3 | 0 | 2 | 4 | 1 | 1 | 5 | 34 | 293 <i>Cavariella archangelicae</i> |
| | 0 | 0 | 4 | 0 | 3 | 7 | 8 | 2 | 0 | 1975 |
| | 0 | 8 | 4 | 3 | 2 | 5 | 4 | 5 | 1 | 1976 |
| | 0 | 15 | 1 | 6 | 8 | 6 | 5 | 2 | 1 | 1977 |
| | 4 | 70 | 12 | 8 | 21 | 34 | 43 | 7 | 0 | 1978 |
| | 0 | 3 | 0 | 0 | 3 | 7 | 3 | 3 | 5 | 1979 |
| | | | | | | | | | | 1980 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 295 <i>Cavariella konoii</i> |
| | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1975 |
| | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 1976 |
| | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1977 |
| | 0 | 185 | 6 | 5 | 12 | 0 | 21 | 1 | 0 | 1978 |
| | 0 | 0 | 0 | 2 | 2 | 0 | 6 | 3 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| | 22 | 5 | 4 | 27 | 7 | 8 | 17 | 1 | 0 | 296 <i>Cavariella pastinacae</i> |
| | 10 | 133 | 8 | 12 | 76 | 6 | 55 | 6 | 2 | 1975 |
| | 301 | 317 | 598 | 418 | 370 | 512 | 199 | 104 | 25 | 1976 |
| | 269 | 350 | 92 | 147 | 123 | 53 | 77 | 50 | 11 | 1977 |
| | 2262 | 1821 | 435 | 615 | 520 | 557 | 277 | 80 | 5 | 1978 |
| | 7 | 24 | 10 | 16 | 31 | 12 | 64 | 4 | 2 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|-----------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 298 <i>Cavariella theobaldi</i> | | | | | | | | | |
| 1975 | 1 | 8 | 12 | 5 | 3 | 2 | 6 | 8 | 3 |
| 1976 | 19 | 80 | 31 | 18 | 92 | 105 | 55 | 128 | 39 |
| 1977 | 12 | 21 | 36 | 15 | 20 | 22 | 76 | 620 | 119 |
| 1978 | 18 | 48 | 8 | 8 | 17 | 20 | 62 | 205 | 32 |
| 1979 | 12 | 29 | 32 | 11 | 27 | 41 | 32 | 417 | 29 |
| 1980 | 4 | 14 | 12 | 3 | 5 | 0 | 7 | 2 | 1 |
| 300 <i>Jacksonia papillata</i> | | | | | | | | | |
| 1975 | 1 | 0 | 2 | 2 | 3 | 1 | 1 | 1 | 1 |
| 1976 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 1 | 1 | 4 | 9 | 2 | 0 | 0 | 2 |
| 301 <i>Ovatus crataegarius</i> | | | | | | | | | |
| 1975 | 1 | 0 | 11 | 2 | 0 | 1 | 21 | 26 | 2 |
| 1976 | 2 | 2 | 14 | 2 | 11 | 6 | 4 | 67 | 0 |
| 1977 | 1 | 0 | 0 | 0 | 2 | 0 | 4 | 19 | 0 |
| 1978 | 0 | 6 | 0 | 0 | 0 | 2 | 8 | 1 | 0 |
| 1979 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 18 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 16 | 0 |
| 303 <i>Ovatus insitus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 37 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306 <i>Ovatomyzus calaminthae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307 <i>Ovatomyzus stachyos</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(p)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|-----|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|-----------------------------------|
| 298 | 24 | 7 | 10 | 23 | 14 | 9 | 21 | 13 | 12 | <i>Cavariella theobaldi</i> |
| | 36 | 247 | 34 | 59 | 69 | 16 | 84 | 11 | 0 | 1975 |
| | 558 | 180 | 1038 | 1040 | 345 | 654 | 290 | 333 | 87 | 1976 |
| | 57 | 120 | 20 | 20 | 31 | 22 | 36 | 14 | 18 | 1977 |
| | 103 | 242 | 88 | 57 | 145 | 107 | 65 | 20 | 17 | 1978 |
| | 4 | 1 | 5 | 6 | 21 | 11 | 24 | 5 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 300 <i>Jacksonia papillata</i> |
| | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1975 |
| | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1976 |
| | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1977 |
| | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1978 |
| | 2 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | 6 | 4 | 12 | 8 | 27 | 13 | 6 | 0 | 6 | 301 <i>Ovatus crataegarius</i> |
| | 8 | 4 | 12 | 38 | 43 | 29 | 10 | 0 | 6 | 1975 |
| | 76 | 10 | 22 | 53 | 46 | 23 | 22 | 4 | 3 | 1976 |
| | 14 | 2 | 8 | 5 | 33 | 12 | 12 | 12 | 2 | 1977 |
| | 6 | 13 | 8 | 12 | 47 | 19 | 23 | 0 | 2 | 1978 |
| | 2 | 2 | 6 | 5 | 6 | 19 | 6 | 1 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 303 <i>Ovatus insitus</i> |
| | — | 0 | 0 | 10 | 1 | 1 | 10 | 0 | 0 | 1975 |
| | — | 4 | 32 | 103 | 14 | 58 | 20 | 6 | 1 | 1976 |
| | — | 1 | 0 | 3 | 7 | 2 | 9 | 3 | 0 | 1977 |
| | — | 2 | 0 | 0 | 4 | 10 | 13 | 1 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 306 <i>Ovatomyzus calaminthae</i> |
| | — | 0 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 307 <i>Ovatomyzus stachyos</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|----------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 308 <i>Phorodon humuli</i> | | | | | | | | | |
| 1975 | 0 | 11 | 6 | 0 | 1 | 0 | 0 | 44 | 5 |
| 1976 | 1 | 15 | 3 | 1 | 2 | 8 | 8 | 184 | 22 |
| 1977 | 0 | 3 | 9 | 2 | 0 | 4 | 20 | 825 | 150 |
| 1978 | 0 | 17 | 8 | 3 | 11 | 110 | 13 | 207 | 50 |
| 1979 | 0 | 4 | 2 | 0 | 12 | 39 | 5 | 905 | 10 |
| 1980 | 0 | 21 | 5 | 1 | 0 | 13 | 15 | 74 | 32 |
| 309 <i>Rhopalomyzus poae</i> | | | | | | | | | |
| 1975 | 2 | 5 | 8 | 2 | 1 | 0 | 0 | 5 | 1 |
| 1976 | 5 | 8 | 4 | 0 | 0 | 0 | 0 | 22 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 1978 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 4 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 1 | 1 | 6 | 0 | 2 | 0 |
| 310 <i>Rhopalomyzus loniceræ</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 3 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 9 | 0 |
| 1980 | 0 | 1 | 0 | 0 | 2 | 0 | 20 | 6 | 0 |
| 311 <i>Myzodium modestum</i> | | | | | | | | | |
| 1975 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 1 | 1 | 3 | 0 | 1 | 1 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1979 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 312 <i>Myzus cerasi</i> | | | | | | | | | |
| 1975 | 16 | 20 | 19 | 9 | 4 | 8 | 19 | 85 | 1 |
| 1976 | 77 | 157 | 48 | 23 | 34 | 5 | 24 | 68 | 14 |
| 1977 | 23 | 18 | 24 | 24 | 3 | 4 | 23 | 86 | 34 |
| 1978 | 12 | 185 | 38 | 29 | 20 | 6 | 58 | 61 | 0 |
| 1979 | 24 | 112 | 84 | 45 | 52 | 38 | 132 | 524 | 7 |
| 1980 | 22 | 169 | 56 | 31 | 23 | 15 | 116 | 43 | 6 |
| 314 <i>Myzus lythri</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 1 | 1 | 2 | 1 | 1 | 4 | 2 | 1 | 2 |
| 1977 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 31 | 0 |
| 1978 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 4 | 0 |
| 1979 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 5 | 0 |
| 1980 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 1 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(q)

| | Broom's Barn | Hereford | Rothamsted | Writtle | Long Ashton | Silwood Park | Wye, Kent | Starcross | Rosewarne | |
|-----|--------------|----------|------------|---------|-------------|--------------|-----------|-----------|-----------|----------------------------------|
| | 904 | 917 | 901 | 924 | 914 | 908 | 903 | 913 | 910 | |
| 308 | 36 | 471 | 42 | 144 | 140 | 105 | 732 | 20 | 1 | <i>Phorodon humuli</i> |
| | 297 | 1214 | 128 | 518 | 692 | 354 | 1317 | 13 | 0 | 1975 |
| | 4719 | 3566 | 3682 | 13815 | 876 | 3008 | 2239 | 726 | 5 | 1976 |
| | 215 | 2018 | 197 | 318 | 184 | 297 | 792 | 64 | 5 | 1977 |
| | 518 | 3223 | 455 | 526 | 494 | 818 | 1896 | 62 | 2 | 1978 |
| | 137 | 546 | 61 | 231 | 115 | 159 | 742 | 18 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 1 | 4 | 1 | 2 | 12 | 1 | 4 | 0 | 309 <i>Rhopalomyzus poae</i> |
| | — | 0 | 10 | 8 | 4 | 34 | 4 | 5 | 1 | 1975 |
| | — | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 1 | 0 | 3 | 4 | 0 | 1 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1978 |
| | — | 0 | 0 | 2 | 14 | 3 | 1 | 3 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 310 <i>Rhopalomyzus loniceræ</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 4 | 0 | 3 | 5 | 0 | 4 | 0 | 0 | 1976 |
| | — | 37 | 3 | 2 | 63 | 2 | 3 | 13 | 0 | 1977 |
| | — | 7 | 2 | 0 | 4 | 1 | 0 | 1 | 0 | 1978 |
| | — | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 311 <i>Myzodium modestum</i> |
| | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| | 24 | 36 | 37 | 52 | 47 | 36 | 45 | 42 | 9 | 312 <i>Myzus cerasi</i> |
| | 11 | 64 | 18 | 77 | 106 | 54 | 249 | 67 | 8 | 1975 |
| | 67 | 78 | 85 | 308 | 156 | 276 | 351 | 182 | 29 | 1976 |
| | 49 | 39 | 77 | 33 | 60 | 119 | 76 | 26 | 7 | 1977 |
| | 388 | 403 | 421 | 429 | 259 | 641 | 776 | 106 | 8 | 1978 |
| | 20 | 15 | 34 | 56 | 51 | 70 | 46 | 35 | 9 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 314 <i>Myzus lythri</i> |
| | — | 4 | 13 | 24 | 19 | 6 | 23 | 23 | 2 | 1975 |
| | — | 6 | 9 | 18 | 4 | 15 | 20 | 15 | 7 | 1976 |
| | — | 2 | 2 | 4 | 10 | 7 | 9 | 4 | 2 | 1977 |
| | — | 2 | 0 | 1 | 0 | 6 | 0 | 8 | 2 | 1978 |
| | — | 0 | 2 | 8 | 2 | 2 | 4 | 2 | 0 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|-------------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 315 <i>Myzus ornatus</i> | | | | | | | | | |
| 1975 | 3 | 9 | 27 | 5 | 7 | 1 | 17 | 31 | 8 |
| 1976 | 6 | 5 | 52 | 6 | 6 | 1 | 3 | 11 | 4 |
| 1977 | 1 | 4 | 3 | 1 | 0 | 1 | 0 | 5 | 9 |
| 1978 | 0 | 1 | 2 | 1 | 1 | 0 | 2 | 2 | 11 |
| 1979 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1980 | 0 | 1 | 9 | 0 | 4 | 0 | 2 | 4 | 14 |
| 318 <i>Myzus ascalonicus</i> | | | | | | | | | |
| 1975 | 16 | 14 | 58 | 74 | 47 | 86 | 106 | 251 | 53 |
| 1976 | 56 | 15 | 93 | 6 | 40 | 27 | 22 | 250 | 9 |
| 1977 | 0 | 0 | 4 | 3 | 5 | 0 | 2 | 19 | 6 |
| 1978 | 0 | 6 | 16 | 15 | 12 | 6 | 31 | 74 | 0 |
| 1979 | 2 | 0 | 19 | 0 | 2 | 2 | 6 | 14 | 7 |
| 1980 | 24 | 2 | 42 | 26 | 71 | 96 | 30 | 176 | 19 |
| 319 <i>Myzus certus</i> | | | | | | | | | |
| 1975 | 5 | 16 | 33 | 4 | 39 | 51 | 52 | 234 | 17 |
| 1976 | 6 | 10 | 30 | 7 | 4 | 11 | 30 | 123 | 3 |
| 1977 | 2 | 1 | 4 | 2 | 0 | 0 | 8 | 15 | 1 |
| 1978 | 0 | 3 | 4 | 3 | 3 | 2 | 3 | 2 | 12 |
| 1979 | 0 | 5 | 1 | 0 | 1 | 2 | 5 | 6 | 5 |
| 1980 | 0 | 2 | 18 | 2 | 0 | 2 | 6 | 7 | 14 |
| 320 <i>Myzus ligustri</i> | | | | | | | | | |
| 1975 | 0 | 3 | 5 | 4 | 4 | 3 | 10 | 17 | 0 |
| 1976 | 1 | 6 | 36 | 2 | 1 | 5 | 21 | 26 | 0 |
| 1977 | 0 | 1 | 4 | 1 | 0 | 0 | 2 | 4 | 0 |
| 1978 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 322 <i>Myzus persicae</i> | | | | | | | | | |
| 1975 | 89 | 292 | 580 | 84 | 197 | 153 | 68 | 926 | 71 |
| 1976 | 75 | 231 | 97 | 86 | 84 | 76 | 286 | 3964 | 100 |
| 1977 | 109 | 96 | 27 | 28 | 16 | 5 | 129 | 142 | 82 |
| 1978 | 9 | 42 | 19 | 21 | 9 | 6 | 80 | 132 | 43 |
| 1979 | 3 | 97 | 11 | 5 | 6 | 59 | 51 | 245 | 12 |
| 1980 | 2 | 20 | 16 | 7 | 9 | 19 | 37 | 222 | 22 |
| 740 <i>Myzus varians</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(r)

| | Broom's Barn | Hereford | Rothamsted | Writtle | Long Ashton | Silwood Park | Wye, Kent | Starcross | Rosewarne | |
|--|--------------|----------|------------|---------|-------------|--------------|-----------|-----------|-----------|------------------------------|
| | 904 | 917 | 901 | 924 | 914 | 908 | 903 | 913 | 910 | |
| | 6 | 8 | 44 | 25 | 101 | 37 | 10 | 48 | 12 | 315 <i>Myzus ornatus</i> |
| | 1 | 4 | 12 | 10 | 39 | 27 | 4 | 33 | 22 | 1975 |
| | 0 | 1 | 5 | 2 | 6 | 11 | 0 | 3 | 5 | 1976 |
| | 1 | 1 | 2 | 3 | 12 | 6 | 1 | 3 | 0 | 1977 |
| | 0 | 0 | 4 | 0 | 1 | 4 | 0 | 1 | 1 | 1978 |
| | 0 | 2 | 8 | 13 | 42 | 15 | 3 | 18 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| | 78 | 217 | 141 | 68 | 119 | 128 | 55 | 26 | 31 | 318 <i>Myzus ascalonicus</i> |
| | 37 | 84 | 149 | 60 | 48 | 164 | 34 | 25 | 15 | 1975 |
| | 14 | 7 | 14 | 15 | 3 | 20 | 11 | 4 | 7 | 1976 |
| | 47 | 28 | 54 | 30 | 52 | 76 | 22 | 8 | 15 | 1977 |
| | 13 | 3 | 7 | 13 | 11 | 16 | 7 | 7 | 10 | 1978 |
| | 87 | 92 | 179 | 131 | 140 | 185 | 103 | 85 | 34 | 1979 |
| | | | | | | | | | | 1980 |
| | 40 | 67 | 34 | 43 | 55 | 81 | 25 | 12 | 14 | 319 <i>Myzus certus</i> |
| | 14 | 149 | 26 | 34 | 97 | 89 | 40 | 49 | 3 | 1975 |
| | 1 | 8 | 9 | 9 | 19 | 22 | 6 | 26 | 2 | 1976 |
| | 8 | 2 | 1 | 11 | 2 | 6 | 3 | 2 | 5 | 1977 |
| | 5 | 0 | 0 | 7 | 3 | 1 | 7 | 1 | 4 | 1978 |
| | 8 | 9 | 7 | 10 | 10 | 24 | 9 | 4 | 4 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 5 | 13 | 9 | 17 | 19 | 7 | 3 | 2 | 320 <i>Myzus ligustri</i> |
| | — | 8 | 12 | 15 | 12 | 34 | 6 | 8 | 2 | 1975 |
| | — | 3 | 1 | 0 | 0 | 9 | 0 | 2 | 0 | 1976 |
| | — | 0 | 0 | 0 | 2 | 1 | 2 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 1978 |
| | — | 0 | 0 | 2 | 0 | 5 | 4 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | 585 | 234 | 586 | 158 | 205 | 354 | 100 | 101 | 15 | 322 <i>Myzus persicae</i> |
| | 1107 | 193 | 913 | 1526 | 210 | 463 | 534 | 58 | 36 | 1975 |
| | 73 | 421 | 159 | 173 | 225 | 115 | 124 | 345 | 83 | 1976 |
| | 127 | 109 | 52 | 151 | 54 | 53 | 303 | 201 | 36 | 1977 |
| | 450 | 37 | 110 | 123 | 27 | 30 | 323 | 30 | 16 | 1978 |
| | 209 | 35 | 58 | 200 | 71 | 82 | 156 | 19 | 20 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 0 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 740 <i>Myzus varians</i> |
| | — | 4 | 2 | 0 | 1 | 2 | 1 | 0 | 0 | 1975 |
| | — | 2 | 1 | 2 | 0 | 1 | 3 | 1 | 0 | 1976 |
| | — | 0 | 2 | 1 | 7 | 1 | 1 | 0 | 0 | 1977 |
| | — | 0 | 0 | 1 | 3 | 1 | 1 | 0 | 0 | 1978 |
| | — | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardflow 919 | Aberystwyth 911 |
|------------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|------------------|--------------------|
| 323 <i>Myzus cymbalariellus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 |
| 1976 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 9 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 1 | 2 | 7 | 2 | 2 | 0 | 25 | 4 |
| 325 <i>Tubaphis ranunculina</i> | | | | | | | | | |
| 1975 | 1 | 2 | 2 | 1 | 2 | 0 | 16 | 74 | 5 |
| 1976 | 0 | 0 | 3 | 3 | 1 | 1 | 10 | 0 | 1 |
| 1977 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 8 |
| 1978 | 0 | 1 | 0 | 2 | 1 | 0 | 1 | 0 | 4 |
| 1979 | 5 | 0 | 1 | 1 | 9 | 0 | 0 | 0 | 1 |
| 1980 | 2 | 1 | 1 | 0 | 2 | 0 | 5 | 2 | 3 |
| 327 <i>Vesiculaphis theobaldi</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 1976 | 0 | 2 | 1 | 0 | 6 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 330 <i>Aspidaphium escherichi</i> | | | | | | | | | |
| 1975 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 2 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| 1977 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 5 | 0 | 2 | 0 | 2 | 3 | 0 | 0 | 0 |
| 1979 | 1 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 1980 | 4 | 2 | 0 | 1 | 3 | 0 | 0 | 0 | 1 |
| 335 <i>Cryptomyzus ballotae</i> | | | | | | | | | |
| 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 5 | 0 |
| 1976 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 17 | 0 |
| 1977 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 336 <i>Cryptomyzus galeopsidis</i> | | | | | | | | | |
| 1975 | 110 | 35 | 30 | 17 | 3 | 5 | 8 | 56 | 4 |
| 1976 | 24 | 40 | 58 | 17 | 14 | 12 | 51 | 93 | 17 |
| 1977 | 308 | 52 | 69 | 90 | 20 | 7 | 80 | 57 | 41 |
| 1978 | 114 | 124 | 15 | 6 | 5 | 11 | 31 | 16 | 29 |
| 1979 | 80 | 31 | 74 | 14 | 18 | 85 | 142 | 198 | 22 |
| 1980 | 11 | 26 | 10 | 11 | 3 | 11 | 4 | 16 | 12 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(s)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|-----|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|------------------------------------|
| — | — | 0 | 5 | 0 | 11 | 3 | 0 | 2 | 1 | 323 <i>Myzus cymbalariellus</i> |
| — | — | 0 | 1 | 1 | 16 | 4 | 0 | 3 | 2 | 1975 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | — | 0 | 1 | 0 | 6 | 1 | 0 | 0 | 0 | 1977 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | 3 | 17 | 19 | 25 | 41 | 9 | 6 | 6 | 0 | 1980 |
| — | — | 23 | 10 | 7 | 80 | 25 | 14 | 43 | 5 | 325 <i>Tubaphis ranunculina</i> |
| — | — | 4 | 0 | 3 | 13 | 5 | 0 | 14 | 34 | 1975 |
| — | — | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 1976 |
| — | — | 0 | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 1977 |
| — | — | 1 | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 1978 |
| — | — | 0 | 1 | 6 | 9 | 2 | 2 | 2 | 9 | 1979 |
| — | — | 1 | 0 | 2 | 0 | 3 | 3 | 1 | 0 | 1980 |
| — | — | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 327 <i>Vesiculaphis theobaldi</i> |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | — | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | — | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 1980 |
| — | — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 330 <i>Aspidaphium escherichi</i> |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1977 |
| — | — | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 1978 |
| — | — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1979 |
| — | — | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1980 |
| — | — | 1 | 3 | 20 | 3 | 8 | 1 | 1 | 1 | 335 <i>Cryptomyzus ballotae</i> |
| — | — | 0 | 8 | 29 | 0 | 15 | 12 | 3 | 0 | 1975 |
| — | — | 0 | 0 | 7 | 0 | 7 | 0 | 1 | 0 | 1976 |
| — | — | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1977 |
| — | — | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1978 |
| — | — | 0 | 0 | 6 | 0 | 3 | 0 | 13 | 0 | 1979 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| 14 | 48 | 11 | 17 | 41 | 18 | 26 | 4 | 7 | 7 | 336 <i>Cryptomyzus galeopsidis</i> |
| 8 | 26 | 7 | 23 | 51 | 54 | 15 | 19 | 5 | 5 | 1975 |
| 11 | 23 | 21 | 37 | 15 | 10 | 22 | 17 | 13 | 13 | 1976 |
| 19 | 6 | 4 | 5 | 27 | 4 | 26 | 10 | 11 | 11 | 1977 |
| 115 | 41 | 47 | 21 | 19 | 24 | 72 | 20 | 7 | 7 | 1978 |
| 9 | 25 | 1 | 7 | 33 | 9 | 17 | 18 | 4 | 4 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|------------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 339 <i>Cryptomyzus korschelti</i> | | | | | | | | | |
| 1975 | 1 | 0 | 0 | 1 | 0 | 0 | 3 | 2 | 1 |
| 1976 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1977 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 340 <i>Cryptomyzus ribis</i> | | | | | | | | | |
| 1975 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 6 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 |
| 1977 | 9 | 0 | 0 | 0 | 0 | 0 | 22 | 7 | 1 |
| 1978 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 1 | 0 | 0 | 7 | 6 | 2 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 5 | 1 |
| 342 <i>Capitophorus elaeagni</i> | | | | | | | | | |
| 1975 | 0 | 2 | 4 | 0 | 1 | 0 | 1 | 0 | 0 |
| 1976 | 4 | 3 | 4 | 0 | 8 | 3 | 1 | 8 | 1 |
| 1977 | 0 | 1 | 0 | 1 | 1 | 0 | 8 | 12 | 0 |
| 1978 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 |
| 1979 | 1 | 0 | 0 | 2 | 3 | 0 | 3 | 4 | 0 |
| 1980 | 0 | 6 | 0 | 0 | 2 | 0 | 5 | 2 | 0 |
| 343 <i>Capitophorus hippophaes</i> | | | | | | | | | |
| 1975 | 21 | 70 | 54 | 53 | 16 | 4 | 20 | 36 | 63 |
| 1976 | 88 | 69 | 29 | 75 | 14 | 18 | 218 | 35 | 141 |
| 1977 | 173 | 40 | 27 | 52 | 34 | 9 | 384 | 233 | 185 |
| 1978 | 134 | 118 | 38 | 63 | 40 | 28 | 313 | 593 | 306 |
| 1979 | 97 | 103 | 36 | 18 | 81 | 280 | 555 | 1236 | 129 |
| 1980 | 10 | 70 | 9 | 20 | 15 | 4 | 60 | 57 | 31 |
| 344 <i>Capitophorus horni</i> | | | | | | | | | |
| 1975 | 0 | 1 | 4 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 5 | 0 |
| 1977 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| 1980 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 346 <i>Capitophorus similis</i> | | | | | | | | | |
| 1975 | 8 | 31 | 25 | 8 | 4 | 3 | 31 | 44 | 10 |
| 1976 | 3 | 39 | 32 | 17 | 11 | 6 | 75 | 25 | 7 |
| 1977 | 9 | 105 | 107 | 62 | 62 | 8 | 71 | 175 | 0 |
| 1978 | 4 | 49 | 63 | 18 | 19 | 7 | 45 | 72 | 0 |
| 1979 | 7 | 117 | 137 | 21 | 37 | 14 | 49 | 65 | 0 |
| 1980 | 2 | 60 | 40 | 15 | 15 | 6 | 10 | 27 | 1 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(t)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|-----|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|--------------------------------|
| 339 | — | 7 | 2 | 9 | 11 | 7 | 4 | 10 | 9 | <i>Cryptomyzus korschelti</i> |
| | — | 0 | 0 | 0 | 3 | 8 | 2 | 2 | 0 | 1975 |
| | — | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 1977 |
| | — | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 1 | 0 | 6 | 1 | 0 | 5 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 340 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | <i>Cryptomyzus ribis</i> |
| | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 4 | 0 | 1975 |
| | 0 | 5 | 0 | 6 | 13 | 4 | 5 | 7 | 15 | 1976 |
| | 0 | 1 | 1 | 2 | 2 | 1 | 2 | 4 | 2 | 1977 |
| | 0 | 2 | 6 | 2 | 4 | 3 | 5 | 9 | 1 | 1978 |
| | 0 | 0 | 5 | 2 | 0 | 0 | 2 | 1 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 342 | — | 0 | 1 | 1 | 7 | 1 | 2 | 10 | 4 | <i>Capitophorus elaeagni</i> |
| | — | 6 | 3 | 40 | 6 | 8 | 65 | 12 | 3 | 1975 |
| | — | 0 | 0 | 10 | 2 | 2 | 11 | 4 | 1 | 1976 |
| | — | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1977 |
| | — | 4 | 9 | 4 | 3 | 6 | 12 | 1 | 1 | 1978 |
| | — | 2 | 1 | 4 | 2 | 2 | 6 | 6 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| 343 | 31 | 7 | 8 | 29 | 38 | 18 | 87 | 48 | 20 | <i>Capitophorus hippophaes</i> |
| | 36 | 13 | 15 | 44 | 74 | 19 | 109 | 27 | 68 | 1975 |
| | 49 | 97 | 50 | 80 | 155 | 83 | 123 | 223 | 159 | 1976 |
| | 271 | 186 | 46 | 86 | 369 | 150 | 450 | 408 | 176 | 1977 |
| | 1541 | 138 | 213 | 263 | 124 | 111 | 491 | 53 | 28 | 1978 |
| | 44 | 12 | 17 | 84 | 35 | 17 | 101 | 16 | 23 | 1979 |
| | | | | | | | | | | 1980 |
| 344 | — | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | <i>Capitophorus horni</i> |
| | — | 2 | 0 | 0 | 4 | 1 | 2 | 0 | 0 | 1975 |
| | — | 0 | 0 | 6 | 1 | 0 | 0 | 2 | 0 | 1976 |
| | — | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1977 |
| | — | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 346 | 11 | 5 | 11 | 6 | 16 | 8 | 7 | 10 | 5 | <i>Capitophorus similis</i> |
| | 50 | 19 | 11 | 29 | 34 | 8 | 18 | 5 | 3 | 1975 |
| | 45 | 32 | 17 | 46 | 22 | 23 | 24 | 20 | 2 | 1976 |
| | 44 | 20 | 24 | 20 | 38 | 4 | 43 | 18 | 3 | 1977 |
| | 83 | 7 | 5 | 3 | 9 | 4 | 1 | 2 | 0 | 1978 |
| | 12 | 14 | 11 | 4 | 3 | 7 | 18 | 5 | 0 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|---|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 350 <i>Pleotrichophorus glandulosus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 354 <i>Nasonovia pilosellae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 |
| 1977 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 355 <i>Nasonovia ribisnigri</i> | | | | | | | | | |
| 1975 | 17 | 6 | 11 | 3 | 3 | 3 | 3 | 30 | 3 |
| 1976 | 18 | 11 | 14 | 10 | 1 | 6 | 6 | 29 | 23 |
| 1977 | 47 | 0 | 6 | 1 | 3 | 1 | 7 | 49 | 56 |
| 1978 | 6 | 10 | 8 | 2 | 3 | 4 | 8 | 15 | 28 |
| 1979 | 8 | 2 | 5 | 0 | 2 | 23 | 9 | 26 | 27 |
| 1980 | 6 | 4 | 11 | 1 | 3 | 4 | 4 | 11 | 17 |
| 358 <i>Hyperomyzus lactucae</i> | | | | | | | | | |
| 1975 | 5 | 9 | 36 | 5 | 12 | 62 | 15 | 149 | 32 |
| 1976 | 23 | 42 | 69 | 5 | 24 | 41 | 38 | 47 | 21 |
| 1977 | 7 | 15 | 11 | 2 | 7 | 7 | 9 | 108 | 42 |
| 1978 | 1 | 17 | 5 | 7 | 12 | 7 | 18 | 63 | 17 |
| 1979 | 8 | 31 | 16 | 6 | 17 | 40 | 27 | 209 | 25 |
| 1980 | 2 | 42 | 11 | 1 | 4 | 5 | 28 | 17 | 11 |
| 359 <i>Hyperomyzus lamsanae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 360 <i>Hyperomyzus pallidus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 1976 | 0 | 2 | 0 | 0 | 0 | 6 | 3 | 0 | 1 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 15 | 1 |
| 1978 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 6 | 0 | 0 | 0 | 38 | 2 | 24 | 0 |
| 1980 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(u)

| | Broom's Barn | Hereford | Rothamsted | Writtle | Long Ashton | Silwood Park | Wye, Kent | Starcross | Rosewarne | |
|-----|-------------------------------------|----------|------------|---------|-------------|--------------|-----------|-----------|-----------|------|
| | 904 | 917 | 901 | 924 | 914 | 908 | 903 | 913 | 910 | |
| 350 | <i>Pleotrichophorus glandulosus</i> | | | | | | | | | |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| 354 | <i>Nasonovia pilosellae</i> | | | | | | | | | |
| | — | 0 | 0 | 0 | 2 | 4 | 0 | 2 | 0 | 1975 |
| | — | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 2 | 1976 |
| | — | 1 | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 1 | 1 | 3 | 0 | 0 | 2 | 0 | 1978 |
| | — | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1979 |
| | — | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 1980 |
| 355 | <i>Nasonovia ribisnigri</i> | | | | | | | | | |
| | 8 | 6 | 28 | 16 | 15 | 15 | 12 | 18 | 14 | 1975 |
| | 7 | 7 | 7 | 41 | 24 | 24 | 27 | 21 | 4 | 1976 |
| | 13 | 12 | 34 | 39 | 31 | 43 | 27 | 91 | 61 | 1977 |
| | 24 | 10 | 16 | 8 | 28 | 21 | 51 | 14 | 9 | 1978 |
| | 92 | 47 | 33 | 27 | 23 | 34 | 29 | 22 | 9 | 1979 |
| | 21 | 11 | 13 | 3 | 11 | 13 | 13 | 11 | 9 | 1980 |
| 358 | <i>Hyperomyzus lactucae</i> | | | | | | | | | |
| | 118 | 100 | 90 | 97 | 104 | 103 | 60 | 32 | 16 | 1975 |
| | 29 | 59 | 33 | 34 | 60 | 43 | 34 | 38 | 14 | 1976 |
| | 51 | 113 | 69 | 148 | 52 | 100 | 69 | 172 | 80 | 1977 |
| | 27 | 43 | 26 | 19 | 27 | 21 | 89 | 32 | 10 | 1978 |
| | 362 | 147 | 171 | 116 | 56 | 185 | 366 | 64 | 12 | 1979 |
| | 13 | 9 | 14 | 28 | 64 | 27 | 34 | 35 | 2 | 1980 |
| 395 | <i>Hyperomyzus lamprosanus</i> | | | | | | | | | |
| | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| 360 | <i>Hyperomyzus pallidus</i> | | | | | | | | | |
| | 0 | 2 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 1975 |
| | 0 | 6 | 5 | 2 | 2 | 0 | 4 | 1 | 0 | 1976 |
| | 6 | 7 | 16 | 8 | 10 | 7 | 1 | 8 | 0 | 1977 |
| | 0 | 7 | 1 | 1 | 2 | 0 | 3 | 1 | 0 | 1978 |
| | 0 | 8 | 22 | 12 | 1 | 19 | 31 | 5 | 0 | 1979 |
| | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
|---|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
| 362 <i>Neonasonovia picridis</i> | | | | | | | | | |
| 1975 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 363 <i>Hyperomyzella rhinanthi</i> | | | | | | | | | |
| 1975 | 1 | 1 | 1 | 6 | 1 | 2 | 0 | 0 | 4 |
| 1976 | 1 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 0 |
| 1977 | 4 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 6 | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 1 |
| 1979 | 2 | 0 | 0 | 3 | 1 | 0 | 4 | 0 | 0 |
| 1980 | 4 | 0 | 1 | 2 | 1 | 0 | 2 | 0 | 0 |
| 366 <i>Rhopalosiphoninus latysiphon</i> | | | | | | | | | |
| 1975 | 4 | 3 | 2 | 2 | 1 | 0 | 6 | 3 | 2 |
| 1976 | 4 | 1 | 0 | 0 | 1 | 3 | 1 | 3 | 0 |
| 1977 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 1978 | 3 | 5 | 1 | 0 | 2 | 0 | 0 | 1 | 3 |
| 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1980 | 0 | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 367 <i>Rhopalosiphoninus ribesinus</i> | | | | | | | | | |
| 1975 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1980 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 368 <i>Rhopalosiphoninus staphyleae</i> | | | | | | | | | |
| 1975 | 1 | 4 | 4 | 2 | 2 | 11 | 15 | 10 | 6 |
| 1976 | 9 | 8 | 8 | 7 | 2 | 6 | 7 | 64 | 2 |
| 1977 | 1 | 0 | 0 | 1 | 0 | 1 | 3 | 4 | 7 |
| 1978 | 2 | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 2 |
| 1979 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 4 | 0 |
| 1980 | 2 | 4 | 3 | 2 | 2 | 2 | 5 | 4 | 3 |
| 372 <i>Microlophium evansi</i> | | | | | | | | | |
| 1975 | 1 | 1 | 2 | 19 | 3 | 77 | 197 | 1092 | 25 |
| 1976 | 623 | 330 | 555 | 34 | 217 | 258 | 335 | 1376 | 284 |
| 1977 | 1 | 0 | 1 | 2 | 7 | 0 | 22 | 115 | 14 |
| 1978 | 0 | 19 | 0 | 0 | 3 | 1 | 3 | 16 | 7 |
| 1979 | 16 | 0 | 0 | 1 | 0 | 0 | 25 | 8 | 1 |
| 1980 | 0 | 3 | 2 | 10 | 15 | 50 | 139 | 1105 | 658 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(v)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|-----|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|-------------------------------------|
| 362 | 0 | 3 | 2 | 8 | 1 | 9 | 8 | 0 | 0 | <i>Neonasonovia picridis</i> |
| | 0 | 0 | 0 | 7 | 2 | 0 | 3 | 0 | 0 | 1975 |
| | 0 | 0 | 0 | 16 | 1 | 1 | 1 | 6 | 0 | 1976 |
| | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1977 |
| | 0 | 0 | 3 | 1 | 0 | 4 | 2 | 0 | 0 | 1978 |
| | 1 | 0 | 3 | 8 | 0 | 0 | 2 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 363 | — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | <i>Hyperomyzella rhinanthi</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1977 |
| | — | 0 | 0 | 0 | 0 | 8 | 18 | 0 | 0 | 1978 |
| | — | 6 | 0 | 2 | 4 | 2 | 2 | 0 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| 366 | 4 | 1 | 0 | 5 | 1 | 1 | 5 | 1 | 3 | <i>Rhopalosiphoninus latysiphon</i> |
| | 1 | 6 | 0 | 0 | 0 | 6 | 2 | 1 | 2 | 1975 |
| | 0 | 2 | 0 | 0 | 0 | 0 | 7 | 2 | 2 | 1976 |
| | 1 | 0 | 0 | 1 | 2 | 0 | 2 | 1 | 4 | 1977 |
| | 0 | 0 | 0 | 4 | 3 | 1 | 2 | 1 | 2 | 1978 |
| | 3 | 1 | 0 | 1 | 0 | 1 | 5 | 0 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| 367 | — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | <i>Rhopalosiphoninus ribesinus</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1979 |
| | — | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| 368 | 9 | 15 | 7 | 4 | 25 | 9 | 14 | 2 | 8 | <i>Rhopalosiphoninus staphyleae</i> |
| | 10 | 5 | 0 | 17 | 5 | 3 | 3 | 2 | 3 | 1975 |
| | 12 | 3 | 2 | 10 | 10 | 8 | 4 | 7 | 3 | 1976 |
| | 3 | 4 | 5 | 2 | 6 | 23 | 3 | 2 | 3 | 1977 |
| | 4 | 0 | 0 | 0 | 2 | 4 | 1 | 0 | 0 | 1978 |
| | 0 | 0 | 1 | 1 | 8 | 21 | 4 | 2 | 2 | 1979 |
| | | | | | | | | | | 1980 |
| 372 | 909 | 621 | 316 | 611 | 711 | 612 | 306 | 207 | 11 | <i>Microlophium evansi</i> |
| | 212 | 324 | 149 | 1253 | 1319 | 840 | 637 | 197 | 148 | 1975 |
| | 216 | 150 | 38 | 240 | 33 | 60 | 113 | 123 | 98 | 1976 |
| | 13 | 2 | 4 | 22 | 3 | 1 | 1 | 1 | 1 | 1977 |
| | 3 | 2 | 4 | 2 | 0 | 0 | 1 | 1 | 9 | 1978 |
| | 1383 | 1187 | 331 | 859 | 2318 | 1158 | 1762 | 485 | 55 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|----------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 374 <i>Aulacorthum palustre</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 1 | 0 | 1 | 61 | 15 | 12 |
| 1976 | 4 | 1 | 4 | 0 | 0 | 1 | 18 | 0 | 1 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 376 <i>Aulacorthum solani</i> | | | | | | | | | |
| 1975 | 6 | 18 | 11 | 7 | 5 | 10 | 143 | 97 | 17 |
| 1976 | 8 | 12 | 20 | 5 | 11 | 6 | 27 | 119 | 2 |
| 1977 | 2 | 4 | 3 | 0 | 1 | 0 | 8 | 8 | 4 |
| 1978 | 0 | 2 | 5 | 0 | 2 | 0 | 20 | 10 | 3 |
| 1979 | 0 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 2 |
| 1980 | 0 | 1 | 19 | 1 | 0 | 0 | 6 | 14 | 14 |
| 377 <i>Aulacorthum speyeri</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1976 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| 1980 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 378 <i>Neomyzus circumflexum</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 3 | 4 |
| 1976 | 0 | 0 | 5 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 381 <i>Acyrtosiphon loti</i> | | | | | | | | | |
| 1975 | 0 | 4 | 1 | 1 | 0 | 0 | 6 | 2 | 3 |
| 1976 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 1978 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 1980 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 382 <i>Acyrtosiphon malvae</i> | | | | | | | | | |
| 1975 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 3 | 1 |
| 1976 | 0 | 0 | 1 | 0 | 1 | 0 | 8 | 3 | 2 |
| 1977 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 2 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 4 | 0 | 1 | 1 | 0 | 0 | 9 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(w)

| | Broom's Barn | Hereford | Rothamsted | Writtle | Long Ashton | Silwood Park | Wye, Kent | Starcross | Rosewarne | |
|----|--------------|----------|------------|---------|-------------|--------------|-----------|-----------|-----------|----------------------------------|
| | 904 | 917 | 901 | 924 | 914 | 908 | 903 | 913 | 910 | |
| — | — | 13 | 0 | 5 | 3 | 6 | 3 | 5 | 5 | 374 <i>Aulacorthum palustre</i> |
| — | — | 15 | 0 | 2 | 12 | 0 | 2 | 0 | 1 | 1975 |
| — | — | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1976 |
| — | — | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 1977 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1978 |
| — | — | 1 | 0 | 2 | 2 | 2 | 2 | 5 | 3 | 1979 |
| | | | | | | | | | | 1980 |
| 23 | 41 | 16 | 38 | 52 | 15 | 21 | 19 | 28 | 28 | 376 <i>Aulacorthum solani</i> |
| 9 | 21 | 9 | 27 | 35 | 26 | 15 | 21 | 21 | 28 | 1975 |
| 6 | 2 | 0 | 8 | 5 | 11 | 8 | 8 | 35 | 5 | 1976 |
| 22 | 16 | 7 | 15 | 18 | 9 | 11 | 8 | 8 | 7 | 1977 |
| 0 | 0 | 0 | 0 | 2 | 4 | 1 | 9 | 9 | 5 | 1978 |
| 6 | 0 | 2 | 12 | 52 | 9 | 36 | 52 | 52 | 58 | 1979 |
| | | | | | | | | | | 1980 |
| — | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 377 <i>Aulacorthum speyeri</i> |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | 0 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 1976 |
| — | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1977 |
| — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 0 | 7 | 4 | 3 | 14 | 11 | 3 | 7 | 6 | 6 | 378 <i>Neomyzus circumflexum</i> |
| 0 | 2 | 0 | 0 | 4 | 0 | 0 | 1 | 4 | 4 | 1975 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 1976 |
| 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 3 | 3 | 1977 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1978 |
| 0 | 0 | 0 | 0 | 6 | 7 | 0 | 15 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | 4 | 3 | 4 | 76 | 5 | 3 | 17 | 2 | 2 | 381 <i>Acyrtosiphon loti</i> |
| — | 6 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 1975 |
| — | 0 | 0 | 1 | 2 | 2 | 0 | 2 | 1 | 1 | 1976 |
| — | 1 | 1 | 1 | 3 | 1 | 1 | 0 | 0 | 0 | 1977 |
| — | 2 | 1 | 0 | 2 | 1 | 2 | 0 | 0 | 0 | 1978 |
| — | 5 | 1 | 0 | 14 | 3 | 4 | 0 | 5 | 5 | 1979 |
| | | | | | | | | | | 1980 |
| — | 3 | 2 | 5 | 19 | 7 | 0 | 0 | 2 | 2 | 382 <i>Acyrtosiphon malvae</i> |
| — | 11 | 3 | 2 | 7 | 14 | 0 | 12 | 2 | 2 | 1975 |
| — | 0 | 3 | 5 | 3 | 9 | 0 | 9 | 5 | 5 | 1976 |
| — | 3 | 1 | 1 | 5 | 0 | 3 | 0 | 0 | 0 | 1977 |
| — | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1978 |
| — | 12 | 2 | 0 | 93 | 25 | 2 | 17 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|-----------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 389 <i>Acyrtosiphon pisum</i> | | | | | | | | | |
| 1975 | 60 | 39 | 12 | 25 | 2 | 30 | 16 | 60 | 5 |
| 1976 | 50 | 212 | 37 | 20 | 38 | 330 | 86 | 312 | 31 |
| 1977 | 32 | 25 | 8 | 4 | 1 | 3 | 40 | 101 | 36 |
| 1978 | 13 | 435 | 5 | 7 | 14 | 32 | 9 | 422 | 29 |
| 1979 | 69 | 210 | 35 | 26 | 77 | 735 | 165 | 386 | 47 |
| 1980 | 4 | 54 | 8 | 7 | 15 | 67 | 16 | 150 | 5 |
| 392 <i>Acyrtosiphon primulae</i> | | | | | | | | | |
| 1975 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 1 | 0 |
| 1976 | 0 | 2 | 1 | 0 | 1 | 2 | 13 | 1 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 2 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 6 |
| 395 <i>Metopolophium albidum</i> | | | | | | | | | |
| 1975 | 2 | 3 | 6 | 10 | 2 | 8 | 47 | 40 | 19 |
| 1976 | 18 | 0 | 32 | 2 | 0 | 0 | 0 | 1 | 1 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 9 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 |
| 1979 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1980 | 2 | 2 | 0 | 2 | 15 | 0 | 13 | 15 | 41 |
| 396 <i>Metopolophium dirhodum</i> | | | | | | | | | |
| 1975 | 109 | 342 | 1291 | 822 | 795 | 2084 | 1392 | 4876 | 198 |
| 1976 | 80 | 1454 | 4522 | 509 | 2282 | 523 | 710 | 4277 | 234 |
| 1977 | 393 | 706 | 198 | 84 | 44 | 32 | 83 | 247 | 43 |
| 1978 | 1092 | 18561 | 4718 | 190 | 3575 | 2515 | 420 | 7054 | 141 |
| 1979 | 308 | 1714 | 3567 | 738 | 2333 | 14999 | 2719 | 54793 | 738 |
| 1980 | 18 | 1205 | 339 | 29 | 77 | 546 | 222 | 995 | 65 |
| 397 <i>Metopolophium festucae</i> | | | | | | | | | |
| 1975 | 283 | 20 | 75 | 317 | 85 | 235 | 1879 | 981 | 114 |
| 1976 | 41 | 284 | 74 | 35 | 91 | 176 | 55 | 98 | 11 |
| 1977 | 1 | 0 | 0 | 1 | 1 | 3 | 43 | 4 | 10 |
| 1978 | 11 | 3 | 13 | 27 | 5 | 21 | 76 | 7 | 28 |
| 1979 | 7 | 3 | 21 | 5 | 8 | 86 | 30 | 24 | 19 |
| 1980 | 14 | 10 | 42 | 47 | 120 | 187 | 145 | 93 | 187 |
| 398 <i>Metopolophium friscum</i> | | | | | | | | | |
| 1975 | 0 | 1 | 6 | 22 | 8 | 3 | 79 | 94 | 1 |
| 1976 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 1 | 0 | 8 | 7 | 10 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(x)

| | Broom's Barn | Hereford | Rothamsted | Writtle | Long Ashton | Silwood Park | Wye, Kent | Starcross | Roswearne | |
|--|--------------|----------|------------|---------|-------------|--------------|-----------|-----------|-----------|-------------------------------------|
| | 904 | 917 | 901 | 924 | 914 | 908 | 903 | 913 | 910 | |
| | 249 | 41 | 41 | 249 | 27 | 58 | 71 | 27 | 16 | 389 <i>Acyrtosiphon pisum</i> |
| | 494 | 83 | 220 | 692 | 52 | 281 | 71 | 75 | 5 | 1975 |
| | 266 | 97 | 404 | 697 | 106 | 213 | 163 | 148 | 20 | 1976 |
| | 398 | 108 | 70 | 267 | 51 | 53 | 116 | 48 | 5 | 1977 |
| | 2198 | 451 | 313 | 654 | 115 | 145 | 1107 | 190 | 6 | 1978 |
| | 67 | 26 | 31 | 91 | 43 | 61 | 80 | 25 | 7 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 4 | 0 | 1 | 6 | 0 | 1 | 4 | 2 | 392 <i>Acyrtosiphon pri mularae</i> |
| | — | 17 | 12 | 14 | 5 | 13 | 5 | 2 | 1 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 0 | 1977 |
| | — | 16 | 4 | 1 | 0 | 5 | 34 | 0 | 0 | 1978 |
| | — | 4 | 0 | 2 | 3 | 4 | 3 | 1 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 21 | 17 | 4 | 60 | 79 | 2 | 5 | 5 | 395 <i>Metopolophium albidum</i> |
| | — | 3 | 3 | 1 | 6 | 4 | 1 | 4 | 0 | 1975 |
| | — | 0 | 6 | 0 | 0 | 1 | 1 | 3 | 3 | 1976 |
| | — | 2 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 1977 |
| | — | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 1 | 1978 |
| | — | 21 | 15 | 10 | 83 | 68 | 50 | 17 | 10 | 1979 |
| | | | | | | | | | | 1980 |
| | 5717 | 282 | 371 | 674 | 315 | 312 | 269 | 114 | 66 | 396 <i>Metopolophium dirhodum</i> |
| | 1018 | 4154 | 1616 | 5797 | 2225 | 1364 | 1277 | 247 | 34 | 1975 |
| | 855 | 105 | 501 | 1354 | 126 | 946 | 446 | 2144 | 793 | 1976 |
| | 4114 | 664 | 606 | 1055 | 208 | 231 | 689 | 249 | 32 | 1977 |
| | 104429 | 8592 | 18427 | 21085 | 1597 | 7377 | 34449 | 1967 | 421 | 1978 |
| | 73 | 49 | 19 | 38 | 185 | 35 | 54 | 80 | 12 | 1979 |
| | | | | | | | | | | 1980 |
| | 41 | 221 | 109 | 29 | 167 | 115 | 24 | 41 | 25 | 397 <i>Metopolophium festucae</i> |
| | 138 | 203 | 163 | 97 | 43 | 104 | 71 | 55 | 11 | 1975 |
| | 73 | 9 | 115 | 36 | 4 | 53 | 34 | 26 | 51 | 1976 |
| | 111 | 32 | 61 | 73 | 56 | 31 | 23 | 8 | 28 | 1977 |
| | 179 | 28 | 63 | 27 | 19 | 9 | 150 | 42 | 40 | 1978 |
| | 145 | 642 | 160 | 140 | 1298 | 295 | 260 | 234 | 122 | 1979 |
| | | | | | | | | | | 1980 |
| | — | 17 | 4 | 2 | 6 | 9 | 0 | 2 | 1 | 398 <i>Metopolophium friscum</i> |
| | — | 0 | 0 | 0 | 1 | 3 | 4 | 6 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1979 |
| | — | 7 | 2 | 2 | 8 | 3 | 12 | 3 | 2 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|------------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 399 <i>Metopolophium tenerum</i> | | | | | | | | | |
| 1975 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 7 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1980 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 4 |
| 400 <i>Cryptaphis poae</i> | | | | | | | | | |
| 1975 | 0 | 1 | 0 | 0 | 2 | 0 | 5 | 0 | 1 |
| 1976 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 11 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 |
| 402 <i>Linospiphon galiophagus</i> | | | | | | | | | |
| 1975 | 3 | 1 | 6 | 3 | 3 | 8 | 17 | 22 | 0 |
| 1976 | 82 | 7 | 33 | 1 | 11 | 0 | 2 | 8 | 1 |
| 1977 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 1978 | 1 | 9 | 3 | 0 | 9 | 0 | 0 | 0 | 0 |
| 1979 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 1980 | 0 | 1 | 0 | 3 | 3 | 1 | 7 | 33 | 0 |
| 403 <i>Corylobium avellanae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 410 <i>Macrosiphum euphorbiae</i> | | | | | | | | | |
| 1975 | 104 | 196 | 160 | 30 | 46 | 147 | 244 | 502 | 87 |
| 1976 | 57 | 75 | 90 | 35 | 61 | 21 | 176 | 291 | 50 |
| 1977 | 25 | 194 | 67 | 48 | 13 | 0 | 182 | 121 | 92 |
| 1978 | 35 | 440 | 178 | 69 | 51 | 12 | 156 | 113 | 44 |
| 1979 | 22 | 153 | 63 | 16 | 16 | 8 | 46 | 144 | 14 |
| 1980 | 30 | 154 | 80 | 14 | 105 | 9 | 52 | 90 | 41 |
| 412 <i>Macrosiphum funestum</i> | | | | | | | | | |
| 1975 | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 |
| 1976 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 10 | 2 |
| 1977 | 0 | 1 | 0 | 1 | 0 | 0 | 4 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(y)

| | 904 Broom's Barn | 917 Hereford | 901 Rothamsted | 924 Writtle | 914 Long Ashton | 908 Silwood Park | 903 Wye, Kent | 913 Starcross | 910 Rosewarne | |
|-----|------------------|--------------|----------------|-------------|-----------------|------------------|---------------|---------------|---------------|-------------------------------------|
| — | — | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 399 <i>Metopolophium tenerum</i> |
| — | — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1975 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12 | 1976 |
| — | — | 0 | 1 | 0 | 2 | 3 | 0 | 1 | 0 | 1977 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1978 |
| — | — | 1 | 0 | 4 | 1 | 4 | 4 | 0 | 0 | 1979 |
| — | — | — | — | — | — | — | — | — | — | 1980 |
| — | — | 1 | 1 | 2 | 1 | 8 | 0 | 0 | 2 | 400 <i>Cryptaphis poae</i> |
| — | — | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 1975 |
| — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1976 |
| — | — | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1977 |
| — | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1978 |
| — | — | 0 | 1 | 0 | 0 | 15 | 0 | 0 | 0 | 1979 |
| — | — | — | — | — | — | — | — | — | — | 1980 |
| — | 118 | 20 | 29 | 18 | 23 | 9 | 11 | 2 | 2 | 402 <i>Linosisiphon galiophagus</i> |
| — | 2 | 0 | 0 | 4 | 2 | 1 | 9 | 1 | 1 | 1975 |
| — | 0 | 0 | 0 | 1 | 0 | 2 | 13 | 5 | 5 | 1976 |
| — | 2 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1977 |
| — | 0 | 0 | 8 | 0 | 1 | 2 | 0 | 0 | 0 | 1978 |
| — | 132 | 5 | 1 | 17 | 4 | 4 | 74 | 4 | 4 | 1979 |
| — | — | — | — | — | — | — | — | — | — | 1980 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 403 <i>Corylobium avellanae</i> |
| — | 2 | 3 | 0 | 0 | 0 | 8 | 5 | 0 | 0 | 1975 |
| — | 1 | 0 | 4 | 2 | 0 | 1 | 3 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 1977 |
| — | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | — | — | — | — | — | — | — | — | — | 1980 |
| 62 | 143 | 104 | 124 | 256 | 152 | 86 | 72 | 36 | 36 | 410 <i>Macrosiphum euphorbiae</i> |
| 131 | 78 | 68 | 188 | 107 | 149 | 187 | 77 | 17 | 17 | 1975 |
| 37 | 125 | 87 | 159 | 88 | 164 | 87 | 448 | 743 | 743 | 1976 |
| 54 | 122 | 30 | 35 | 103 | 55 | 39 | 76 | 72 | 72 | 1977 |
| 95 | 111 | 56 | 20 | 28 | 64 | 150 | 33 | 24 | 24 | 1978 |
| 18 | 102 | 47 | 69 | 144 | 122 | 106 | 62 | 10 | 10 | 1979 |
| — | — | — | — | — | — | — | — | — | — | 1980 |
| — | 0 | 0 | 0 | 2 | 2 | 4 | 3 | 3 | 3 | 412 <i>Macrosiphum funestum</i> |
| — | 24 | 5 | 0 | 20 | 18 | 15 | 1 | 0 | 0 | 1975 |
| — | 5 | 0 | 1 | 0 | 2 | 3 | 4 | 2 | 2 | 1976 |
| — | 0 | 1 | 0 | 3 | 0 | 6 | 0 | 1 | 1 | 1977 |
| — | 4 | 0 | 36 | 0 | 2 | 0 | 0 | 2 | 2 | 1978 |
| — | 0 | 3 | 0 | 17 | 1 | 0 | 3 | 4 | 4 | 1979 |
| — | — | — | — | — | — | — | — | — | — | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 Elgin | 907 Dundee | 912 Edinburgh | 923 Auchincruive | 906 Newcastle | 905 High Mowthorpe | 922 Preston | 919 Shardlow | 911 Aberystwyth |
|---------------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 413 <i>Macrosiphum gei</i> | | | | | | | | | |
| 1975 | 2 | 0 | 1 | 1 | 7 | 0 | 5 | 4 | 5 |
| 1976 | 4 | 0 | 4 | 0 | 0 | 0 | 4 | 0 | 3 |
| 1977 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 |
| 1978 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 2 | 0 |
| 1979 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 4 | 0 |
| 1980 | 0 | 1 | 0 | 0 | 1 | 1 | 4 | 0 | 0 |
| 416 <i>Macrosiphum rosae</i> | | | | | | | | | |
| 1975 | 4 | 5 | 8 | 9 | 4 | 2 | 5 | 20 | 8 |
| 1976 | 5 | 11 | 14 | 18 | 17 | 8 | 12 | 35 | 30 |
| 1977 | 0 | 2 | 4 | 4 | 1 | 0 | 2 | 25 | 7 |
| 1978 | 2 | 9 | 6 | 1 | 4 | 1 | 10 | 4 | 3 |
| 1979 | 2 | 4 | 5 | 5 | 1 | 0 | 15 | 12 | 10 |
| 1980 | 0 | 4 | 31 | 3 | 5 | 6 | 8 | 13 | 39 |
| 420 <i>Sitobion avenae</i> | | | | | | | | | |
| 1975 | 1012 | 2627 | 3768 | 1505 | 848 | 4269 | 1905 | 5943 | 1877 |
| 1976 | 1594 | 2578 | 4474 | 6615 | 3300 | 2871 | 13713 | 12676 | 4616 |
| 1977 | 282 | 801 | 502 | 790 | 702 | 875 | 429 | 1140 | 598 |
| 1978 | 189 | 287 | 284 | 50 | 284 | 316 | 92 | 1632 | 312 |
| 1979 | 162 | 354 | 774 | 26 | 43 | 382 | 111 | 190 | 195 |
| 1980 | 128 | 544 | 475 | 470 | 745 | 3582 | 1511 | 3695 | 441 |
| 421 <i>Sitobion fragariae</i> | | | | | | | | | |
| 1975 | 14 | 11 | 76 | 67 | 19 | 43 | 151 | 161 | 52 |
| 1976 | 50 | 19 | 82 | 23 | 39 | 5 | 80 | 31 | 23 |
| 1977 | 41 | 4 | 29 | 11 | 9 | 1 | 235 | 65 | 168 |
| 1978 | 5 | 115 | 14 | 37 | 60 | 112 | 62 | 382 | 64 |
| 1979 | 57 | 69 | 46 | 20 | 69 | 373 | 116 | 1165 | 35 |
| 1980 | 16 | 46 | 27 | 14 | 57 | 102 | 64 | 160 | 30 |
| 450 <i>Macrosiphoniella abrotani</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 8 | 0 |
| 1977 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 451 <i>Macrosiphoniella absinthii</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| 1979 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(z)

| | Broom's Barn 904 | Hereford 917 | Rothamsted 901 | Writtle 924 | Long Ashton 914 | Silwood Park 908 | Wye, Kent 903 | Starcross 913 | Rosewarne 910 | |
|---------------------------------------|---------------------|-----------------|-------------------|----------------|--------------------|---------------------|------------------|------------------|------------------|------|
| 413 <i>Macrosiphum gei</i> | 0 | 1 | 7 | 4 | 8 | 4 | 3 | 0 | 1 | 1975 |
| | 0 | 6 | 2 | 0 | 0 | 8 | 2 | 0 | 0 | 1976 |
| | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 1977 |
| | 0 | 0 | 0 | 0 | 7 | 2 | 2 | 0 | 0 | 1978 |
| | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 2 | 1 | 1979 |
| | 5 | 4 | 2 | 4 | 7 | 2 | 1 | 0 | 1 | 1980 |
| 416 <i>Macrosiphum rosae</i> | 8 | 15 | 9 | 15 | 35 | 26 | 12 | 20 | 4 | 1975 |
| | 0 | 14 | 19 | 8 | 54 | 59 | 38 | 5 | 6 | 1976 |
| | 0 | 30 | 21 | 27 | 11 | 37 | 12 | 115 | 32 | 1977 |
| | 0 | 7 | 4 | 3 | 12 | 13 | 7 | 2 | 3 | 1978 |
| | 0 | 4 | 14 | 16 | 6 | 30 | 40 | 10 | 4 | 1979 |
| | 0 | 8 | 13 | 19 | 82 | 64 | 39 | 13 | 5 | 1980 |
| 420 <i>Sitobion avenae</i> | 9676 | 3019 | 1522 | 2632 | 5851 | 2740 | 1992 | 2029 | 524 | 1975 |
| | 8639 | 7567 | 7596 | 9461 | 4301 | 10261 | 4112 | 2636 | 262 | 1976 |
| | 2081 | 1327 | 2794 | 3604 | 1187 | 3590 | 3096 | 4800 | 4597 | 1977 |
| | 1134 | 911 | 578 | 1241 | 526 | 680 | 813 | 580 | 200 | 1978 |
| | 2141 | 106 | 376 | 678 | 122 | 452 | 1828 | 509 | 222 | 1979 |
| | 2777 | 999 | 827 | 2140 | 1115 | 2407 | 4569 | 628 | 122 | 1980 |
| 421 <i>Sitobion fragariae</i> | 124 | 101 | 116 | 187 | 140 | 137 | 122 | 120 | 148 | 1975 |
| | 68 | 39 | 29 | 79 | 56 | 61 | 51 | 123 | 77 | 1976 |
| | 58 | 42 | 18 | 64 | 63 | 72 | 37 | 93 | 53 | 1977 |
| | 349 | 833 | 497 | 377 | 437 | 718 | 468 | 332 | 27 | 1978 |
| | 2088 | 551 | 678 | 385 | 105 | 520 | 645 | 357 | 55 | 1979 |
| | 33 | 138 | 69 | 77 | 180 | 149 | 106 | 180 | 43 | 1980 |
| 450 <i>Macrosiphoniella abrotani</i> | — | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 1979 |
| | — | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| 451 <i>Macrosiphoniella absinthii</i> | — | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1975 |
| | — | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1977 |
| | — | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|--|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 452 <i>Macrosiphoniella artemisiae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| 1977 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1978 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 1980 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 453 <i>Macrosiphoniella millefolii</i> | | | | | | | | | |
| 1975 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 |
| 1980 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 462 <i>Macrosiphoniella persequens</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 463 <i>Macrosiphoniella sejuncta</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 1976 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 732 <i>Macrosiphoniella tapuskae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 8 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 18 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 467 <i>Amphorophora gei</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1976 | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(aa)

| | 904 Broom's Barn | 917 Hereford | 901 Rothamsted | 924 Writtle | 914 Long Ashton | 908 Silwood Park | 903 Wye, Kent | 913 Starcross | 910 Rosewarne | |
|---|------------------|--------------|----------------|-------------|-----------------|------------------|---------------|---------------|---------------|--|
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 452 <i>Macrosiphoniella artemisiae</i> |
| — | 2 | 0 | 12 | 0 | 0 | 0 | 3 | 0 | 0 | 1975 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 453 <i>Macrosiphoniella millefolii</i> |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1975 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 0 | 0 | 6 | 2 | 1 | 0 | 1978 |
| — | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 462 <i>Macrosiphoniella persequens</i> |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1977 |
| — | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 463 <i>Macrosiphoniella sejuncta</i> |
| — | 4 | 4 | 1 | 4 | 3 | 2 | 2 | 0 | 0 | 1975 |
| — | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1980 |
| — | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 732 <i>Macrosiphoniella tapuskae</i> |
| — | 4 | 5 | 18 | 1 | 4 | 18 | 0 | 0 | 0 | 1975 |
| — | 1 | 3 | 6 | 7 | 2 | 6 | 7 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 1977 |
| — | 4 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| — | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 467 <i>Amphorophora gei</i> |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|---------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 468 <i>Amphorophora rubi</i> | | | | | | | | | |
| 1975 | 0 | 19 | 1 | 0 | 1 | 0 | 16 | 1 | 6 |
| 1976 | 4 | 15 | 12 | 0 | 1 | 6 | 8 | 0 | 5 |
| 1977 | 1 | 29 | 11 | 0 | 1 | 0 | 3 | 5 | 1 |
| 1978 | 1 | 9 | 1 | 0 | 2 | 3 | 1 | 3 | 1 |
| 1979 | 10 | 64 | 2 | 1 | 2 | 0 | 0 | 14 | 0 |
| 1980 | 0 | 8 | 2 | 0 | 5 | 1 | 2 | 4 | 27 |
| 470 <i>Megoura viciae</i> | | | | | | | | | |
| 1975 | 4 | 2 | 0 | 4 | 2 | 3 | 4 | 4 | 0 |
| 1976 | 7 | 2 | 1 | 0 | 5 | 0 | 4 | 0 | 0 |
| 1977 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 1979 | 1 | 1 | 1 | 3 | 3 | 0 | 2 | 0 | 2 |
| 1980 | 2 | 3 | 6 | 2 | 10 | 0 | 1 | 0 | 2 |
| 471 <i>Megourella purpurea</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 1 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 1980 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |
| 741 <i>Masonaphis lambersi</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | — |
| 1980 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| 477 <i>Wahlgreniella arbuti</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 0 |
| 1976 | 0 | 0 | 7 | 0 | 2 | 7 | 4 | 305 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 83 | 0 |
| 1978 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 4 | 0 |
| 1979 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 1980 | 2 | 2 | 19 | 0 | 4 | 2 | 3 | 31 | 0 |
| 480 <i>Anoecia corni</i> | | | | | | | | | |
| 1975 | 4 | 0 | 0 | 17 | 0 | 3 | 17 | 89 | 28 |
| 1976 | 3 | 2 | 1 | 7 | 2 | 3 | 24 | 62 | 40 |
| 1977 | 0 | 0 | 0 | 3 | 1 | 1 | 8 | 72 | 40 |
| 1978 | 1 | 1 | 0 | 6 | 1 | 3 | 23 | 121 | 74 |
| 1979 | 0 | 0 | 0 | 2 | 0 | 2 | 21 | 140 | 54 |
| 1980 | 0 | 5 | 1 | 7 | 0 | 8 | 37 | 69 | 35 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(bb)

| | Broom's Barn | Hereford | Rothamsted | Writtle | Long Ashton | Silwood Park | Wye, Kent | Starcross | Rosewarne | |
|-----|--------------|----------|------------|---------|-------------|--------------|-----------|-----------|-----------|-----------------------------|
| | 904 | 917 | 901 | 924 | 914 | 908 | 903 | 913 | 910 | |
| 468 | 24 | 17 | 4 | 24 | 61 | 15 | 17 | 43 | 33 | <i>Amphorophora rubi</i> |
| | 50 | 12 | 4 | 4 | 55 | 18 | 20 | 8 | 10 | 1975 |
| | 47 | 9 | 0 | 10 | 3 | 2 | 3 | 18 | 0 | 1976 |
| | 6 | 10 | 3 | 6 | 2 | 7 | 5 | 1 | 0 | 1977 |
| | 7 | 10 | 4 | 10 | 0 | 20 | 4 | 0 | 0 | 1978 |
| | 30 | 14 | 2 | 2 | 41 | 9 | 17 | 34 | 14 | 1979 |
| | | | | | | | | | | 1980 |
| 470 | 2 | 4 | 1 | 14 | 0 | 2 | 2 | 0 | 1 | <i>Megoura viciae</i> |
| | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1975 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | 1 | 0 | 0 | 10 | 6 | 1 | 54 | 0 | 3 | 1978 |
| | 3 | 0 | 2 | 4 | 0 | 6 | 4 | 0 | 1 | 1979 |
| | | | | | | | | | | 1980 |
| 471 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | <i>Megourella purpurea</i> |
| | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1975 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 1977 |
| | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 1978 |
| | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 741 | — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | <i>Masonaphis lambersi</i> |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1977 |
| | — | 0 | 2 | 0 | 0 | 19 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 477 | — | 2 | 92 | 103 | 15 | 240 | 12 | 1 | 2 | <i>Wahlgreniella arbuti</i> |
| | — | 35 | 293 | 288 | 22 | 309 | 30 | 0 | 0 | 1975 |
| | — | 17 | 61 | 135 | 29 | 200 | 41 | 1 | 6 | 1976 |
| | — | 5 | 15 | 15 | 19 | 37 | 1 | 0 | 0 | 1977 |
| | — | 9 | 4 | 8 | 10 | 32 | 19 | 0 | 0 | 1978 |
| | — | 15 | 86 | 174 | 29 | 152 | 35 | 6 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 480 | 48 | 75 | 75 | 116 | 275 | 271 | 84 | 42 | 24 | <i>Anoecia corni</i> |
| | 49 | 24 | 77 | 150 | 162 | 219 | 89 | 19 | 26 | 1975 |
| | 84 | 66 | 130 | 220 | 278 | 318 | 164 | 130 | 44 | 1976 |
| | 132 | 171 | 124 | 94 | 371 | 446 | 307 | 68 | 28 | 1977 |
| | 87 | 155 | 76 | 93 | 201 | 296 | 183 | 61 | 16 | 1978 |
| | 61 | 66 | 100 | 133 | 291 | 348 | 151 | 35 | 52 | 1979 |
| | | | | | | | | | | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|------------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 490 <i>Thelaxes dryophila</i> | | | | | | | | | |
| 1975 | 0 | 11 | 10 | 16 | 0 | 0 | 1 | 6 | 8 |
| 1976 | 13 | 54 | 10 | 15 | 2 | 4 | 22 | 5 | 6 |
| 1977 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 5 | 3 |
| 1978 | 0 | 3 | 2 | 2 | 0 | 4 | 2 | 2 | 6 |
| 1979 | 0 | 1 | 1 | 0 | 2 | 6 | 0 | 16 | 0 |
| 1980 | 0 | 3 | 17 | 1 | 3 | 0 | 2 | 6 | 0 |
| 491 <i>Mindarus abietinus</i> | | | | | | | | | |
| 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1976 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| 1977 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 9 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 499 <i>Eriosoma patchae</i> | | | | | | | | | |
| 1975 | 6 | 9 | 3 | 5 | 0 | 2 | 1 | 19 | 2 |
| 1976 | 48 | 16 | 6 | 22 | 4 | 12 | 20 | 21 | 4 |
| 1977 | 5 | 18 | 0 | 23 | 0 | 4 | 16 | 21 | 3 |
| 1978 | 1 | 20 | 2 | 1 | 6 | 7 | 7 | 8 | 5 |
| 1979 | 8 | 54 | 17 | 1 | 6 | 18 | 4 | 21 | 0 |
| 1980 | 12 | 14 | 0 | 0 | 0 | 7 | 7 | 6 | 1 |
| 500 <i>Erisoma ulmi</i> | | | | | | | | | |
| 1975 | 5 | 38 | 15 | 5 | 4 | 11 | 4 | 15 | 4 |
| 1976 | 121 | 540 | 63 | 26 | 72 | 97 | 229 | 336 | 15 |
| 1977 | 7 | 118 | 35 | 15 | 10 | 9 | 33 | 22 | 7 |
| 1978 | 32 | 331 | 75 | 10 | 37 | 43 | 118 | 107 | 10 |
| 1979 | 32 | 244 | 12 | 4 | 30 | 94 | 45 | 218 | 11 |
| 1980 | 18 | 138 | 25 | 14 | 7 | 24 | 32 | 27 | 8 |
| 502 <i>Kaltenbachiella pallida</i> | | | | | | | | | |
| 1975 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1976 | 3 | 2 | 3 | 1 | 0 | 0 | 10 | 0 | 30 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 1 | 0 | 3 | 2 | 0 | 1 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 503 <i>Tetraneura ulmi</i> | | | | | | | | | |
| 1975 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 9 | 3 |
| 1976 | 2 | 0 | 1 | 1 | 1 | 0 | 2 | 3 | 4 |
| 1977 | 3 | 0 | 0 | 1 | 0 | 0 | 2 | 7 | 357 |
| 1978 | 4 | 3 | 1 | 5 | 3 | 1 | 5 | 10 | 0 |
| 1979 | 8 | 4 | 0 | 4 | 0 | 0 | 7 | 4 | 3 |
| 1980 | 0 | 10 | 0 | 4 | 0 | 1 | 15 | 14 | 15 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(cc)

| | Broom's Barn | Hereford | Rothamsted | Writtle | Long Ashton | Silwood Park | Wye, Kent | Starcross | Rosewarne | |
|-----|--------------------------------|----------|------------|---------|-------------|--------------|-----------|-----------|-----------|------|
| | 904 | 917 | 901 | 924 | 914 | 908 | 903 | 913 | 910 | |
| 490 | <i>Thelaxes dryophila</i> | | | | | | | | | |
| | 27 | 19 | 5 | 14 | 16 | 36 | 56 | 44 | 2 | 1975 |
| | 29 | 153 | 31 | 48 | 31 | 654 | 95 | 130 | 8 | 1976 |
| | 38 | 456 | 24 | 160 | 35 | 239 | 63 | 110 | 0 | 1977 |
| | 45 | 81 | 10 | 45 | 32 | 47 | 60 | 104 | 0 | 1978 |
| | 14 | 363 | 14 | 47 | 15 | 178 | 46 | 125 | 0 | 1979 |
| | 26 | 97 | 0 | 37 | 14 | 113 | 30 | 41 | 1 | 1980 |
| 491 | <i>Mindarus abietinus</i> | | | | | | | | | |
| | — | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1979 |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1980 |
| 499 | <i>Eriosoma patchae</i> | | | | | | | | | |
| | — | 13 | 1 | 0 | 12 | 10 | 4 | 2 | 3 | 1975 |
| | — | 1 | 4 | 9 | 4 | 7 | 5 | 4 | 1 | 1976 |
| | — | 4 | 1 | 6 | 7 | 16 | 9 | 3 | 4 | 1977 |
| | — | 29 | 12 | 10 | 48 | 68 | 62 | 7 | 6 | 1978 |
| | — | 48 | 15 | 28 | 18 | 74 | 40 | 5 | 3 | 1979 |
| | — | 0 | 9 | 10 | 14 | 19 | 16 | 2 | 2 | 1980 |
| 500 | <i>Eriosoma ulmi</i> | | | | | | | | | |
| | 26 | 20 | 6 | 7 | 10 | 7 | 12 | 4 | 0 | 1975 |
| | 78 | 241 | 98 | 62 | 65 | 47 | 44 | 8 | 1 | 1976 |
| | 31 | 93 | 5 | 38 | 10 | 10 | 36 | 2 | 0 | 1977 |
| | 114 | 231 | 29 | 69 | 33 | 29 | 91 | 2 | 3 | 1978 |
| | 245 | 425 | 33 | 71 | 28 | 52 | 221 | 1 | 2 | 1979 |
| | 17 | 108 | 12 | 12 | 25 | 15 | 35 | 1 | 1 | 1980 |
| 502 | <i>Kaltenbachiella pallida</i> | | | | | | | | | |
| | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1976 |
| | — | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| | — | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 1978 |
| | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1979 |
| | — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1980 |
| 503 | <i>Tetraneura ulmi</i> | | | | | | | | | |
| | — | 0 | 6 | 5 | 28 | 10 | 6 | 7 | 1 | 1975 |
| | — | 2 | 5 | 42 | 36 | 7 | 28 | 3 | 2 | 1976 |
| | — | 1 | 7 | 14 | 34 | 9 | 15 | 5 | 3 | 1977 |
| | — | 9 | 10 | 6 | 32 | 25 | 14 | 1 | 0 | 1978 |
| | — | 1 | 2 | 14 | 18 | 27 | 14 | 3 | 0 | 1979 |
| | — | 12 | 4 | 8 | 17 | 21 | 14 | 4 | 2 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | 916 | 907 | 912 | 923 | 906 | 905 | 922 | 919 | 911 |
|--------------------------------------|-------|--------|-----------|--------------|-----------|----------------|---------|----------|-------------|
| | Elgin | Dundee | Edinburgh | Auchincruive | Newcastle | High Mowthorpe | Preston | Shardlow | Aberystwyth |
| 508 <i>Prociphilus pini</i> | | | | | | | | | |
| 1975 | 51 | 21 | 0 | 4 | 8 | 3 | 0 | 4 | 22 |
| 1976 | 19 | 3 | 1 | 4 | 4 | 3 | 0 | 27 | 3 |
| 1977 | 14 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| 1978 | 10 | 7 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 1979 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 4 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 510 <i>Mimeuria ulmiphila</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 512 <i>Thecabius affinis</i> | | | | | | | | | |
| 1975 | 16 | 65 | 51 | 27 | 75 | 25 | 55 | 84 | 124 |
| 1976 | 16 | 26 | 20 | 118 | 94 | 6 | 142 | 7 | 147 |
| 1977 | 37 | 13 | 4 | 26 | 17 | 3 | 25 | 16 | 0 |
| 1978 | 2 | 27 | 16 | 21 | 21 | 2 | 12 | 26 | 0 |
| 1979 | 47 | 11 | 23 | 6 | 87 | 6 | 30 | 33 | 15 |
| 1980 | 7 | 17 | 31 | 3 | 16 | 2 | 29 | 12 | 0 |
| 523 <i>Parathecabius lysimachiae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 1978 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 527 <i>Forda formicaria</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 2 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 2 |
| 1978 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 |
| 1979 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 1 |
| 528 <i>Forda marginata</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(dd)

| | 904 Broom's Barn | 917 Hereford | 901 Rothamsted | 924 Writtle | 914 Long Ashton | 908 Silwood Park | 903 Wye, Kent | 913 Starcross | 910 Rosewarne | |
|---|------------------|--------------|----------------|-------------|-----------------|------------------|---------------|---------------|---------------|--------------------------------------|
| — | — | 2 | 3 | 0 | 6 | 58 | 16 | 1 | 0 | 508 <i>Prociphilus pini</i> |
| — | — | 0 | 1 | 4 | 0 | 63 | 5 | 0 | 0 | 1975 |
| — | — | 0 | 5 | 0 | 0 | 4 | 6 | 1 | 0 | 1976 |
| — | — | 0 | 2 | 0 | 2 | 9 | 4 | 0 | 0 | 1977 |
| — | — | 1 | 0 | 0 | 0 | 11 | 15 | 0 | 0 | 1978 |
| — | — | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | — | 1 | 2 | 1 | 1 | 3 | 0 | 3 | 0 | 510 <i>Mimeuria ulmiphila</i> |
| — | — | 0 | 4 | 6 | 0 | 0 | 1 | 2 | 0 | 1975 |
| — | — | 0 | 0 | 7 | 1 | 1 | 1 | 12 | 0 | 1976 |
| — | — | 0 | 0 | 6 | 2 | 17 | 9 | 23 | 1 | 1977 |
| — | — | 0 | 2 | 3 | 5 | 11 | 3 | 6 | 0 | 1978 |
| — | — | 0 | 2 | 0 | 5 | 6 | 2 | 3 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 0 | 23 | 3 | 23 | 56 | 23 | 32 | 33 | 30 | 0 | 512 <i>Thecabius affinis</i> |
| 0 | 13 | 3 | 6 | 15 | 19 | 5 | 5 | 5 | 5 | 1975 |
| 0 | 9 | 0 | 4 | 22 | 12 | 9 | 25 | 4 | 4 | 1976 |
| 0 | 32 | 3 | 6 | 21 | 22 | 12 | 30 | 8 | 8 | 1977 |
| 0 | 12 | 8 | 6 | 16 | 25 | 16 | 6 | 18 | 18 | 1978 |
| 0 | 12 | 3 | 14 | 18 | 7 | 2 | 12 | 10 | 10 | 1979 |
| | | | | | | | | | | 1980 |
| — | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 523 <i>Parathecabius lysimachiae</i> |
| — | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| 1 | 1 | 3 | 2 | 15 | 6 | 12 | 0 | 0 | 0 | 527 <i>Forda formicaria</i> |
| 0 | 0 | 0 | 0 | 7 | 9 | 1 | 2 | 0 | 0 | 1975 |
| 0 | 1 | 1 | 0 | 9 | 8 | 1 | 4 | 6 | 6 | 1976 |
| 0 | 1 | 1 | 1 | 2 | 2 | 4 | 2 | 1 | 1 | 1977 |
| 0 | 0 | 0 | 0 | 3 | 3 | 9 | 4 | 0 | 0 | 1978 |
| 0 | 0 | 3 | 3 | 2 | 2 | 3 | 2 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 528 <i>Forda marginata</i> |
| — | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1975 |
| — | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

| | Elgin 916 | Dundee 907 | Edinburgh 912 | Auchincruive 923 | Newcastle 906 | High Mowthorpe 905 | Preston 922 | Shardlow 919 | Aberystwyth 911 |
|-------------------------------------|--------------|---------------|------------------|---------------------|------------------|-----------------------|----------------|-----------------|--------------------|
| 530 <i>Aploneura lentisci</i> | | | | | | | | | |
| 1975 | 0 | 1 | 15 | 7 | 2 | 3 | 0 | 21 | 3 |
| 1976 | 1 | 5 | 3 | 42 | 28 | 37 | 56 | 680 | 207 |
| 1977 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 531 <i>Baizongia pistaciae</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 726 <i>Melanaphis elizabethae</i> | | | | | | | | | |
| 1975 | 0 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 1976 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 733 <i>Nearctaphis bakeri</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| 1976 | 0 | 0 | 5 | 0 | 1 | 1 | 1 | 3 | 1 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 751 <i>Utamphorophora humboldti</i> | | | | | | | | | |
| 1975 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| 1976 | 0 | 1 | 10 | 0 | 0 | 0 | 2 | 4 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 |
| 1980 | 0 | 1 | 4 | 0 | 0 | 0 | 14 | 23 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 1 | 2 | 0 | 13 | 41 | 24 |
| 756 <i>Cedrobium laportei</i> | | | | | | | | | |
| 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. III

2(ee)

| | 904 Broom's Barn | 917 Hereford | 901 Rothamsted | 924 Writtle | 914 Long Ashton | 908 Silwood Park | 903 Wye, Kent | 913 Starcross | 910 Rosewarne | |
|----|------------------|--------------|----------------|-------------|-----------------|------------------|---------------|---------------|---------------|-------------------------------------|
| | 0 | 19 | 62 | 30 | 35 | 23 | 78 | 23 | 53 | 530 <i>Aploneura lentisci</i> |
| 73 | 1635 | 680 | 647 | 3161 | 604 | 635 | 941 | 5115 | | 1975 |
| 1 | 5 | 0 | 0 | 0 | 3 | 1 | 0 | 4 | 0 | 1976 |
| 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 2 | 1 | 1977 |
| 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1978 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | 0 | 6 | 5 | 3 | 8 | 2 | 0 | 0 | 0 | 531 <i>Baizongia pistaciae</i> |
| — | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 1975 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 726 <i>Melanaphis elizabethae</i> |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1975 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | 5 | 9 | 17 | 2 | 12 | 12 | 13 | 1 | 1 | 733 <i>Nearctaphis bakeri</i> |
| — | 11 | 16 | 12 | 2 | 9 | 5 | 6 | 3 | 3 | 1975 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 1 | 3 | 1 | 1 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| | | | | | | | | | | 1980 |
| — | 3 | 54 | 13 | 12 | 102 | 0 | 2 | 0 | 0 | 751 <i>Utamphorophora humboldti</i> |
| — | 23 | 15 | 5 | 24 | 15 | 0 | 5 | 1 | 1 | 1975 |
| — | 1 | 1 | 0 | 0 | 2 | 1 | 4 | 6 | 6 | 1976 |
| — | 14 | 10 | 10 | 45 | 18 | 12 | 18 | 13 | 13 | 1977 |
| — | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | 1 | 1978 |
| — | 7 | 13 | 15 | 67 | 35 | 50 | 77 | 29 | 29 | 1979 |
| | | | | | | | | | | 1980 |
| — | 0 | 0 | 4 | 0 | 4 | 0 | 1 | 0 | 0 | 756 <i>Cedrobium laportei</i> |
| — | 0 | 4 | 4 | 0 | 6 | 0 | 2 | 0 | 0 | 1975 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1976 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1977 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1978 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 |
| — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 |

ROTHAMSTED REPORT FOR 1981, PART 2

Figs. 17–35. The average geographical distribution of each seasonal migration for the years 1975–80 mapped from the 18 sample stations listed in Table 2 using the SYMAP program (Laboratory for Computer Graphics, Harvard). The number of migrations per year is based on the known biological cycles, the published phenological evidence (Taylor *et al.*, Figs. 3–9) and examination of the daily sample records from individual sites. The dates selected for separation of migratory cycles are averages over time for data that are not synchronous. This leads to a loss of definition but represents the general expectation until adequate phenological models for each species justify shifting the time scale for each site/year.

Periods for indeterminate flight activity for some species have been separated arbitrarily to show either continuation of the same geographical distribution or changed distribution not yet understood.

Layering intervals are numbered at each sampling site on the maps as follows:

1 (no shading), zero sample; 2, 1–2; 3, 3–9; 4, 10–31; 5, 32–99; 6, 100–315; 7, 316–999; 8, 1000–3161; 9 (solid black), 3162–9999.



FIG. 17. 132, *Aphis fabae*: i, weeks 1-25; ii, weeks 26-38; iii, weeks 39-52.



FIG. 18. 389, *Acyrthosiphon pisum*: i, weeks 1-25; ii, weeks 26-36; iii, weeks 37-52.



Fig. 19. 322, *Myzus persicae*: i, weeks 1-25; ii, weeks 26-35; iii, weeks 36-52.



FIG. 20. 358, *Hyperomyzus lactucae*: i, weeks 1-25; ii, weeks 26-36; iii, weeks 37-52.



FIG. 21. 420, *Sirobion avenae*: i, weeks 1-23; ii, weeks 24-39; iii, weeks 40-52.



FIG. 22. 114, *Rhopalosiphum padi*: i, weeks 1-25; ii, weeks 26-34; iii, weeks 35-52.



FIG. 23. 396, *Metopopolium dirhodum*: i, weeks 1-23; ii, weeks 24-36; iii, weeks 37-52.



FIG. 24. 111, *Rhopalosiphum insertum*: i, weeks 1–26; ii, weeks 27–36; iii, weeks 37–52.



Fig. 25. 410, *Macrosiphum euphorbiae*: i, weeks 1-25; ii, weeks 26-36; iii, weeks 37-52.



FIG. 26. 421, *Sitobion fragariae*: i, weeks 1–26; ii, weeks 27–38; iii, weeks 39–52.



FIG. 27. 355, *Nasonovia ribisnigri*; i, weeks 1-25; ii, weeks 26-34; iii, weeks 35-52.

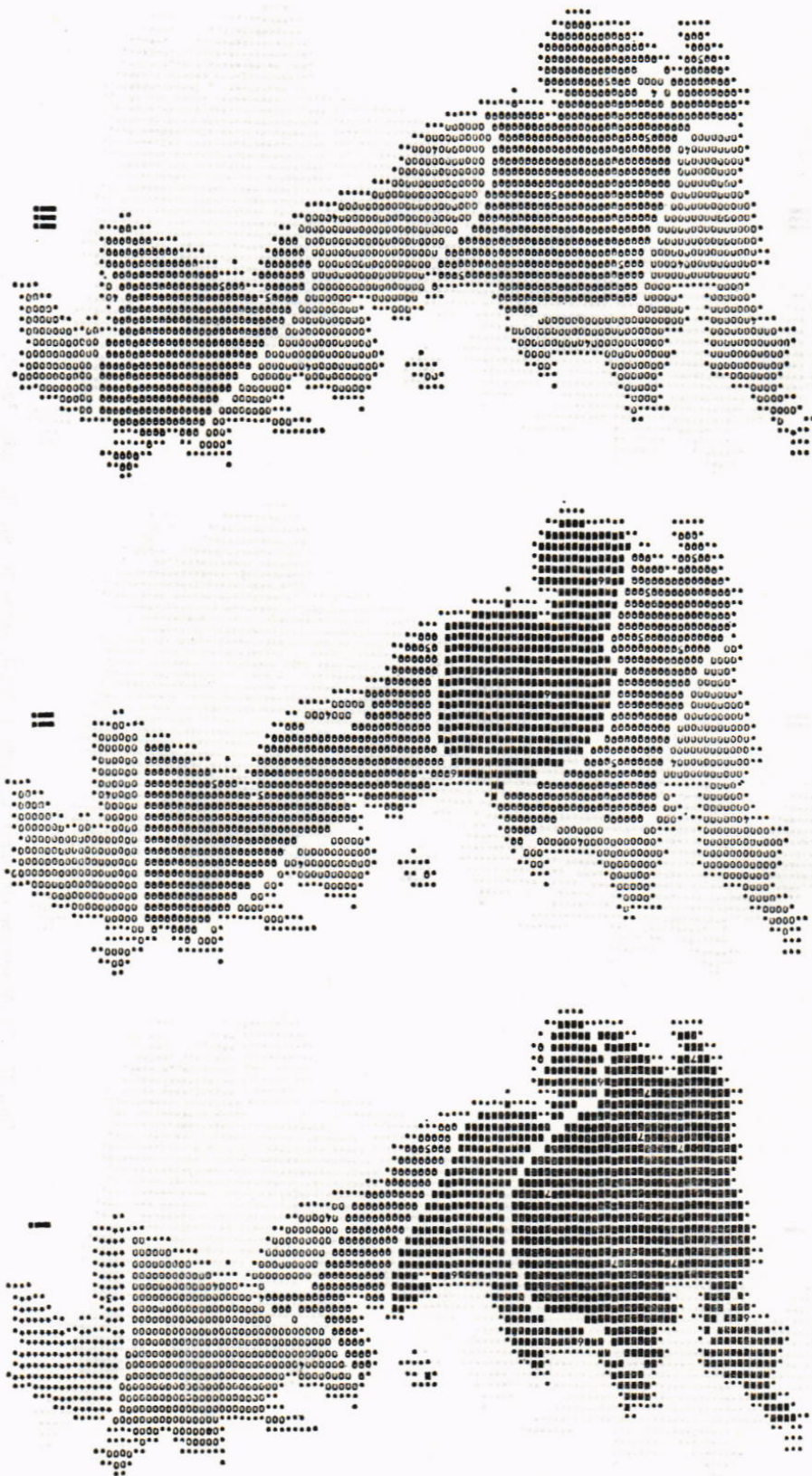


Fig. 28. 243, *Brachycaudus helichrysi*: i, weeks 1-26; ii, weeks 27-33; iii, weeks 34-52.

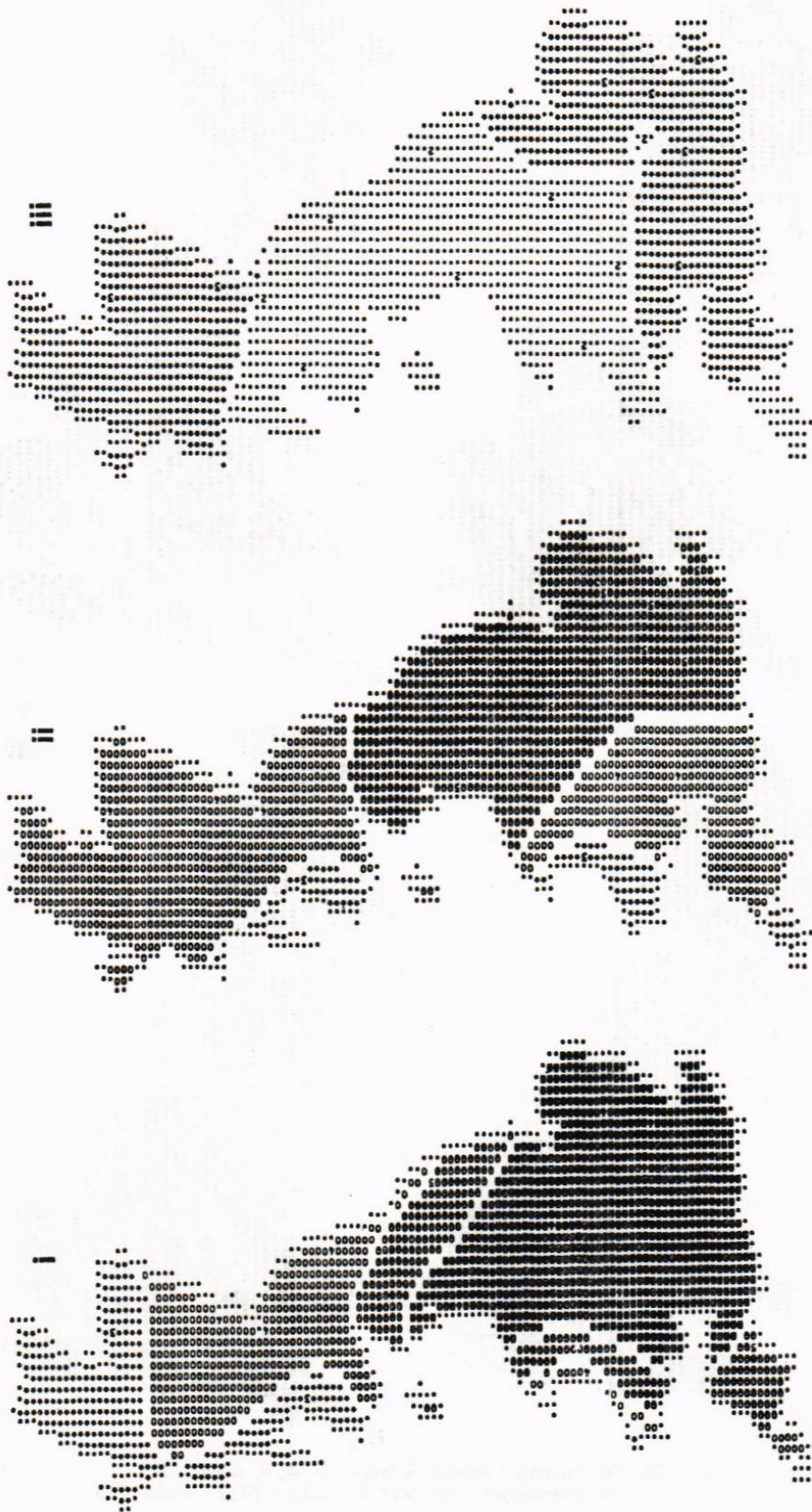


Fig. 29. 292, *Cavariella aegopodii*: i, weeks 1-26; ii, weeks 27-37; iii, weeks 38-52.



FIG. 30. 308, *Phorodon humuli*: i, weeks 1–34; ii, weeks 35–52.
264, *Brevicoryne brassicae*: iii, weeks 1–34; iv, weeks 35–52.



FIG. 31. 110, *Hyalopterus pruni*; i, weeks 1-36; ii, weeks 37-52.
500, *Eriosoma ulmi*: iii, weeks 1-34; iv, weeks 35-52.



FIG. 32. 91, *Drepanosiphum platanoidis*; i, weeks 1–29; ii, weeks 30–52.
397, *Metopolophium festucae*: iii, weeks 1–32; iv, weeks 33–52.



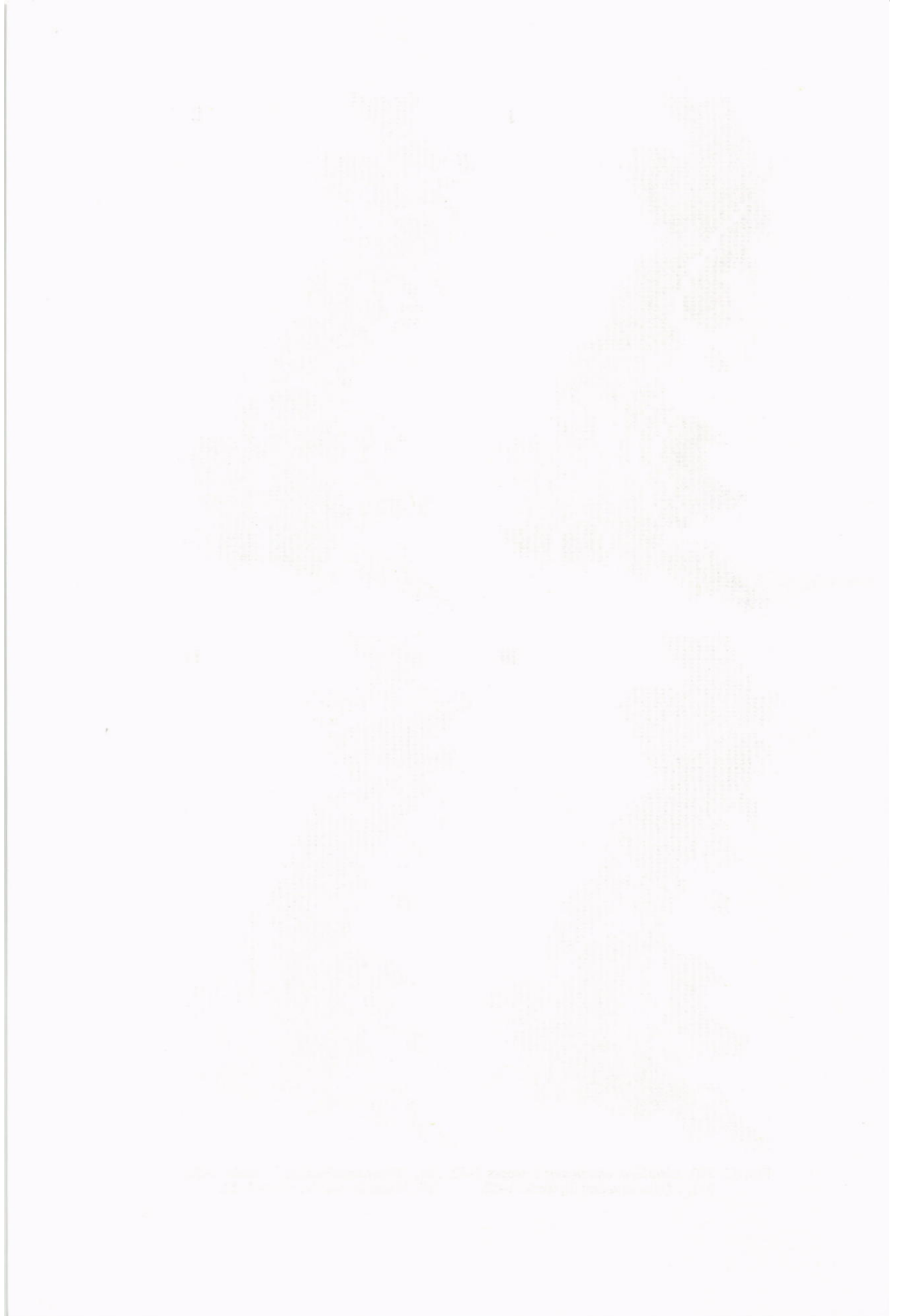
FIG. 33. 112, *Rhopalosiphum maidis*: i, weeks 1–36; ii, weeks 37–52. 376, *Aulacorthum solani*: iii, weeks 1–36; iv, weeks 37–52.



FIG. 34. 234, *Dysaphis plantaginea*: i, weeks 1–34; ii, weeks 35–52.
78, *Phyllaphis fagi*: iii, weeks 1–35; iv, weeks 36–52.



FIG. 35. 290, *Elatobium abietinum*: i, weeks 1–52. 318, *Myzus ascalonicus*: ii, weeks 1–52. 315, *Myzus ornatus*: iii, weeks 1–52. 319, *Myzus certus*: iv, weeks 1–52.



Use of Fertilisers in England and Wales, 1981

B. M. CHURCH

The series of annual surveys done by staff of the ADAS Regional Soil Scientists in collaboration with representatives of the Fertiliser Manufacturers' Association and Rothamsted (Church & Lewis, 1977) was continued in 1981 when a random sample of 1350 farms in England and Wales was surveyed.

As in the last 2 years, there is no evidence of any major change in the use of P and K, but use of N per hectare crops and grass is estimated to have been about 8% more in 1981 than in 1980. This increase, which was evident on both tillage crops and grassland, was entirely in straight N fertilisers (Table 1).

TABLE 1
Fertiliser use on tillage crops and grassland (kg ha⁻¹), 1978-81

| | Tillage crops | | | | Grassland | | | | All crops and grass | | | |
|-------------------------------|---------------|------|------|------|-----------|------|------|------|---------------------|------|------|------|
| | 1978 | 1979 | 1980 | 1981 | 1978 | 1979 | 1980 | 1981 | 1978 | 1979 | 1980 | 1981 |
| N Straight | 53 | 66 | 77 | 92 | 67 | 71 | 69 | 74 | 60 | 69 | 73 | 83 |
| Compound | 51 | 46 | 44 | 43 | 45 | 45 | 50 | 51 | 47 | 45 | 47 | 47 |
| Total | 104 | 112 | 121 | 135 | 112 | 116 | 119 | 125 | 107 | 114 | 120 | 130 |
| P ₂ O ₅ | 51 | 49 | 49 | 51 | 26 | 25 | 27 | 25 | 37 | 36 | 37 | 38 |
| K ₂ O | 56 | 53 | 54 | 56 | 24 | 26 | 26 | 26 | 39 | 38 | 40 | 41 |

The most striking increases are again in the use of straight N on cereals. In 1981, winter wheat received an average total of 162 kg ha⁻¹ N, comprising 144 kg ha⁻¹ straight and 18 kg ha⁻¹ in compound fertilisers. Nearly a fifth of the crop got more than 200 kg ha⁻¹ N, and total applications of 250 kg ha⁻¹ or more were reported (Table 2).

TABLE 2
Fertiliser use on winter wheat and spring barley (kg ha⁻¹), 1978-81

| | Winter wheat | | | | Spring barley | | | |
|-------------------------------|--------------|------|------|------|---------------|------|------|------|
| | 1978 | 1979 | 1980 | 1981 | 1978 | 1979 | 1980 | 1981 |
| N Straight | 106 | 117 | 126 | 144 | 21 | 26 | 24 | 37 |
| Compound | 19 | 18 | 19 | 18 | 62 | 62 | 63 | 61 |
| Total | 125 | 135 | 145 | 162 | 83 | 88 | 87 | 98 |
| P ₂ O ₅ | 44 | 46 | 46 | 49 | 38 | 37 | 37 | 37 |
| K ₂ O | 37 | 38 | 39 | 42 | 39 | 39 | 40 | 40 |

On spring barley, where increases in N use have been relatively modest in recent years, the total use of N, at 98 kg ha⁻¹, was up 12% and use of straight N was 50% more than in 1980. Extra top dressings, to compensate for loss of N from the seedbed due to the wet spring, certainly explain part of this large increase. However, it will be interesting to see whether a significant trend of increasing applications to spring cereals is becoming established. The average amounts of fertiliser nutrients used per hectare in 1981 on individual tillage crops, and on grassland classified according to utilisation, and the proportions of each crop which got different amounts of nutrient are summarised in Tables 3-8 at the end of this paper.

REFERENCE

- CHURCH, B. M. & LEWIS, D. A. (1977) Fertiliser use on farm crops in England and Wales: Information from the Survey of Fertiliser Practice 1942-1976. *Outlook on Agriculture* 9, 186-193.

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TABLE 3
Fertiliser use in England and Wales, 1981

| Fields | Hectares ('000) | Overall* (kg ha ⁻¹) | | | % Area receiving | | | | | Actual* (kg ha ⁻¹) | | |
|----------------------------|-----------------|---------------------------------|-------------------------------|------------------|------------------|-----|-----|-----|-----|--------------------------------|------------------|--|
| | | N | P ₂ O ₅ | K ₂ O | N | P | K | FYM | N | P ₂ O ₅ | K ₂ O | |
| Spring wheat | 69 | 133 | 31 | 31 | 100 | 77 | 77 | 21 | 133 | 40 | 40 | |
| Winter wheat | 2065 | 162 | 49 | 42 | 99 | 88 | 79 | 12 | 163 | 56 | 53 | |
| Spring barley | 1915 | 98 | 37 | 40 | 98 | 95 | 94 | 19 | 100 | 39 | 43 | |
| Winter barley | 1263 | 143 | 50 | 47 | 99 | 92 | 88 | 12 | 144 | 54 | 54 | |
| Spring oats | 126 | 39 | 37 | 36 | 95 | 95 | 91 | 24 | 76 | 39 | 39 | |
| Winter oats | 155 | 107 | 49 | 46 | 99 | 90 | 87 | 14 | 109 | 54 | 52 | |
| Mixed corn | 24 | 48 | 33 | 29 | 75 | 75 | 75 | 42 | 63 | 43 | 38 | |
| Maize | 21 | 95 | 44 | 42 | 89 | 78 | 76 | 73 | 107 | 56 | 56 | |
| Early potatoes | 56 | 198 | 203 | 229 | 100 | 100 | 100 | 40 | 198 | 203 | 229 | |
| Maincrop potatoes | 337 | 194 | 192 | 259 | 98 | 98 | 98 | 42 | 199 | 197 | 266 | |
| Sugar beet | 369 | 200 | 152 | 67 | 94 | 91 | 93 | 30 | 162 | 73 | 162 | |
| Swedes (stock) | 78 | 60 | 115 | 75 | 88 | 96 | 90 | 35 | 68 | 120 | 84 | |
| Turnips (stock) | 24 | 87 | 54 | 49 | 94 | 79 | 77 | 39 | 92 | 68 | 64 | |
| Kale and cow cabbage | 29 | 110 | 44 | 51 | 96 | 85 | 85 | 43 | 115 | 52 | 59 | |
| Rape for stockfeed | 37 | 94 | 72 | 43 | 89 | 77 | 77 | 28 | 105 | 94 | 56 | |
| Beans for stockfeed | 70 | 3 | 30 | 24 | 16 | 50 | 48 | 7 | 19 | 61 | 49 | |
| Other stockfeed | 72 | 69 | 71 | 66 | 77 | 86 | 82 | 35 | 90 | 83 | 81 | |
| Peas for human consumption | 170 | 16 | 27 | 28 | 35 | 56 | 57 | 8 | 45 | 48 | 50 | |
| Runner and French beans | 34 | 95 | 68 | 83 | 61 | 85 | 85 | 1 | 156 | 79 | 97 | |
| Brussels sprouts | 40 | 235 | 98 | 215 | 98 | 98 | 98 | 10 | 240 | 100 | 219 | |
| Cabbages | 37 | 231 | 66 | 143 | 93 | 72 | 86 | 25 | 248 | 92 | 166 | |
| Cauliflower | 62 | 177 | 91 | 153 | 100 | 95 | 95 | 22 | 177 | 96 | 161 | |
| Onions | 41 | 148 | 102 | 172 | 100 | 76 | 97 | 24 | 148 | 134 | 178 | |
| Small fruit | 74 | 68 | 26 | 70 | 65 | 48 | 61 | 19 | 104 | 55 | 115 | |
| Top fruit | 116 | 33 | 20 | 36 | 80 | 59 | 59 | 2 | 102 | 34 | 61 | |
| Oilseed rape | 221 | 260 | 46 | 36 | 99 | 85 | 65 | 5 | 263 | 54 | 55 | |
| All tillage | 8030 | 135 | 51 | 56 | 95 | 89 | 84 | 17 | 142 | 57 | 66 | |
| 1 year leys | 20 | 90 | 8 | 11 | 86 | 36 | 36 | 21 | 104 | 22 | 29 | |
| 2-7 year leys | 2769 | 172 | 32 | 39 | 91 | 67 | 69 | 41 | 190 | 47 | 56 | |
| Permanent grass | 3046 | 97 | 21 | 19 | 75 | 54 | 52 | 34 | 131 | 39 | 37 | |
| All crops and grass | 13865 | 130 | 38 | 41 | 88 | 74 | 71 | 27 | 149 | 51 | 58 | |

* The average application of any fertiliser component over all fields including those receiving none is termed 'overall'. The average excluding fields with none of the component is termed 'actual'.

USE OF FERTILISERS IN ENGLAND AND WALES, 1981

TABLE 4
Percentages of crop area getting different amounts of N (kg ha^{-1})

| Fields | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 200- | 250- | 300- | 400+ |
|----------------------------|-------|-----|-----|-----|-----|------|------|------|------|------|------|------|
| Spring wheat | 69 | 0 | 2 | 5 | 18 | 15 | 19 | 39 | 1 | 0 | 0 | 0 |
| Winter wheat | 2065 | 1 | 1 | 2 | 6 | 9 | 18 | 46 | 16 | 2 | 0 | 0 |
| Spring barley | 1915 | 2 | 1 | 4 | 15 | 27 | 16 | 7 | 1 | 0 | 0 | 0 |
| Winter barley | 1263 | 1 | 1 | 3 | 7 | 16 | 27 | 35 | 8 | 1 | 0 | 0 |
| Spring oats | 126 | 5 | 0 | 6 | 34 | 9 | 1 | 1 | 1 | 0 | 0 | 0 |
| Winter oats | 155 | 1 | 4 | 4 | 21 | 20 | 26 | 9 | 4 | 0 | 0 | 0 |
| Mixed corn | 24 | 25 | 2 | 30 | 11 | 16 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maize | 21 | 11 | 1 | 10 | 24 | 16 | 20 | 17 | 0 | 0 | 0 | 0 |
| Early potatoes | 56 | 0 | 0 | 1 | 0 | 0 | 5 | 51 | 26 | 9 | 8 | 0 |
| Maincrop potatoes | 337 | 2 | 0 | 1 | 4 | 6 | 6 | 34 | 33 | 8 | 5 | 1 |
| Sugar beet | 369 | 6 | 0 | 1 | 4 | 7 | 21 | 45 | 1 | 0 | 0 | 0 |
| Swedes (stock) | 78 | 12 | 10 | 23 | 16 | 9 | 5 | 3 | 1 | 0 | 0 | 0 |
| Turnips (stock) | 82 | 6 | 0 | 24 | 17 | 6 | 5 | 19 | 0 | 3 | 0 | 0 |
| Kale and cow cabbage | 118 | 4 | 1 | 5 | 16 | 24 | 25 | 15 | 1 | 1 | 0 | 0 |
| Rape for stockfeed | 37 | 11 | 0 | 17 | 22 | 14 | 3 | 11 | 12 | 0 | 0 | 0 |
| Beans for stockfeed | 70 | 84 | 8 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other stockfeed | 72 | 23 | 9 | 10 | 21 | 12 | 4 | 11 | 1 | 0 | 1 | 0 |
| Peas for human consumption | 170 | 65 | 13 | 17 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Runner and French beans | 34 | 39 | 6 | 1 | 1 | 5 | 6 | 30 | 12 | 0 | 0 | 0 |
| Brussels sprouts | 40 | 2 | 0 | 2 | 0 | 16 | 2 | 14 | 21 | 17 | 12 | 14 |
| Cabbages | 37 | 7 | 0 | 1 | 8 | 6 | 6 | 15 | 6 | 30 | 17 | 4 |
| Cauliflower | 62 | 0 | 0 | 2 | 2 | 7 | 10 | 15 | 10 | 21 | 4 | 6 |
| Onions | 41 | 0 | 0 | 24 | 7 | 15 | 9 | 22 | 10 | 14 | 0 | 0 |
| Small fruit | 74 | 35 | 5 | 13 | 10 | 4 | 2 | 5 | 11 | 2 | 0 | 0 |
| Top fruit | 116 | 20 | 5 | 16 | 11 | 8 | 20 | 13 | 1 | 1 | 0 | 0 |
| Oilseed rape | 221 | 1 | 0 | 1 | 0 | 0 | 3 | 4 | 18 | 53 | 20 | 0 |
| All tillage | 8030 | 5 | 1 | 6 | 12 | 14 | 17 | 28 | 9 | 3 | 1 | 0 |
| 1 year leys | 20 | 14 | 11 | 10 | 23 | 3 | 16 | 0 | 7 | 6 | 0 | 0 |
| 2-7 year leys | 2769 | 9 | 0 | 5 | 10 | 5 | 7 | 13 | 11 | 9 | 12 | 6 |
| Permanent grass | 3046 | 25 | 1 | 15 | 12 | 5 | 7 | 9 | 5 | 4 | 4 | 2 |
| All crops and grass | 13865 | 12 | 1 | 10 | 12 | 10 | 12 | 19 | 8 | 5 | 4 | 2 |

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TABLE 5

Percentages of crop area getting different amounts of P_2O_5 ($kg\ ha^{-1}$)

| Fields | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 200- | 250- | 300- | 400+ |
|----------------------------|-------|-----|-----|-----|-----|------|------|------|------|------|------|------|
| Spring wheat | 23 | 3 | 48 | 24 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Winter wheat | 12 | 2 | 28 | 44 | 12 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Spring barley | 5 | 9 | 65 | 20 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Winter barley | 8 | 5 | 28 | 45 | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spring oats | 5 | 9 | 64 | 16 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Winter oats | 10 | 4 | 25 | 53 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mixed corn | 24 | 12 | 32 | 17 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maize | 21 | 0 | 23 | 38 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Early potatoes | 56 | 0 | 0 | 1 | 0 | 5 | 13 | 27 | 40 | 5 | 10 | 0 |
| Maincrop potatoes | 337 | 2 | 0 | 0 | 9 | 5 | 7 | 30 | 31 | 9 | 5 | 1 |
| Sugar beet | 369 | 9 | 0 | 17 | 42 | 8 | 2 | 3 | 1 | 0 | 0 | 0 |
| Swedes (stock) | 78 | 4 | 10 | 16 | 20 | 7 | 4 | 11 | 14 | 8 | 0 | 0 |
| Turnips (stock) | 82 | 21 | 17 | 22 | 16 | 8 | 5 | 2 | 0 | 0 | 0 | 0 |
| Kale and cow cabbage | 118 | 15 | 34 | 35 | 9 | 2 | 0 | 1 | 0 | 0 | 0 | 0 |
| Rape for stockfeed | 37 | 23 | 20 | 18 | 7 | 3 | 0 | 3 | 13 | 0 | 3 | 0 |
| Beans for stockfeed | 70 | 50 | 17 | 17 | 8 | 0 | 1 | 3 | 0 | 0 | 0 | 0 |
| Other stockfeed | 72 | 14 | 19 | 26 | 9 | 6 | 4 | 11 | 2 | 0 | 1 | 0 |
| Peas for human consumption | 170 | 44 | 17 | 15 | 4 | 3 | 0 | 1 | 1 | 0 | 0 | 0 |
| Runner and French beans | 34 | 15 | 9 | 27 | 30 | 13 | 6 | 0 | 0 | 0 | 0 | 0 |
| Brussels sprouts | 40 | 2 | 4 | 21 | 20 | 25 | 18 | 10 | 0 | 0 | 0 | 0 |
| Cabbages | 37 | 28 | 12 | 16 | 20 | 13 | 2 | 8 | 0 | 0 | 0 | 0 |
| Cauliflower | 62 | 5 | 9 | 11 | 12 | 56 | 1 | 5 | 0 | 0 | 0 | 0 |
| Onions | 41 | 24 | 1 | 11 | 20 | 1 | 6 | 35 | 3 | 0 | 0 | 0 |
| Small fruit | 74 | 52 | 4 | 6 | 13 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Top fruit | 116 | 41 | 14 | 9 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Oilseed rape | 221 | 15 | 18 | 56 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| All tillage | 8030 | 11 | 35 | 34 | 9 | 2 | 1 | 1 | 1 | 0 | 0 | 0 |
| 1 year leys | 20 | 64 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2-7 year leys | 2769 | 33 | 31 | 14 | 5 | 2 | 1 | 1 | 1 | 0 | 0 | 0 |
| Permanent grass | 3046 | 46 | 18 | 7 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| All crops and grass | 13865 | 26 | 31 | 22 | 6 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |

USE OF FERTILISERS IN ENGLAND AND WALES, 1981

TABLE 6

Percentages of crop area getting different amounts of K_2O ($kg\ ha^{-1}$)

| | Fields | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 200- | 250- | 300- | 400+ |
|----------------------------|--------|----|-----|-----|-----|-----|------|------|------|------|------|------|------|
| Spring wheat | 69 | 23 | 4 | 46 | 25 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Winter wheat | 2065 | 21 | 4 | 31 | 32 | 11 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Spring barley | 1915 | 6 | 7 | 56 | 28 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Winter barley | 1263 | 12 | 3 | 33 | 38 | 11 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Spring oats | 126 | 9 | 6 | 64 | 19 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Winter oats | 155 | 13 | 4 | 31 | 35 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mixed corn | 24 | 25 | 15 | 37 | 18 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maize | 21 | 24 | 0 | 23 | 36 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Early potatoes | 56 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 37 | 25 | 12 | 18 | 4 |
| Maincrop potatoes | 337 | 2 | 0 | 2 | 0 | 1 | 1 | 5 | 12 | 14 | 33 | 27 | 4 |
| Sugar beet | 369 | 7 | 1 | 1 | 3 | 13 | 19 | 6 | 22 | 17 | 8 | 4 | 0 |
| Swedes (stock) | 78 | 10 | 6 | 13 | 24 | 17 | 15 | 4 | 11 | 0 | 0 | 0 | 0 |
| Turnips (stock) | 82 | 23 | 9 | 18 | 26 | 13 | 3 | 8 | 0 | 0 | 0 | 0 | 0 |
| Kale and cow cabbage | 118 | 15 | 4 | 29 | 35 | 10 | 5 | 1 | 2 | 0 | 0 | 0 | 0 |
| Rape for stockfeed | 37 | 23 | 2 | 33 | 31 | 8 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
| Beans for stockfeed | 70 | 52 | 4 | 19 | 17 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other stockfeed | 72 | 18 | 5 | 20 | 22 | 6 | 12 | 4 | 11 | 1 | 0 | 0 | 0 |
| Peas for human consumption | 170 | 43 | 15 | 14 | 17 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Runner and French beans | 34 | 15 | 0 | 12 | 28 | 28 | 5 | 0 | 0 | 0 | 12 | 0 | 0 |
| Brussels sprouts | 40 | 2 | 0 | 0 | 0 | 2 | 4 | 15 | 28 | 8 | 17 | 24 | 0 |
| Cabbages | 37 | 14 | 0 | 1 | 7 | 17 | 16 | 1 | 20 | 4 | 15 | 0 | 5 |
| Cauliflower | 62 | 5 | 0 | 2 | 13 | 6 | 15 | 16 | 16 | 16 | 4 | 2 | 5 |
| Onions | 41 | 3 | 0 | 3 | 4 | 7 | 6 | 1 | 45 | 16 | 15 | 0 | 0 |
| Small fruit | 74 | 39 | 0 | 2 | 5 | 15 | 15 | 10 | 12 | 3 | 0 | 0 | 0 |
| Top fruit | 116 | 41 | 2 | 32 | 4 | 9 | 5 | 4 | 3 | 0 | 0 | 0 | 0 |
| Oilseed rape | 221 | 35 | 4 | 14 | 41 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| All tillage | 8030 | 16 | 4 | 34 | 28 | 8 | 2 | 1 | 2 | 2 | 1 | 1 | 0 |
| 1 year leys | 20 | 64 | 15 | 15 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2-7 year leys | 2769 | 31 | 9 | 27 | 15 | 8 | 5 | 3 | 2 | 0 | 0 | 0 | 0 |
| Permanent grass | 3046 | 48 | 14 | 25 | 9 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| All crops and grass | 13865 | 29 | 8 | 30 | 19 | 7 | 2 | 1 | 1 | 1 | 1 | 1 | 0 |

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TABLE 7
Fertiliser use on grassland classified by utilisation

| Fields | % Grassland area | | | | | | % Area receiving | | | | | | Actual* (kg ha ⁻¹) | | |
|-------------------------|------------------|-------------------------------|------------------|----|----|----|------------------|-----|-------------------------------|------------------|---|-------------------------------|--------------------------------|--|--|
| | N | P ₂ O ₅ | K ₂ O | N | P | K | FYM | N | P ₂ O ₅ | K ₂ O | N | P ₂ O ₅ | K ₂ O | | |
| Paddock grazed | 236 | 21 | 24 | 96 | 56 | 54 | 26 | 247 | 37 | 45 | | | | | |
| Paddock grazed and mown | 201 | 41 | 44 | 91 | 64 | 65 | 55 | 221 | 65 | 68 | | | | | |
| Strip grazed | 217 | 24 | 28 | 98 | 69 | 69 | 46 | 221 | 35 | 41 | | | | | |
| Strip grazed and mown | 204 | 33 | 48 | 94 | 58 | 65 | 63 | 218 | 57 | 74 | | | | | |
| Set stocked | 191 | 26 | 22 | 83 | 57 | 53 | 26 | 230 | 45 | 41 | | | | | |
| Set stocked and mown | 177 | 34 | 48 | 95 | 73 | 77 | 50 | 187 | 47 | 62 | | | | | |
| Cut for seed | 122 | 28 | 24 | 79 | 55 | 62 | 1 | 154 | 51 | 40 | | | | | |
| Cut for silage | 201 | 38 | 56 | 98 | 79 | 83 | 63 | 205 | 48 | 68 | | | | | |
| Cut for hay | 71 | 13 | 13 | 73 | 34 | 34 | 29 | 96 | 38 | 37 | | | | | |
| Cut for hay and grazed† | 84 | 25 | 25 | 86 | 67 | 68 | 51 | 98 | 37 | 38 | | | | | |
| Other grazings | 73 | 20 | 15 | 67 | 48 | 46 | 23 | 110 | 41 | 32 | | | | | |
| Not stated/not used | 69 | 24 | 14 | 72 | 48 | 47 | 12 | 96 | 50 | 29 | | | | | |
| All grass | 123 | 25 | 26 | 80 | 59 | 58 | 37 | 153 | 43 | 45 | | | | | |

* The average application of any fertiliser component over all fields including those receiving none is termed 'overall'. The average excluding fields with none of the component is termed 'actual'.

† Excluding fields intensively grazed as in the first 6 categories above.

TABLE 8

Percentages of grassland area by utilisation getting different amounts of N (kg ha⁻¹)

| Fields | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 200- | 250- | 300- | 400+ |
|-------------------------|----|-----|-----|-----|-----|------|------|------|------|------|------|------|
| Paddock grazed | 4 | 0 | 0 | 11 | 7 | 3 | 14 | 7 | 3 | 12 | 22 | 16 |
| Paddock grazed and mown | 9 | 0 | 19 | 0 | 14 | 2 | 3 | 8 | 9 | 6 | 15 | 15 |
| Strip grazed | 2 | 0 | 2 | 4 | 10 | 4 | 13 | 19 | 11 | 7 | 15 | 13 |
| Strip grazed and mown | 6 | 0 | 1 | 3 | 7 | 9 | 9 | 13 | 18 | 14 | 20 | 1 |
| Set stocked | 17 | 0 | 6 | 12 | 6 | 3 | 5 | 9 | 5 | 7 | 15 | 14 |
| Set stocked and mown | 5 | 0 | 10 | 6 | 11 | 4 | 4 | 14 | 20 | 11 | 11 | 4 |
| Cut for seed | 21 | 0 | 11 | 13 | 2 | 0 | 4 | 25 | 14 | 7 | 3 | 0 |
| Cut for silage | 2 | 0 | 1 | 6 | 8 | 6 | 10 | 19 | 16 | 12 | 15 | 4 |
| Cut for hay | 27 | 0 | 2 | 16 | 26 | 10 | 12 | 6 | 1 | 0 | 0 | 0 |
| Cut for hay and grazed† | 14 | 1 | 13 | 23 | 20 | 6 | 8 | 8 | 6 | 1 | 1 | 0 |
| Other grazings | 33 | 1 | 11 | 16 | 12 | 5 | 6 | 8 | 3 | 4 | 2 | 0 |
| Not stated/not used | 28 | 1 | 24 | 12 | 10 | 4 | 8 | 3 | 8 | 0 | 2 | 1 |
| All grass | 20 | 1 | 9 | 14 | 12 | 5 | 7 | 10 | 7 | 6 | 7 | 3 |

† Excluding fields intensively grazed as in the first 6 categories above.

Rothamsted Insect Survey Thirteenth Annual Summary

L. R. TAYLOR, E. D. M. MACAULAY, MAUREEN J. DUPUCH and JOAN NICKLEN

Suction traps 1981

Daily samples were collected from 6 April to 4 November 1981 and the *Aphid Bulletins* were issued weekly from 6 April (*Bulletin* No. 1) to 1 November (*Bulletin* No. 30). The 33 aphid taxa listed in Table 1 (a-h) are those in the *Aphid Bulletin*.

From 6 April 1981 Dr L. A. D. Turl and colleagues at the Department of Agriculture and Fisheries for Scotland (DAFS) East Craigs took over responsibility for the traps at Elgin, Dundee, East Craigs, Pathhead, Ayr and Stirling.

In 1981 records for the trap at Pathhead in Scotland appeared on the *Bulletin* and in Table 1 (a-h). The trap at Rainham was only operating from 30 March until the end of July; it only appears on the *Bulletins* until the end of June and in Tables 1 (a-d). Traps in Holland, operated by Dr A. van Harten of Wageningen, continued during 1981, but records do not appear on the *Bulletins* nor in Table 1. A trap was also operating at Stirling in Scotland. Suction traps sampling at 5 ft (1.5 m) were operating at East Craigs, Ingraston, Broom's Barn (until 1 June only), Hereford and Rothamsted Tower; records for these do not appear in *Bulletins* nor in Table 1.

Catches from Aberystwyth were identified by Mr J. A'Brook and Mr H. Evans of the Welsh Plant Breeding Station; Dr G. D. Heathcote of Broom's Barn Experimental Station identified aphids from Broom's Barn. The catches from the Scottish traps were identified by Dr L. A. D. Turl, Dr D. A. Cooper, Mr D. B. Cole and Mr R. Burns of DAFS, East Craigs. Dr H. L. G. Stroyan of the Ministry of Agriculture, Fisheries and Food, Plant Pathology Laboratory confirmed difficult identifications.

The *Bulletin*, despatched each Friday, lists aphids caught between 5 and 12 days earlier. This timing is dictated by the postal services.

The *Bulletins* cover the working week Monday to Sunday. Table 1 is for standard 4-week periods constant from year to year (see *Rothamsted Report for 1972*, Part 2, 211, Table 4).

Sample volumes were halved at various sites as follows: Rothamsted Tower from 13 July-5 October, Preston, Kirton, Shardlow, Hereford, Writtle, Long Ashton and Silwood from 14 July to 12 October, Wye 15 July-12 October, Starcross from 6 August to 5 October, Broom's Barn from 17 August to 2 September. In addition, when numbers were high, catches were sub-sampled in the laboratory to reduce the pressure of work. The weekly *Bulletins* and Table 1 (a-h) are corrected to full volume samples.

In Table 1 (a-h) there are no missing values, a blank records a zero catch.

Light traps

Table 2 (a-f) gives the annual catches during 1979 and 1980 of the same pest, or migratory Lepidoptera as in previous years.

Eighty-two sites completed the 364-day sample for 1980.

The sites in Table 2 are arranged in sequence from north to south and the species are in the same order as in previous years. Zero catches are recorded as 0; dashes indicate missing records.

Once again voluntary workers operated most of the traps and identified many of the insects; we are most grateful for their help.

ROTHAMSTED INSECT SURVEY

aphids of economic, or other interest reported in the Weekly Bulletin 1981
March to 22 April 1981

| | Broom's Barn | Hereford | Rothamsted Tower | Writtle | Rainham | Long Ashton | Silwood Park | Wye, Kent | Littlehampton | Starcross | Rosewarne | Sites | Species |
|----------|--------------|------------------|------------------|---------|-------------|-------------|------------------|-----------|---------------|------------|-----------|-------|------------------------------------|
| | | 1 | | | 1 | | | | | 1 | 4 | | <i>Acrythosiphon pisum</i> |
| | | | | | | | | | | | | | <i>Amphorophora rubi</i> |
| | | | | | | | | | | | | | <i>Aphis fabae</i> grp. |
| | | | | | | | | | | | | | <i>Aphis</i> spp. |
| | | | | | | | | | | | | | <i>Aulacorthum solani</i> |
| | | | | | | | | | | | | | <i>Brachycaudus helichrysi</i> |
| | | | | | | | | | | | | | <i>Brevicoryne brassicae</i> |
| | | | | | | | | | | | | | <i>Cavariella aegopodii</i> |
| | | | | | | | | | | | | | <i>Cinara</i> spp. |
| | | | | | | | | | | | | | <i>Drepanosiphum platanoidis</i> |
| | | | | | | | | | | | | | <i>Dysaphis plantaginea</i> |
| | | | | | | | | | | | | | <i>Elatobium abietinum</i> |
| | | | | | | | | | | | | | <i>Eriosoma ulmi</i> |
| | | | | | | | | | | | | | <i>Hyalopterus pruni</i> |
| | | | | | 6 | 2 | | | 1 | 1 | | | <i>Hyperomyzus lactucae</i> |
| | | | | | | | | | | | | | <i>Macrosiphum euphorbiae</i> |
| | | | | | | | | | | | | | <i>Megoura viciae</i> |
| | 1 | 1 | 2 | 1 | 3 | 2 | 1 | | | 2 | | | <i>Metopolophium dirhodum</i> |
| | 4 | | | 9 | 14 | 5 | 2 | 1 | 5 | 1 | | | <i>Metopolophium festucae</i> s.l. |
| | | | | 2 | 13 | 4 | 3 | | 1 | 4 | 5 | | <i>Myzus ascalonicus</i> |
| | | | | | | | | | | | | | <i>Myzus certus</i> |
| | | 1 | 2 | 1 | | 7 | 1 | 1 | | 1 | 1 | | <i>Myzus ornatus</i> |
| | | | | | | | 1 | | | | 2 | | <i>Myzus persicae</i> grp. |
| | | | | | | | | | | | | | <i>Nasonovia ribisnigri</i> |
| | | | | 1 | | | | | | | | | <i>Pemphigus</i> spp. |
| | | | | | | | | | | | | | <i>Pentatrichopus fragaefolii</i> |
| | | | | | | | | | | | | | <i>Phorodon humuli</i> |
| | | | | | | | | | | | | | <i>Phyllaphis fagi</i> |
| | | | | | | | | | | | | | <i>Rhopalosiphum insertum</i> |
| | | | | | | | | | 1 | | | | <i>Rhopalosiphum maidis</i> |
| | 1 | | | 1 | 2 | 2 | 2 | | 1 | 1 | 1 | | <i>Rhopalosiphum padi</i> |
| | | | | 1 | | | | | | 1 | | | <i>Sitobion avenae</i> |
| | | | | | 1 | | | | | | 1 | | <i>Sitobion fragariae</i> |
| April 16 | Jan 15-21 | March 26-1 April | March 26-1 April | April 7 | March 19-25 | Jan 8-14 | March 26-1 April | Jan 21-27 | April 8 | March 5-11 | | | First aphid caught |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Suction Traps: four-weekly total catches
Week Nos 17 to 20—

| Sites | | | | | | | | | | | | |
|------------------------------------|-------|--------|-----------|----------|--------------|-----------|---------|----------------|---------|--------|----------|-------------|
| Species | Elgin | Dundee | Edinburgh | Pathhead | Auchincruive | Newcastle | Belfast | High Mowthorpe | Preston | Kirton | Shardlow | Aberystwyth |
| <i>Acyrtosiphon pisum</i> | 1 | | 1 | | | | 1 | | 1 | | 2 | |
| <i>Amphorophora rubi</i> | | | | | | | | | 1 | | | |
| <i>Aphis fabae</i> grp. | | | | | | | | | | | | |
| <i>Aphis</i> spp. | | | | | | | | | 1 | 1 | 6 | |
| <i>Aulacorthum solani</i> | 1 | 2 | 1 | | 1 | 3 | 9 | | 8 | 11 | 10 | |
| <i>Brachycaudus helichrysi</i> | 2 | | 5 | 1 | | 2 | 6 | 1 | 7 | 8 | 8 | 8 |
| <i>Brevicoryne brassicae</i> | | | | | | | 2 | | | | | |
| <i>Cavariella aegopodii</i> | | | | 2 | | | 4 | | | | | |
| <i>Cinara</i> spp. | | | | | | | | | 1 | | | |
| <i>Drepanosiphum platanoidis</i> | | 8 | 5 | | 1 | 4 | 2 | 11 | 139 | 6 | 18 | 1 |
| <i>Dysaphis plantaginea</i> | | | | | | | | | | | | |
| <i>Elatobium abietinum</i> | 9 | 2 | 2 | 3 | 4 | 4 | 69 | 18 | 11 | 5 | 11 | 63 |
| <i>Eriosoma ulmi</i> | | | | | | | | | | | | |
| <i>Hyalopterus pruni</i> | | | | | | | | | | | | |
| <i>Hyperomyzus lactucae</i> | | | | | | | 1 | | 1 | | 1 | |
| <i>Macrosiphum euphorbiae</i> | | 1 | 8 | | | | 24 | | 2 | 6 | 7 | 4 |
| <i>Megoura viciae</i> | | | | | | | | | | | | |
| <i>Metopolophium dirhodum</i> | | | 3 | 1 | 2 | 1 | 6 | 1 | 6 | | 12 | |
| <i>Metopolophium festucae s.l.</i> | 1 | 4 | 20 | 44 | 11 | 32 | 51 | 37 | 106 | 21 | 295 | 28 |
| <i>Myzus ascalonicus</i> | 11 | 4 | 8 | 3 | 1 | 11 | 18 | 7 | 25 | 20 | 43 | 3 |
| <i>Myzus certus</i> | | | | 1 | | | | | | 3 | | |
| <i>Myzus ornatus</i> | | | 20 | | 1 | | 30 | | 2 | | 3 | |
| <i>Myzus persicae</i> grp. | | 1 | | | | | 2 | | 2 | 4 | 5 | |
| <i>Nasonovia ribisnigri</i> | | | | | | | | | | | | |
| <i>Pemphigus</i> spp. | | | | | | | | | | | | |
| <i>Pentatrachopus fragaefolii</i> | | | | | | | | | | | | |
| <i>Phorodon humuli</i> | | | | | | | | | | | | |
| <i>Phyllaphis fagi</i> | | | | | | | | | | | | |
| <i>Rhopalosiphum insertum</i> | | | | | | | 6 | 1 | 73 | 8 | 22 | 1 |
| <i>Rhopalosiphum maidis</i> | | | | | | | 1 | | | | | 4 |
| <i>Rhopalosiphum padi</i> | | 3 | 1 | | 2 | | 24 | 1 | 3 | 10 | 2 | 6 |
| <i>Sitobion avenae</i> | 1 | | 2 | | | 1 | 7 | 1 | 6 | 30 | 15 | 15 |
| <i>Sitobion fragariae</i> | | | | | | | 2 | | 3 | 1 | 1 | |
| First aphid caught | | | | | | May 8 | May 7 | | | | | |

ROTHAMSTED INSECT SURVEY

(b)
of aphids of economic, or other, interest reported in the Weekly Bulletin 1981
23 April to 20 May 1981

| | Broom's Barn | Hereford | Rothamsted Tower | Writtle | Rainham | Long Ashton | Silwood Park | Wye, Kent | Littlehampton | Starcross | Rosewarne | Sites | Species |
|--|--------------|----------|------------------|---------|---------|-------------|--------------|-----------|---------------|-----------|-----------|-------|------------------------------------|
| | 5 | | | 2 | 10 | | 2 | 1 | 1 | | 1 | | <i>Acyrtosiphon pisum</i> |
| | | | 3 | 3 | 2 | | | | | | | | <i>Amphorophora rubi</i> |
| | | 1 | 5 | 4 | 8 | 1 | 4 | 1 | 3 | | | | <i>Aphis fabae</i> grp. |
| | 1 | 7 | | 3 | 6 | | 3 | 3 | 3 | | | | <i>Aphis</i> spp. |
| | 7 | 8 | 63 | 3 | 10 | 8 | 2 | 5 | 5 | 5 | 2 | | <i>Aulacorthum solani</i> |
| | | | | 84 | 107 | 15 | 50 | 5 | 31 | 10 | | | <i>Brachycaudus helichrysi</i> |
| | 4 | 1 | 17 | 1 | 1 | 2 | | | | 1 | | | <i>Brevicoryne brassicae</i> |
| | 1 | | | 27 | 50 | 1 | 25 | 7 | 16 | 1 | 1 | | <i>Cavariella aegopodii</i> |
| | 1 | 7 | 5 | 1 | | | 41 | 3 | 2 | 1 | | | <i>Cinara</i> spp. |
| | | | | 15 | 2 | | | | | | | | <i>Drepanosiphum platanoidis</i> |
| | 18 | 39 | 42 | 26 | 2 | 12 | 80 | 116 | 20 | 6 | | | <i>Dysaphis plantaginea</i> |
| | | | | | | | | | | | | | <i>Elatobium abietinum</i> |
| | | | | | | | | | | | | | <i>Eriosoma ulmi</i> |
| | 1 | 1 | 1 | 1 | 1 | | 1 | | 1 | 1 | 2 | | <i>Hyalopterus pruni</i> |
| | | 8 | 1 | 5 | 48 | 11 | 10 | 1 | 6 | 4 | 2 | | <i>Hyperomyzus lactucae</i> |
| | | | | | | | | | | | | | <i>Macrosiphum euphorbiae</i> |
| | 5 | 5 | 2 | 4 | 14 | 11 | 4 | | 2 | 2 | | | <i>Megoura viciae</i> |
| | 40 | 85 | 23 | 71 | 88 | 24 | 110 | 48 | 24 | | 17 | | <i>Metopolophium dirhodum</i> |
| | 20 | 18 | 24 | 48 | 74 | 16 | 53 | 25 | 30 | 4 | 4 | | <i>Metopolophium festucae</i> s.l. |
| | | | | | 10 | 1 | | 1 | | | | | <i>Myzus ascalonicus</i> |
| | | 1 | 3 | 4 | 5 | 8 | 6 | | 5 | 1 | | | <i>Myzus certus</i> |
| | 3 | 4 | 4 | 17 | 22 | 6 | 4 | 2 | 5 | 1 | | | <i>Myzus ornatus</i> |
| | | | | 1 | 3 | 1 | | 1 | | | | | <i>Myzus persicae</i> grp. |
| | | | | | 1 | | | | | | | | <i>Nasonovia ribisnigri</i> |
| | | | | | 2 | | | | 1 | | | | <i>Pemphigus</i> spp. |
| | | 1 | 1 | 5 | 4 | | 1 | | 1 | | | | <i>Pentatrichopus fragaefolii</i> |
| | | | | | | | | | | | | | <i>Phorodon humuli</i> |
| | | 5 | 15 | 13 | 24 | 7 | 14 | 10 | 29 | 5 | 2 | | <i>Phyllaphis fagi</i> |
| | | 1 | 1 | | 1 | 3 | | 2 | 1 | 4 | | | <i>Rhopalosiphum insertum</i> |
| | 6 | 1 | 3 | 7 | 40 | 7 | 13 | 1 | 10 | 2 | 8 | | <i>Rhopalosiphum maidis</i> |
| | 21 | 44 | 6 | 17 | 26 | 24 | 49 | 13 | 21 | 6 | 1 | | <i>Rhopalosiphum padi</i> |
| | | 2 | 2 | 6 | 6 | | 3 | 1 | 4 | | 2 | | <i>Sitobion avenae</i> |
| | | | | | | | | | | | | | <i>Sitobion fragariae</i> |

First aphid caught

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Suction Traps: four-weekly total catches
Week Nos 21 to 24—

| Sites | Elgin | Dundee | Edinburgh | Pathhead | Auchincruive | Newcastle | Belfast | High Mowthorpe | Preston | Kirton | Shardlow | Aberystwyth |
|------------------------------------|-------|--------|-----------|----------|--------------|-----------|---------|----------------|---------|--------|----------|-------------|
| Species | | | | | | | | | | | | |
| <i>Acyrtosiphon pisum</i> | 14 | 6 | 1 | | | | 1 | | 1 | 1 | 3 | 2 |
| <i>Amphorophora rubi</i> | | | | | | | 1 | | | | 3 | 2 |
| <i>Aphis fabae</i> grp. | 1 | | 2 | | | | 1 | | 3 | 4 | 3 | 2 |
| <i>Aphis</i> spp. | 5 | | | | | | | | 4 | 8 | 11 | 1 |
| <i>Aulacorthum solani</i> | 4 | 2 | 8 | 3 | 2 | 8 | 12 | 1 | 14 | 13 | 11 | 4 |
| <i>Brachycaudus helichrysi</i> | 28 | 15 | 48 | 15 | 54 | 14 | 45 | 74 | 479 | 185 | 464 | 151 |
| <i>Brevicoryne brassicae</i> | | | | | | | | | | | 9 | |
| <i>Cavariella aegopodii</i> | 10 | 8 | 26 | 8 | 18 | 11 | 18 | 24 | 118 | 180 | 251 | 22 |
| <i>Cinara</i> spp. | | 1 | 1 | | 1 | 1 | | | 1 | 6 | 9 | 1 |
| <i>Drepanosiphum platanoidis</i> | | 32 | 36 | 20 | 27 | 18 | 6 | 26 | 282 | 10 | 161 | 5 |
| <i>Dysaphis plantaginea</i> | | | | | | | | | | | | 1 |
| <i>Elatobium abietinum</i> | 90 | 25 | 37 | 36 | 231 | 55 | 200 | 60 | 22 | 30 | 47 | 326 |
| <i>Eriosoma ulmi</i> | | 11 | | | | | | | 5 | 2 | 8 | 2 |
| <i>Hyalopterus pruni</i> | 1 | 2 | | 1 | 1 | 2 | | 1 | 5 | 1 | 5 | 1 |
| <i>Hyperomyzus lactucae</i> | 1 | 13 | 3 | | | | 7 | 1 | 12 | 5 | 7 | 9 |
| <i>Macrosiphum euphorbiae</i> | 6 | 20 | 19 | 6 | 4 | 13 | 12 | 1 | 6 | 7 | 21 | 21 |
| <i>Megoura viciae</i> | | | | | | | | | | | | |
| <i>Metopolophium dirhodum</i> | 4 | 6 | 16 | | 6 | 3 | 1 | 2 | 17 | | 6 | 15 |
| <i>Metopolophium festucae s.l.</i> | 84 | 139 | 148 | 177 | 63 | 256 | 45 | 180 | 193 | 144 | 192 | 35 |
| <i>Myzus ascalonicus</i> | 50 | 11 | 31 | 20 | 4 | 32 | 12 | 26 | 21 | 11 | 33 | 2 |
| <i>Myzus certus</i> | | | 2 | 1 | | | 1 | | | 2 | 8 | 1 |
| <i>Myzus ornatus</i> | 2 | 5 | 35 | | 1 | 2 | 22 | | 3 | 1 | 6 | 1 |
| <i>Myzus persicae</i> grp. | 2 | 1 | 5 | 2 | 1 | | 1 | 4 | 1 | 9 | 68 | 1 |
| <i>Nasonovia ribisnigri</i> | 1 | | 2 | 2 | | | 1 | | 5 | 5 | 4 | 1 |
| <i>Pemphigus</i> spp. | | | | | | | | | | | | |
| <i>Pentatrachopus fragaefolii</i> | | | | | | | | | | 1 | 1 | |
| <i>Phorodon humuli</i> | | | 2 | | | | | 3 | 8 | 10 | 65 | 12 |
| <i>Phyllaphis fagi</i> | 1 | | 2 | | | 1 | | | 1 | | | 1 |
| <i>Rhopalosiphum insertum</i> | 1 | 7 | 4 | 9 | 7 | 26 | 35 | 9 | 66 | 31 | 42 | 6 |
| <i>Rhopalosiphum maidis</i> | | | | | | | 2 | | 3 | 1 | 1 | 5 |
| <i>Rhopalosiphum padi</i> | 2 | 3 | 30 | 11 | 45 | 7 | 132 | 5 | 22 | 37 | 30 | 51 |
| <i>Sitobion avenae</i> | 3 | 15 | 9 | 2 | 3 | 12 | 31 | 11 | 28 | 182 | 69 | 62 |
| <i>Sitobion fragariae</i> | 2 | 4 | 6 | 2 | 1 | 2 | 12 | 2 | 21 | 4 | 18 | 3 |

ROTHAMSTED INSECT SURVEY

1(c)

of aphids of economic, or other, interest reported in the Weekly Bulletin 1981
21 May to 17 June 1981

| | | | | | | | | | | | Sites |
|--------------|----------|------------------|---------|---------|-------------|--------------|-----------|---------------|-----------|-----------|------------------------------------|
| | | | | | | | | | | | Species |
| Broom's Barn | Hereford | Rothamsted Tower | Writtle | Rainham | Long Ashton | Silwood Park | Wye, Kent | Littlehampton | Starcross | Rosewarne | |
| 1 | 2 | | 9 | 13 | 1 | 11 | 12 | | 5 | 1 | <i>Acyrtosiphon pisum</i> |
| 39 | 2 | | 4 | 4 | 6 | 10 | 2 | 16 | 1 | 1 | <i>Amphorophora rubi</i> |
| 5 | 3 | 5 | 19 | 11 | 5 | 15 | 11 | 4 | | | <i>Aphis fabae</i> grp. |
| 2 | 9 | 8 | 21 | 43 | 8 | 29 | 7 | 12 | 2 | 4 | <i>Aphis</i> spp. |
| 1 | 7 | | | 7 | 11 | 3 | 9 | 7 | 8 | 5 | <i>Aulacorthum solani</i> |
| 195 | 513 | 488 | 597 | 302 | 344 | 216 | 397 | 78 | 64 | 12 | <i>Brachycaudus helichrysi</i> |
| | 12 | 2 | 31 | 13 | 1 | 5 | 1 | 1 | 7 | 1 | <i>Brevicoryne brassicae</i> |
| 395 | 139 | 406 | 673 | 364 | 101 | 231 | 205 | 59 | 15 | 3 | <i>Cavariella aegopodii</i> |
| 2 | | 8 | 16 | 3 | 3 | 6 | 2 | | | | <i>Cinara</i> spp. |
| 10 | 13 | 54 | 33 | 10 | 18 | 77 | 14 | 36 | 20 | 2 | <i>Drepanosiphum platanoidis</i> |
| 1 | | 2 | | 1 | | 1 | | | | | <i>Dysaphis plantaginea</i> |
| 97 | 80 | 135 | 25 | 3 | 65 | 32 | 193 | 8 | 23 | 10 | <i>Elatobium abietinum</i> |
| 2 | 11 | 1 | 2 | 9 | 5 | 9 | 5 | | | | <i>Eriosoma ulmi</i> |
| 3 | 3 | 1 | 30 | 142 | 13 | 3 | 12 | 4 | | | <i>Hyalopterus pruni</i> |
| 3 | 7 | 4 | 16 | 9 | 6 | 3 | 3 | 11 | 4 | | <i>Hyperomyzus lactucae</i> |
| 1 | 9 | 4 | 13 | 24 | 17 | 17 | 8 | 5 | 4 | 1 | <i>Macrosiphum euphorbiae</i> |
| | | 1 | 1 | | 1 | 5 | | | | | <i>Megoura viciae</i> |
| 2 | 8 | 2 | 4 | 19 | 21 | 5 | 3 | 10 | 14 | 3 | <i>Metopolophium dirhodum</i> |
| 104 | 88 | 37 | 21 | 13 | 27 | 77 | 93 | 11 | 8 | 6 | <i>Metopolophium festucae s.l.</i> |
| 12 | 7 | 15 | 12 | 10 | 4 | 16 | 9 | | 2 | 1 | <i>Myzus ascalonicus</i> |
| | 2 | 3 | 1 | 6 | 3 | 3 | 1 | 2 | 2 | | <i>Myzus certus</i> |
| | | 2 | 7 | 1 | 6 | 1 | | 4 | 1 | 1 | <i>Myzus ornatus</i> |
| 21 | 11 | 11 | 58 | 17 | 8 | 3 | 12 | 3 | 1 | 2 | <i>Myzus persicae</i> grp. |
| 1 | | 5 | 5 | 2 | 1 | 3 | | 4 | | | <i>Nasonovia ribisnigri</i> |
| | | | 1 | 5 | | 1 | | | | | <i>Pemphigus</i> spp. |
| | | | 1 | 1 | | | | 2 | | | <i>Pentatrachopus fragaefolii</i> |
| 23 | 137 | 31 | 156 | 115 | 31 | 66 | 182 | 2 | 1 | | <i>Phorodon humuli</i> |
| 1 | | 2 | 2 | 1 | | 9 | | | | | <i>Phyllaphis fagi</i> |
| | 12 | 25 | 21 | 42 | 11 | 14 | 16 | 17 | 14 | 9 | <i>Rhopalosiphum insertum</i> |
| | 3 | 1 | 3 | 1 | 1 | 1 | 3 | 6 | 4 | 3 | <i>Rhopalosiphum maidis</i> |
| 63 | 132 | 27 | 81 | 305 | 63 | 76 | 58 | 56 | 26 | 18 | <i>Rhopalosiphum padi</i> |
| 129 | 174 | 23 | 51 | 55 | 85 | 111 | 106 | 24 | 18 | 2 | <i>Sitobion avenae</i> |
| 6 | 9 | 18 | 32 | 23 | 23 | 52 | 6 | 14 | 9 | 17 | <i>Sitobion fragariae</i> |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Suction Traps: four-weekly total catches
 Week Nos 25 to 28—

| Species | Elgin | Dundee | Edinburgh | Pathhead | Auchincruive | Newcastle | Belfast | High Mowthorpe | Preston | Kirton | Shardlow | Aberystwyth |
|------------------------------------|-------|--------|-----------|----------|--------------|-----------|---------|----------------|---------|--------|----------|-------------|
| <i>Acyrtosiphon pisum</i> | 6 | 15 | 1 | 4 | 1 | 3 | | 8 | | 52 | 5 | 2 |
| <i>Amphorophora rubi</i> | 3 | 3 | | | | 3 | | 3 | | 2 | 5 | 2 |
| <i>Aphis fabae</i> grp. | 1 | | 2 | 2 | 2 | 2 | | 9 | 24 | 66 | 66 | 4 |
| <i>Aphis</i> spp. | 9 | 8 | 10 | 13 | 3 | 20 | 15 | 9 | 10 | 92 | 86 | 2 |
| <i>Aulacorthum solani</i> | 2 | 2 | 1 | | 1 | 3 | 1 | 3 | 9 | 4 | 3 | 1 |
| <i>Brachycaudus helichrysi</i> | 77 | 24 | 7 | 31 | 5 | 49 | 9 | 145 | 27 | 199 | 207 | 11 |
| <i>Brevicoryne brassicae</i> | 1 | | 1 | 1 | | 1 | 1 | 3 | | 1 | 462 | |
| <i>Cavariella aegopodii</i> | 8 | 11 | 13 | 19 | 2 | 114 | 41 | 93 | 59 | 240 | 327 | 1 |
| <i>Cinara</i> spp. | | 1 | 1 | | 1 | 1 | 2 | 5 | 1 | 3 | 14 | |
| <i>Drepanosiphum platanoidis</i> | 7 | 47 | 36 | 13 | 12 | 91 | 3 | 53 | 217 | 11 | 79 | 5 |
| <i>Dysaphis plantaginea</i> | | | | | | | | | | | | |
| <i>Elatobium abietinum</i> | 1 | 1 | 14 | 1 | 8 | 11 | 2 | 2 | 6 | | | 3 |
| <i>Eriosoma ulmi</i> | 6 | 80 | 4 | 7 | 5 | 7 | 1 | 14 | 12 | 11 | 4 | 4 |
| <i>Hyalopterus pruni</i> | | 2 | 5 | 1 | 2 | 14 | 5 | 33 | 109 | 248 | 317 | 3 |
| <i>Hyperomyzus lactucae</i> | | 14 | 2 | 2 | | 2 | 4 | | | 13 | 4 | 1 |
| <i>Macrosiphum euphorbiae</i> | 10 | 131 | 18 | 20 | 6 | 11 | 2 | 4 | 17 | 16 | 11 | 5 |
| <i>Megoura viciae</i> | 5 | | | 6 | 9 | 6 | 1 | 2 | | | | |
| <i>Metopolophium dirhodum</i> | 3 | 217 | 24 | 20 | 12 | 7 | 3 | 4 | 2 | 3 | 12 | 13 |
| <i>Metopolophium festucae</i> s.l. | 9 | 30 | 4 | 33 | 3 | 5 | | 1 | | 2 | 1 | 1 |
| <i>Myzus ascalonicus</i> | 3 | | 2 | 7 | 1 | 5 | | 1 | 2 | 2 | | |
| <i>Myzus certus</i> | | 1 | 1 | | | 3 | | | 3 | 6 | 3 | 1 |
| <i>Myzus ornatus</i> | 4 | 1 | 1 | 2 | | 2 | 3 | | | | | |
| <i>Myzus persicae</i> grp. | | 6 | 2 | 9 | | 14 | 3 | 24 | 2 | 26 | 253 | 1 |
| <i>Nasonovia ribisnigri</i> | | | | | | | | 1 | | 5 | 3 | 2 |
| <i>Pemphigus</i> spp. | 1 | 3 | | | | 2 | 1 | 1 | 6 | 8 | 7 | |
| <i>Pentatrachopus fragaefolii</i> | | | | | | 4 | | | | | 1 | |
| <i>Phorodon humuli</i> | | | | | 2 | 3 | 2 | 16 | 1 | 89 | 189 | 2 |
| <i>Phyllaphis fagi</i> | 2 | 10 | 11 | 2 | 4 | 3 | 1 | 6 | 5 | 9 | 6 | |
| <i>Rhopalosiphum insertum</i> | | 5 | 4 | 3 | 20 | 48 | 25 | 31 | 260 | 272 | 250 | |
| <i>Rhopalosiphum maidis</i> | 3 | 24 | 7 | 10 | | 20 | 1 | 17 | 3 | 71 | 13 | 3 |
| <i>Rhopalosiphum padi</i> | 5 | 381 | 13 | 47 | 37 | 67 | 110 | 40 | 59 | 926 | 108 | 35 |
| <i>Sitobion avenae</i> | 5 | 35 | 5 | 15 | 4 | 26 | 15 | 30 | 26 | 500 | 332 | 23 |
| <i>Sitobion fragariae</i> | 1 | 11 | 3 | 3 | 2 | 4 | 4 | 6 | 2 | 20 | 20 | 1 |

ROTHAMSTED INSECT SURVEY

1(d)
of aphids of economic, or other, interest reported in the Weekly Bulletin 1981
18 June to 15 July 1981

| | Broom's Barn | Hereford | Rothamsted Tower | Writtle | Rainham | Long Ashton | Silwood Park | Wye, Kent | Littlehampton | Starcross | Rosewarne | Sites | Species |
|-----|--------------|----------|------------------|---------|---------|-------------|--------------|-----------|---------------|-----------|-----------|------------------------------------|---------|
| 44 | 1 | 11 | 73 | 14 | 4 | 12 | 20 | 13 | 5 | 2 | | <i>Acyrtosiphon pisum</i> | |
| 6 | 16 | 6 | | | 9 | 12 | 7 | 9 | 8 | 2 | | <i>Amphorophora rubi</i> | |
| 114 | 149 | 392 | 217 | 132 | 93 | 85 | 119 | 48 | 40 | 2 | | <i>Aphis fabae</i> grp. | |
| 37 | 34 | 116 | 86 | 258 | 61 | 89 | 77 | 28 | 16 | 4 | | <i>Aphis</i> spp. | |
| 3 | 3 | | 4 | 3 | 9 | 1 | 2 | 1 | 12 | 8 | | <i>Aulacorthum solani</i> | |
| 82 | 245 | 75 | 42 | 50 | 27 | 26 | 15 | 15 | 15 | | | <i>Brachycaudus helichrysi</i> | |
| 176 | 53 | 22 | 233 | 137 | 2 | 77 | 6 | 5 | 3 | | | <i>Brevicoryne brassicae</i> | |
| 135 | 82 | 256 | 107 | 130 | 43 | 149 | 28 | 62 | 16 | 2 | | <i>Cavariella aegopodii</i> | |
| 4 | 3 | 6 | 6 | 7 | 2 | 1 | 7 | 6 | 6 | 3 | | <i>Cinara</i> spp. | |
| 8 | 21 | 21 | 25 | 4 | 2 | 26 | 3 | 11 | | 9 | | <i>Drepanosiphum platanoidis</i> | |
| 4 | | | 5 | 5 | | | | 4 | | | | <i>Dysaphis plantaginea</i> | |
| | 5 | | | | | | | | | | | <i>Elatobium abietinum</i> | |
| 4 | 8 | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | 1 | | <i>Eriosoma ulmi</i> | |
| 227 | 59 | 475 | 1056 | 4475 | 131 | 377 | 667 | 179 | 53 | 1 | | <i>Hyalopterus pruni</i> | |
| 11 | 1 | 5 | 4 | 26 | 4 | 7 | 8 | 5 | 6 | | | <i>Hyperomyzus lactucae</i> | |
| 4 | 5 | 1 | 10 | 17 | 8 | 9 | | 3 | 13 | 2 | | <i>Macrosiphum euphorbiae</i> | |
| 5 | | 9 | 10 | 15 | 2 | 33 | 6 | 5 | | 2 | | <i>Megoura viciae</i> | |
| 5 | 27 | 6 | 14 | 51 | 47 | 10 | 6 | 25 | 95 | 2 | | <i>Metopolophium dirhodum</i> | |
| 4 | 1 | 3 | | 1 | 1 | 1 | 1 | | 3 | | | <i>Metopolophium festucae s.l.</i> | |
| 1 | | | | | 2 | | | 1 | | | | <i>Myzus ascalonicus</i> | |
| 3 | 2 | 1 | 2 | 3 | 4 | 6 | | | 2 | | | <i>Myzus certus</i> | |
| | | 1 | | 2 | 2 | 5 | | 2 | 3 | | | <i>Myzus ornatus</i> | |
| 262 | 9 | 76 | 83 | 21 | 6 | 9 | 24 | 5 | | | | <i>Myzus persicae</i> grp. | |
| | | 1 | 4 | 3 | 2 | 2 | | 1 | 1 | | | <i>Nasonovia ribisnigri</i> | |
| 5 | 10 | 2 | 27 | 64 | 4 | 6 | 6 | 5 | 3 | 2 | | <i>Pemphigus</i> spp. | |
| | | 1 | | | | | | | | | | <i>Pentatrichopus fragaefolii</i> | |
| 102 | 301 | 79 | 143 | 91 | 125 | 132 | 74 | 21 | 14 | | | <i>Phorodon humuli</i> | |
| 2 | 1 | 9 | 3 | 3 | 3 | 6 | 4 | | | | | <i>Phyllaphis fagi</i> | |
| 58 | 27 | 370 | 338 | 420 | 53 | 269 | 77 | 132 | 48 | 18 | | <i>Rhopalosiphum insertum</i> | |
| 52 | 13 | 20 | 34 | 24 | 3 | 7 | 46 | 11 | 16 | 2 | | <i>Rhopalosiphum maidis</i> | |
| 242 | 327 | 64 | 92 | 298 | 82 | 139 | 135 | 324 | 142 | 52 | | <i>Rhopalosiphum padi</i> | |
| 379 | 355 | 154 | 379 | 380 | 262 | 413 | 412 | 287 | 252 | 7 | | <i>Sitobion avenae</i> | |
| 7 | 15 | 17 | 27 | 30 | 4 | 11 | 11 | 8 | 15 | 7 | | <i>Sitobion fragariae</i> | |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Suction Traps: four-weekly total catches
Week Nos 29 to 32—

| Species | Elgin | Dundee | Edinburgh | Pathhead | Auchincruive | Newcastle | Belfast | High Mowthorpe | Preston | Kirton | Shardlow | Aberystwyth |
|------------------------------------|-------|--------|-----------|----------|--------------|-----------|---------|----------------|---------|--------|----------|-------------|
| <i>Acyrtosiphon pisum</i> | 1 | 101 | 1 | 1 | 6 | 2 | 1 | 13 | 2 | 92 | 52 | |
| <i>Amphorophora rubi</i> | | 4 | | | | 1 | | | 2 | | 2 | |
| <i>Aphis fabae</i> grp. | 1 | 26 | 11 | 15 | 49 | 23 | 134 | 167 | 82 | 1090 | 494 | 75 |
| <i>Aphis</i> spp. | | 13 | 13 | 6 | 5 | 15 | 17 | 48 | 16 | 372 | 250 | 5 |
| <i>Aulacorthum solani</i> | 2 | 8 | 1 | 2 | 4 | 2 | | | 4 | 2 | | 1 |
| <i>Brachycaudus helichrysi</i> | 14 | 25 | 5 | 10 | 6 | 6 | 3 | 14 | 6 | 26 | 16 | 8 |
| <i>Brevicoryne brassicae</i> | 1 | 31 | 12 | 2 | | | 1 | | | 8 | 150 | 1 |
| <i>Cavariella aegopodii</i> | 5 | 8 | 12 | 10 | 5 | 10 | 2 | 25 | 12 | 28 | 22 | 1 |
| <i>Cinara</i> spp. | 3 | 3 | 1 | 3 | 1 | 2 | 1 | 1 | | 8 | 12 | |
| <i>Drepanosiphum platanoidis</i> | | 22 | 10 | 5 | 1 | 40 | 4 | 20 | 198 | 12 | 34 | 5 |
| <i>Dysaphis plantaginea</i> | | | | | | | | | | | | |
| <i>Elatobium abietinum</i> | | | | | 1 | | | | | 2 | | |
| <i>Eriosoma ulmi</i> | 3 | 1 | 1 | | | | 1 | 1 | | | 2 | |
| <i>Hyalopterus pruni</i> | 7 | 10 | 17 | 5 | 11 | 4 | 14 | 48 | 108 | 244 | 748 | 8 |
| <i>Hyperomyzus lactucae</i> | | 5 | 2 | 1 | | 1 | 2 | 6 | | 8 | 14 | 2 |
| <i>Macrosiphum euphorbiae</i> | 10 | 303 | 16 | 13 | 10 | 4 | 4 | 1 | | 12 | | 6 |
| <i>Megoura viciae</i> | 1 | 1 | 1 | | | 2 | 4 | | | | | 1 |
| <i>Metopolophium dirhodum</i> | 13 | 322 | 63 | 36 | 35 | 2 | 9 | 6 | 18 | 86 | 144 | 29 |
| <i>Metopolophium festucae s.l.</i> | 1 | 16 | | 2 | 1 | | 1 | 2 | | | 2 | 1 |
| <i>Myzus ascalonicus</i> | | | | | | | | | | | | |
| <i>Myzus certus</i> | | 3 | 1 | 1 | | 1 | | 2 | 2 | 2 | 8 | |
| <i>Myzus ornatus</i> | 2 | 2 | 1 | 1 | | 1 | 2 | | | | | |
| <i>Myzus persicae</i> grp. | 9 | 141 | 32 | 46 | 12 | 9 | | 12 | 2 | 32 | 6 | |
| <i>Nasonovia ribisnigri</i> | 1 | 1 | | | | | | | | 2 | | 4 |
| <i>Pemphigus</i> spp. | 7 | 5 | 4 | 1 | 4 | 3 | 1 | | 2 | 2 | 8 | 3 |
| <i>Pentatrichopus fragaefolii</i> | 1 | | | | | | | | | | | |
| <i>Phorodon humuli</i> | | | | | | | 1 | 2 | 2 | 8 | 16 | |
| <i>Phyllaphis fagi</i> | | 1 | | | 1 | | | | | | | |
| <i>Rhopalosiphum insertum</i> | 26 | 266 | 207 | 184 | 527 | 440 | 458 | 221 | 2258 | 1220 | 1952 | 62 |
| <i>Rhopalosiphum maidis</i> | | 4 | | 1 | | 2 | 7 | 2 | 6 | 10 | 4 | 12 |
| <i>Rhopalosiphum padi</i> | 151 | 2892 | 545 | 573 | 536 | 432 | 955 | 262 | 1020 | 2140 | 2078 | 376 |
| <i>Sitobion avenae</i> | 29 | 524 | 57 | 68 | 43 | 46 | 117 | 366 | 86 | 1872 | 1046 | 126 |
| <i>Sitobion fragariae</i> | 1 | 22 | 19 | 18 | 9 | 11 | 4 | 22 | 12 | 66 | 48 | 2 |

Elgin trap not operating 3-9 August

ROTHAMSTED INSECT SURVEY

1(e)

of aphids of economic, or other, interest reported in the Weekly Bulletin 1981
16 July to 12 August 1981

| | | | | | | | | | | | Sites |
|--------------|----------|------------------|---------|--------------------|-------------|--------------|-----------|---------------|-----------|-----------|------------------------------------|
| Broom's Barn | Hereford | Rothamsted Tower | Writtle | Rainham | Long Ashton | Silwood Park | Wye, Kent | Littlehampton | Starcross | Rosewarne | Species |
| 56 | 24 | 10 | 74 | | 6 | 10 | 18 | 26 | 5 | 3 | <i>Acyrtosiphon pisum</i> |
| 416 | 502 | 433 | 560 | | 244 | 204 | 198 | 222 | 313 | 31 | <i>Amphorophora rubi</i> |
| 43 | 122 | 338 | 224 | | 80 | 144 | 102 | 80 | 100 | 20 | <i>Aphis fabae</i> grp. |
| 2 | | | 2 | | 2 | | 4 | 1 | 1 | | <i>Aphis</i> spp. |
| 6 | 52 | 12 | 16 | | 30 | 8 | 4 | 16 | 11 | 1 | <i>Aulacorthum solani</i> |
| 128 | 100 | 20 | 98 | | 26 | 46 | | 10 | 36 | 6 | <i>Brachycaudus helichrysi</i> |
| 5 | 16 | 2 | 12 | | 10 | 12 | 4 | 2 | 7 | 1 | <i>Brevicoryne brassicae</i> |
| 7 | 2 | 2 | 2 | | 2 | 2 | | 2 | 1 | | <i>Cavariella aegopodii</i> |
| 11 | 8 | 4 | 4 | | 4 | 8 | 14 | 16 | 1 | 9 | <i>Cinara</i> spp. |
| | | | 6 | | | 2 | | | 1 | | <i>Drepanosiphum platanoidis</i> |
| | 2 | | | | | | 2 | | | | <i>Dysaphis plantaginea</i> |
| | | | | | | | | | | | <i>Elatobium abietinum</i> |
| 1153 | 436 | 1098 | 3034 | Trap not operating | 724 | 884 | 2408 | 1272 | 277 | 20 | <i>Eriosoma ulmi</i> |
| 5 | 10 | 8 | 14 | | 6 | 12 | 10 | 17 | 6 | | <i>Hyalopterus pruni</i> |
| 7 | 28 | 8 | 8 | | 10 | 2 | 4 | 7 | 16 | 3 | <i>Hyperomyzus lactucae</i> |
| 6 | 2 | | 14 | | 2 | 12 | 12 | 13 | 7 | | <i>Macrosiphum euphorbiae</i> |
| 125 | 240 | 30 | 134 | | 164 | 34 | 92 | 182 | 217 | 10 | <i>Megoura viciae</i> |
| 1 | 10 | 2 | | | | | | 1 | 1 | 2 | <i>Metopolophium dirhodum</i> |
| | 8 | | 2 | | | 2 | 2 | 2 | | | <i>Metopolophium festucae</i> s.l. |
| | | | | | | | | | | | <i>Myzus ascalonicus</i> |
| | | | | | | | | | | | <i>Myzus certus</i> |
| | | | | | 2 | | | 1 | | 1 | <i>Myzus ornatus</i> |
| 44 | 20 | 28 | 30 | | | 2 | 18 | 23 | | 3 | <i>Myzus persicae</i> grp. |
| | 2 | 2 | 2 | | | 4 | | | 3 | | <i>Nasonovia ribisnigri</i> |
| 2 | 4 | | 14 | | 2 | 10 | 6 | 20 | 5 | 5 | <i>Pemphigus</i> spp. |
| | | | | | | | 2 | | | | <i>Pentatrichopus fragaefolii</i> |
| 30 | 36 | 20 | 62 | | 22 | 42 | 26 | 26 | 5 | | <i>Phorodon humuli</i> |
| | 2 | 2 | | | 2 | | 2 | | | | <i>Phyllaphis fagi</i> |
| 189 | 882 | 1372 | 1100 | | 436 | 1026 | 394 | 2294 | 532 | 215 | <i>Rhopalosiphum insertum</i> |
| 95 | 8 | 12 | 16 | | 16 | | 10 | 7 | 3 | 8 | <i>Rhopalosiphum maidis</i> |
| 859 | 1476 | 252 | 594 | | 510 | 370 | 998 | 1612 | 2069 | 861 | <i>Rhopalosiphum padi</i> |
| 810 | 1306 | 490 | 1296 | | 988 | 978 | 1208 | 1560 | 673 | 112 | <i>Sitobion avenae</i> |
| 27 | 130 | 42 | 42 | | 20 | 68 | 60 | 48 | 24 | 29 | <i>Sitobion fragariae</i> |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Suction Traps: four-weekly total catches.
Week Nos 33 to 36—

| Species | Elgin | Dundee | Edinburgh | Pathhead | Auchincruive | Newcastle | Belfast | High Mowthorpe | Preston | Kirton | Shardlow | Aberystwyth |
|------------------------------------|-------|--------|-----------|----------|--------------|-----------|---------|----------------|---------|--------|----------|-------------|
| <i>Acyrtosiphon pisum</i> | 4 | 5 | 2 | 1 | 2 | 11 | 3 | 9 | 4 | 12 | 6 | 11 |
| <i>Amphorophora rubi</i> | | | | | | | | | 2 | | | |
| <i>Aphis fabae</i> grp. | 18 | 143 | 33 | 47 | 103 | 128 | 320 | 184 | 68 | 326 | 258 | 51 |
| <i>Aphis</i> spp. | 1 | 29 | 17 | 6 | 3 | 35 | 37 | 62 | 56 | 252 | 364 | 8 |
| <i>Aulacorthum solani</i> | | 1 | | | 1 | 2 | | | 8 | | | 1 |
| <i>Brachycaudus helichrysi</i> | 41 | 121 | 52 | 64 | 41 | 61 | 37 | 73 | 50 | 110 | 116 | 42 |
| <i>Brevicoryne brassicae</i> | 10 | 224 | 38 | 40 | 3 | 16 | 3 | 5 | 8 | 12 | 30 | |
| <i>Cavariella aegopodii</i> | 2 | 5 | | 1 | 3 | 1 | 3 | 4 | 4 | 10 | 2 | |
| <i>Cinara</i> spp. | 1 | 5 | 1 | | | | 1 | 2 | 2 | 4 | | |
| <i>Drepanosiphum platanoidis</i> | 17 | 68 | 11 | 28 | 15 | 73 | 17 | 73 | 194 | 20 | 34 | 1 |
| <i>Dysaphis plantaginea</i> | | | | | 1 | | | | | 2 | | |
| <i>Elatobium abietinum</i> | | | | | | 1 | | | | | | |
| <i>Eriosoma ulmi</i> | 2 | 2 | | | 1 | | 1 | | | | 4 | 4 |
| <i>Hyalopterus pruni</i> | 23 | 1600 | 7 | 15 | 29 | 27 | 99 | 53 | 96 | 496 | 116 | 13 |
| <i>Hyperomyzus lactucae</i> | 1 | 2 | 2 | 1 | 1 | 6 | 5 | 5 | | 18 | 4 | 2 |
| <i>Macrosiphum euphorbiae</i> | 6 | 78 | 33 | 5 | 3 | 2 | 18 | 2 | 8 | 20 | 22 | 13 |
| <i>Megoura viciae</i> | | | | | | | | 1 | | | | |
| <i>Metopolophium dirhodum</i> | 12 | 32 | 12 | 6 | 11 | 49 | 10 | 8 | 24 | 52 | 24 | 15 |
| <i>Metopolophium festucae s.l.</i> | 1 | | 1 | | 7 | 7 | | 6 | | 4 | 16 | 4 |
| <i>Myzus ascalonicus</i> | | | | | | | | | | | | |
| <i>Myzus certus</i> | 1 | 4 | | 1 | | 3 | 4 | 1 | | | | |
| <i>Myzus ornatus</i> | 2 | | | | | 1 | | | | | | |
| <i>Myzus persicae</i> grp. | 72 | 229 | 46 | 23 | 13 | 48 | 1 | 15 | 14 | 10 | 16 | 8 |
| <i>Nasonovia ribisnigri</i> | 4 | 1 | 1 | 3 | | | | 2 | | 2 | 4 | 6 |
| <i>Pemphigus</i> spp. | 34 | 79 | 14 | 20 | 138 | 74 | 19 | 14 | 76 | 62 | 98 | 143 |
| <i>Pentatrichopus fragaefolii</i> | | | | | 2 | 1 | | 2 | | | | |
| <i>Phorodon humuli</i> | | 2 | | | | 1 | | | | | 2 | |
| <i>Phyllaphis fagi</i> | | | | | | 3 | 1 | | | | | |
| <i>Rhopalosiphum insertum</i> | 207 | 393 | 276 | 348 | 923 | 821 | 1158 | 329 | 1582 | 294 | 556 | 387 |
| <i>Rhopalosiphum maidis</i> | | | | | | 1 | 2 | 1 | | 2 | | 1 |
| <i>Rhopalosiphum padi</i> | 3424 | 7068 | 3109 | 2715 | 1930 | 1961 | 1616 | 1182 | 2154 | 2740 | 542 | 876 |
| <i>Sitobion avenae</i> | 150 | 437 | 136 | 203 | 71 | 240 | 574 | 456 | 338 | 536 | 542 | 259 |
| <i>Sitobion fragariae</i> | 3 | 15 | 15 | 7 | | 52 | 22 | 19 | 12 | 36 | 12 | 7 |

ROTHAMSTED INSECT SURVEY

(f)
 of aphids of economic, or other, interest reported in the Weekly Bulletin 1981
 3 August to 9 September 1981

| | | | | | | | | | | | Sites |
|--------------|----------|------------------|---------|---------|-------------|--------------|-----------|---------------|-----------|-----------|------------------------------------|
| Broom's Barn | Hereford | Rothamsted Tower | Writtle | Rainham | Long Ashton | Silwood Park | Wye, Kent | Littlehampton | Starcross | Rosewarne | Species |
| 4 | 14 | 2 | 12 | | 4 | 2 | 8 | 12 | | 9 | <i>Acyrtosiphon pisum</i> |
| | | | | | | | | | | | <i>Amphorophora rubi</i> |
| 34 | 110 | 20 | 22 | | 10 | 10 | 24 | 12 | 22 | 67 | <i>Aphis fabae</i> grp. |
| 21 | 84 | 52 | 52 | | 26 | 62 | 96 | 21 | 38 | 66 | <i>Aphis</i> spp. |
| | | | | | | | | | 2 | 1 | <i>Aulacorthum solani</i> |
| 49 | 54 | 34 | 36 | | 10 | 14 | 24 | 28 | 18 | 11 | <i>Brachycaudus helichrysi</i> |
| 4 | 62 | 2 | 8 | | 6 | 6 | 6 | 3 | 18 | 13 | <i>Brevicoryne brassicae</i> |
| 2 | 4 | 2 | | | | 2 | 2 | 2 | | 2 | <i>Cavariella aegopodii</i> |
| 1 | | 4 | | | 4 | | | 1 | | | <i>Cinara</i> spp. |
| 8 | 2 | 24 | 12 | | 6 | 4 | 2 | 13 | | 42 | <i>Drepanosiphum platanoidis</i> |
| | | | | | | | 2 | | | | <i>Dysaphis plantaginea</i> |
| | | | | | | | | | | | <i>Elatobium abietinum</i> |
| | | | | | | | | | | | <i>Eriosoma ulmi</i> |
| 61 | 96 | 130 | 212 | | 74 | 118 | 278 | 142 | 58 | 18 | <i>Hyalopterus pruni</i> |
| 3 | 10 | 2 | | | | | 4 | 2 | 4 | 1 | <i>Hyperomyzus lactucae</i> |
| 4 | 14 | 4 | 14 | | 4 | 14 | 8 | 5 | | 4 | <i>Macrosiphum euphorbiae</i> |
| 22 | 2 | 2 | 38 | | | 6 | 8 | | 2 | 3 | <i>Megoura viciae</i> |
| 29 | 76 | 6 | 26 | | 18 | 8 | 20 | 9 | 10 | 8 | <i>Metopolophium dirhodum</i> |
| | 6 | | | | | | 2 | | | 3 | <i>Metopolophium festucae s.l.</i> |
| | 8 | | 2 | | 2 | | | | | | <i>Myzus ascalonicus</i> |
| | | | | | | | | | | | <i>Myzus certus</i> |
| | | | | | | | | 4 | | | <i>Myzus ornatus</i> |
| 3 | 22 | | 28 | | 6 | 2 | 6 | 3 | | 7 | <i>Myzus persicae</i> grp. |
| 1 | | 2 | | | | 4 | 2 | | | 3 | <i>Nasonovia ribisnigri</i> |
| 15 | 70 | 24 | 20 | | 66 | 64 | 82 | 42 | 44 | 243 | <i>Pemphigus</i> spp. |
| | 78 | | 2 | | | | 8 | | | 1 | <i>Pentatrachopus fragaefolii</i> |
| | | | | | | | | | | | <i>Phorodon humuli</i> |
| | | | | | | | | | | | <i>Phyllaphis fagi</i> |
| 113 | 844 | 458 | 338 | | 206 | 456 | 548 | 372 | 418 | 1415 | <i>Rhopalosiphum insertum</i> |
| 3 | 2 | | 2 | | | 2 | 4 | 3 | 4 | 4 | <i>Rhopalosiphum maidis</i> |
| 420 | 786 | 346 | 440 | | 110 | 178 | 726 | 262 | 364 | 1465 | <i>Rhopalosiphum padi</i> |
| 187 | 688 | 220 | 404 | | 214 | 220 | 482 | 159 | 128 | 374 | <i>Sitobion avenae</i> |
| 14 | 46 | 10 | 18 | | 14 | 8 | 34 | 4 | 14 | 85 | <i>Sitobion fragariae</i> |

ROTHAMSTED REPORT FOR 1981, PART 2

TAB

The Rothamsted Insect Survey—Suction Traps: four-weekly total catches
Week Nos 37 to 40

| Species | Elgin | Dundee | Edinburgh | Pathhead | Auchincruive | Newcastle | Belfast | High Mowthorpe | Preston | Kirton | Shardlow | Aberystwyth |
|------------------------------------|-------|--------|-----------|----------|--------------|-----------|---------|----------------|---------|--------|----------|-------------|
| <i>Acyrtosiphon pisum</i> | | 2 | | | | 1 | | 4 | | 2 | 2 | |
| <i>Amphorophora rubi</i> | | | | | | | 1 | | | | | |
| <i>Aphis fabae</i> grp. | 4 | 29 | 10 | 23 | 9 | 89 | 3 | 29 | 44 | 96 | 48 | |
| <i>Aphis</i> spp. | 2 | 52 | 17 | 7 | 1 | 55 | 5 | 30 | 30 | 146 | 130 | |
| <i>Aulacorthum solani</i> | | 1 | | | | | | | | | | |
| <i>Brachycaudus helichrysi</i> | 47 | 75 | 25 | 38 | 5 | 47 | 8 | 155 | 20 | 28 | 38 | |
| <i>Brevicoryne brassicae</i> | 6 | 178 | 25 | 29 | 2 | 32 | | 4 | 2 | 10 | 18 | |
| <i>Cavariella aegopodii</i> | 2 | 2 | | 2 | | 2 | 1 | 1 | 6 | 4 | 2 | |
| <i>Cinara</i> spp. | 2 | | 1 | | | 1 | 1 | | | | | |
| <i>Drepanosiphum platanoidis</i> | 34 | 131 | 45 | 29 | 11 | 41 | 40 | 30 | 48 | 8 | 72 | |
| <i>Dysaphis plantaginea</i> | | | | | | | | | | 4 | 6 | |
| <i>Elatobium abietinum</i> | | | | | | | | | | | | |
| <i>Eriosoma ulmi</i> | | | | | | | 1 | | 4 | | 2 | |
| <i>Hyalopterus pruni</i> | 8 | 1691 | 8 | 4 | 3 | 10 | | 47 | 6 | 134 | 14 | |
| <i>Hyperomyzus lactucae</i> | 3 | 5 | | 2 | | 9 | 1 | 11 | 2 | 20 | 14 | |
| <i>Macrosiphum euphorbiae</i> | | 5 | 2 | 1 | | 3 | 7 | 6 | 16 | 14 | 18 | |
| <i>Megoura viciae</i> | | | | | | | | | | | | |
| <i>Metopolophium dirhodum</i> | 30 | 15 | 5 | 2 | 14 | 21 | 2 | 4 | 28 | 12 | 10 | |
| <i>Metopolophium festucae</i> s.l. | 1 | | | | | 2 | | 1 | | | | |
| <i>Myzus ascalonicus</i> | | | | | | | | | | | | |
| <i>Myzus certus</i> | 1 | 1 | 4 | 1 | | 1 | | | | 2 | | |
| <i>Myzus ornatus</i> | | | | 2 | | | | | | | | |
| <i>Myzus persicae</i> grp. | 22 | 66 | 16 | 22 | 1 | 51 | 1 | 7 | 12 | 2 | 4 | |
| <i>Nasonovia ribisnigri</i> | 5 | 2 | | 1 | | | 1 | 7 | 4 | 4 | 6 | |
| <i>Pemphigus</i> spp. | 115 | 92 | 46 | 28 | 28 | 69 | 11 | 62 | 176 | 136 | 58 | 10 |
| <i>Pentatrichopus fragaefolii</i> | 1 | | | | | | | | | | | |
| <i>Phorodon humuli</i> | | | | | | 1 | | | | | | |
| <i>Phyllaphis fagi</i> | | 2 | 2 | 2 | 1 | 3 | 1 | | | | | |
| <i>Rhopalosiphum insertum</i> | 1298 | 828 | 435 | 693 | 1050 | 1623 | 645 | 754 | 3604 | 134 | 546 | 11 |
| <i>Rhopalosiphum maidis</i> | | | | | | | 1 | | | | | |
| <i>Rhopalosiphum padi</i> | 6198 | 11073 | 4296 | 2660 | 698 | 3657 | 132 | 1549 | 972 | 154 | 332 | 1 |
| <i>Sitobion avenae</i> | 6 | 19 | 20 | 29 | 8 | 75 | 22 | 36 | 52 | 8 | 14 | |
| <i>Sitobion fragariae</i> | | 3 | 1 | | | 15 | | 5 | 2 | | 14 | |

ROTHAMSTED INSECT SURVEY

aphids of economic, or other, interest reported in the *Weekly Bulletin* 1981
September to 7 October 1980

| | Broom's Barn | Hereford | Rothamsted Tower | Writtle | Rainham | Long Ashton | Silwood Park | Wye, Kent | Littlehampton | Starcross | Rosewarne | Species |
|----|--------------|----------|------------------|---------|---------|-------------|--------------|-----------|---------------|-----------|-----------|------------------------------------|
| | 2 | | | | | | | 4 | 5 | | 2 | <i>Acyrtosiphon pisum</i> |
| | | | | | | | | | | | 1 | <i>Amphorophora rubi</i> |
| 45 | | | 2 | 8 | | | 4 | | 5 | 2 | 6 | <i>Aphis fabae</i> grp. |
| 10 | 12 | | 16 | | | 8 | 4 | 32 | 18 | 12 | 6 | <i>Aphis</i> spp. |
| | | | | | | | | | | | | <i>Aulacorthum solani</i> |
| 58 | 10 | 31 | 4 | | | 16 | 8 | 28 | 30 | 15 | 3 | <i>Brachycaudus helichrysi</i> |
| 2 | 4 | | 2 | | | | 2 | 6 | 4 | 4 | 6 | <i>Brevicoryne brassicae</i> |
| 1 | | | | | | | 2 | 2 | | 2 | | <i>Cavariella aegopodii</i> |
| 1 | | | | | | | | 2 | | | | <i>Cinara</i> spp. |
| 9 | 16 | 6 | 8 | | | 20 | 2 | 4 | 8 | | 54 | <i>Drepanosiphum platanoidis</i> |
| 6 | | 4 | | | | 8 | 14 | 4 | 4 | | | <i>Dysaphis plantaginea</i> |
| | | | | | | | | | | | | <i>Elatobium abietinum</i> |
| 3 | 2 | | | | | | | 2 | 2 | 2 | | <i>Eriosoma ulmi</i> |
| 8 | | 4 | | | | | 22 | 2 | 4 | 2 | | <i>Hyalopterus pruni</i> |
| 6 | 2 | | 2 | | | | | 4 | 1 | | | <i>Hyperomyzus lactucae</i> |
| 4 | 10 | 2 | 6 | | | 8 | 2 | 4 | 3 | 4 | | <i>Macrosiphum euphorbiae</i> |
| 1 | | | | | | | | | | | | <i>Megoura viciae</i> |
| 1 | 2 | | | | | 2 | | 4 | | | | <i>Metopolophium dirhodum</i> |
| | | 2 | | | | | | | | | | <i>Metopolophium festucae s.l.</i> |
| | 4 | | | | | | | 2 | | | | <i>Myzus ascalonicus</i> |
| | | | | | | | | | | | | <i>Myzus certus</i> |
| | | | | | | | | | | | | <i>Myzus ornatus</i> |
| 7 | 10 | 1 | 10 | | | 6 | 4 | 12 | 8 | | 6 | <i>Myzus persicae</i> grp. |
| 4 | | | 2 | | | | 2 | | 1 | 4 | 2 | <i>Nasonovia ribisnigri</i> |
| 32 | 22 | 12 | 22 | | | 34 | 36 | 92 | 25 | 24 | | <i>Pemphigus</i> spp. |
| | | | | | | | | | | | | <i>Pentatrichopus fragaefolii</i> |
| | 266 | 2 | | | | | 6 | 96 | | | | <i>Phorodon humuli</i> |
| | 2 | | | | | | | | | | | <i>Phyllaphis fagi</i> |
| 96 | 204 | 142 | 68 | | | 230 | 166 | 504 | 129 | 220 | 33 | <i>Rhopalosiphum insertum</i> |
| | | | | | | | | | | | | <i>Rhopalosiphum maidis</i> |
| 71 | 114 | 43 | 110 | | | 48 | 48 | 328 | 39 | 28 | 6 | <i>Rhopalosiphum padi</i> |
| 6 | | 4 | 8 | | | 4 | 2 | 6 | 5 | 6 | 2 | <i>Sitobion avenae</i> |
| | | 2 | 2 | | | | 2 | 4 | | 4 | | <i>Sitobion fragariae</i> |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE

The Rothamsted Insect Survey—Suction Traps: four-weekly total catches
Week Nos 41 to 44

| Species | Elgin | Dundee | Edinburgh | Pathhead | Auchincruive | Newcastle | Belfast | High Mowthorpe | Preston | Kirton | Shardlow | Aberystwyth |
|------------------------------------|-------|--------|-----------|----------|--------------|-----------|---------|----------------|---------|--------|----------|-------------|
| <i>Acyrtosiphon pisum</i> | | | | | | | | | | | | |
| <i>Amphorophora rubi</i> | | | | | | | | | | | | |
| <i>Aphis fabae</i> grp. | | | | | | 1 | | | | 132 | 2 | |
| <i>Aphis</i> spp. | | | | | | 1 | | | 2 | 205 | 4 | |
| <i>Aulacorthum solani</i> | | | | | | | | | | 3 | 1 | |
| <i>Brachycaudus helichrysi</i> | | | | | | 1 | | | 1 | 9 | | |
| <i>Brevicoryne brassicae</i> | | | | | | | | | | | | |
| <i>Cavariella aegopodii</i> | | | | | | | 1 | | 1 | 8 | | |
| <i>Cinara</i> spp. | | | | | | | | | | | | |
| <i>Drepanosiphum platanoidis</i> | 10 | 18 | 13 | 3 | | 8 | 20 | 8 | 9 | 16 | 81 | 1 |
| <i>Dysaphis plantaginea</i> | | | | | | | | | | 8 | | |
| <i>Elatobium abietinum</i> | | | | | | | | | | | | |
| <i>Eriosoma ulmi</i> | | | | | | | | | | 2 | 3 | 1 |
| <i>Hyalopterus pruni</i> | | | | | | | | | | 2 | 1 | |
| <i>Hyperomyzus lactucae</i> | | | | | | | | 2 | | 1 | | |
| <i>Macrosiphum euphorbiae</i> | | | | | | | | | | 4 | | |
| <i>Megoura viciae</i> | | | | | | | | | | | | |
| <i>Metopolophium dirhodum</i> | 1 | | 1 | 1 | 2 | 3 | | 2 | 23 | 10 | 7 | 1 |
| <i>Metopolophium festucae</i> s.l. | | | | 1 | | | | | | | | |
| <i>Myzus ascalonicus</i> | | | | | | | | | | | | |
| <i>Myzus certus</i> | | | | | | | | | | 1 | | |
| <i>Myzus ornatus</i> | | | | | | | | | | | | |
| <i>Myzus persicae</i> grp. | 1 | | | 1 | 1 | | | | | | 2 | |
| <i>Nasonovia ribisnigri</i> | 1 | 1 | | | | | | 1 | 1 | 3 | | |
| <i>Pemphigus</i> spp. | 3 | | | 2 | 2 | 8 | 1 | 1 | 12 | 837 | 37 | 2 |
| <i>Pentatrichopus fragaefolii</i> | | | | | | | | | | | | |
| <i>Phorodon humuli</i> | | | | | | | 1 | | | | | |
| <i>Phyllaphis fagi</i> | | | | | | | | | | | 1 | |
| <i>Rhopalosiphum insertum</i> | 93 | 109 | 43 | 16 | 122 | 158 | 301 | 164 | 764 | 495 | 280 | 429 |
| <i>Rhopalosiphum maidis</i> | | | | | | | | | | | | |
| <i>Rhopalosiphum padi</i> | 153 | 227 | 155 | 46 | 66 | 140 | 9 | 68 | 71 | 1090 | 166 | 3 |
| <i>Sitobion avenae</i> | | | 2 | | | | 1 | | 1 | | | |
| <i>Sitobion fragariae</i> | | | | | | 1 | 2 | 6 | 1 | 17 | 13 | |

Dundee trap not operating 9–19 October

ROTHAMSTED INSECT SURVEY

(h)
of aphids of economic, or other, interest reported in the Weekly Bulletin 1981
3 October to 4 November 1981

| | Broom's Barn | Hereford | Rothamsted Tower | Writtle | Rainham | Long Ashton | Silwood Park | Wye, Kent | Littlehampton | Starcross | Rosewarne | Sites | Species |
|-----|--------------|----------|------------------|---------|--------------------|-------------|--------------|-----------|---------------|-----------|-----------|-------|------------------------------------|
| | | | | 4 | | | | | 1 | | | | <i>Acyrtosiphon pisum</i> |
| 46 | | | | 10 | | 1 | 2 | 2 | | 1 | | | <i>Amphorophora rubi</i> |
| 2 | 1 | | | | | | | 2 | | | | | <i>Aphis fabae</i> grp. |
| | | | | | | | | 2 | | | | | <i>Aphis</i> spp. |
| 1 | 3 | | | 3 | | 3 | 1 | 1 | 1 | | | | <i>Aulacorthum solani</i> |
| | | | | 1 | | | | | | | | | <i>Brachycaudus helichrysi</i> |
| 12 | 1 | 1 | | | | | | 2 | | | 1 | | <i>Brevicoryne brassicae</i> |
| | | | | | | | | | | | | | <i>Cavariella aegopodii</i> |
| 8 | 5 | 14 | | 3 | | 20 | 6 | 5 | 3 | 2 | 13 | | <i>Cinara</i> spp. |
| | | | | 2 | | | 6 | | 4 | 1 | | | <i>Drepanosiphum platanoidis</i> |
| | 9 | | | 4 | | 1 | 4 | 16 | 1 | 1 | | | <i>Dysaphis plantaginea</i> |
| 2 | | | | 2 | | | 4 | | | | | | <i>Elatobium abietinum</i> |
| | | | | | Trap not operating | | | | | 1 | | | <i>Eriosoma ulmi</i> |
| 2 | | | | | | | | | | | | | <i>Hyalopterus pruni</i> |
| | | | | | | | | 1 | 1 | | | | <i>Hyperomyzus lactucae</i> |
| | | | | | | | | | | | | | <i>Macrosiphum euphorbiae</i> |
| | | | | | | | | | | | | | <i>Megoura viciae</i> |
| | | | | | | | 1 | | | | | | <i>Metopolophium dirhodum</i> |
| | | | | | | | | | | | | | <i>Metopolophium festucae</i> s.l. |
| | | | | | | | | | | | | | <i>Myzus ascalonicus</i> |
| | | | | | | | | | | | | | <i>Myzus certus</i> |
| | | | | | | | | | | | | | <i>Myzus ornatus</i> |
| 3 | | | | 3 | | | 1 | 1 | 1 | 1 | | | <i>Myzus persicae</i> grp. |
| 4 | | | | | | | | 1 | | 1 | | | <i>Nasonovia ribisnigri</i> |
| 10 | 7 | 3 | | 3 | | 2 | 16 | 5 | 3 | 7 | | | <i>Pemphigus</i> spp. |
| | 2 | | | | | | | 7 | | | | | <i>Pentatrachopus fragaefolii</i> |
| | | | | | | | | | | | | | <i>Phorodon humuli</i> |
| | | | | | | | | | | 1 | | | <i>Phyllaphis fagi</i> |
| 196 | 154 | 117 | | 73 | | 214 | 169 | 231 | 166 | 721 | 158 | | <i>Rhopalosiphum insertum</i> |
| | | | | | | | | | | | | | <i>Rhopalosiphum maidis</i> |
| 44 | 29 | 23 | | 59 | | 25 | 38 | 111 | 34 | 50 | 4 | | <i>Rhopalosiphum padi</i> |
| | | | | 1 | | | 1 | | 1 | | | | <i>Sitobion avenae</i> |
| 9 | 1 | 1 | | 4 | | 5 | 20 | 3 | 4 | 6 | | | <i>Sitobion fragariae</i> |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Light Traps: annual records

| Pest Species | Year | Reay | Stronchrubie | Inverpolly | Knockan | Cromarty | Newton, Elgin | Beinn Eighe | Rannoch | Dundee | Rowardennan | East Craigs | Glentress | Culzean Castle | Auchincruive |
|---|------|------|--------------|------------|---------|----------|---------------|-------------|---------|--------|-------------|-------------|-----------|----------------|--------------|
| | | 415 | 418 | 352 | 351 | 398 | 58 | 350 | 29 | 47 | 97 | 261 | 339 | 264 | 293 |
| <i>Gortyna micacea</i> Rosy Rustic | 1979 | — | — | 14 | — | 45 | — | 41 | 48 | 0 | 8 | 7 | — | 20 | 0 |
| | 1980 | 67 | 2 | 33 | 0 | 23 | 156 | 43 | 49 | 4 | 12 | 13 | 60 | 23 | 4 |
| <i>Bupalus piniaria</i> Bordered White | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | 0 | — | 1 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| <i>Panolis flammea</i> Pine Beauty | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | 0 | — | 1 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| <i>Cerapteryx graminis</i> Antler Moth | 1979 | — | — | 94 | — | 4 | — | 21 | 50 | 3 | 2 | 5 | — | 12 | 5 |
| | 1980 | 32 | 82 | 243 | 53 | 10 | 11 | 44 | 59 | 3 | 6 | 12 | 34 | 11 | 8 |
| <i>Erannis aurantiaria</i> Scarce Umber | 1979 | — | — | 30 | — | 141 | — | 6 | 470 | 0 | 185 | 0 | — | 1 | 0 |
| | 1980 | 0 | 2 | 85 | 4 | 61 | 14 | 25 | 469 | 1 | 178 | 0 | 0 | 0 | 0 |
| <i>Operophtera fagata</i> Northern Winter Moth | 1979 | — | — | 17 | — | 1 | — | 0 | 105 | 0 | 29 | 0 | — | 0 | 0 |
| | 1980 | 0 | 1 | 29 | 0 | 9 | 1 | 2 | 72 | 0 | 14 | 0 | 0 | 1 | 0 |
| <i>Apamea sordens</i> Rustic Shoulder-knot | 1979 | — | — | 0 | — | 3 | — | 0 | 0 | 0 | 0 | 3 | — | 1 | 1 |
| | 1980 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 6 | 0 | 19 | 0 | 1 | 2 |
| <i>Gortyna flavago</i> Frosted Orange | 1979 | — | — | 0 | — | 1 | — | 0 | 0 | 0 | 0 | 0 | — | 2 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| <i>Mamestra brassicae</i> Cabbage Moth | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 6 | 0 | 3 | — | 1 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 9 | 0 | 2 | 0 | 0 | 0 |
| <i>Noctua pronuba</i> Large Yellow Underwing | 1979 | — | — | 5 | — | 44 | — | 2 | 2 | 16 | 1 | 5 | — | 9 | 2 |
| | 1980 | 1 | 2 | 8 | 0 | 11 | 17 | 1 | 1 | 20 | 3 | 9 | 8 | 19 | 3 |
| <i>Diataraxia oleracea</i> Bright-line Brown-eye | 1979 | — | — | 8 | — | 1 | — | 0 | 0 | 0 | 0 | 3 | — | 4 | 0 |
| | 1980 | 0 | 0 | 4 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| <i>Euxoa nigricans</i> Garden Dart | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | 0 | — | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| <i>Apamea secalis</i> Common Rustic | 1979 | — | — | 7 | — | 22 | — | 0 | 0 | 3 | 1 | 30 | — | 7 | 4 |
| | 1980 | 15 | 1 | 1 | 1 | 3 | 73 | 3 | 1 | 9 | 3 | 36 | 9 | 0 | 10 |
| <i>Melanchra persicariae</i> Dot Moth | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | 0 | — | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Operophtera brumata</i> Winter Moth | 1979 | — | — | 10 | — | 31 | — | 18 | 27 | 0 | 202 | 0 | — | 7 | 0 |
| | 1980 | 1 | 0 | 27 | 8 | 4 | 5 | 31 | 19 | 5 | 134 | 0 | 3 | 1 | 0 |

ROTHAMSTED INSECT SURVEY

2(a)
of moths of economic, or other importance for 1979 and 1980

| | Waterside Mains | Kielder | Gatehouse of Fleet | Alston | Windermere | Wykeham | Arnside | Baldersby | Castletown, I.O.M. | Acomb | Harrogate | Hayton | Preston | Longridge | Year | Pest Species |
|-----|-----------------|---------|--------------------|--------|------------|---------|---------|-----------|--------------------|-------|-----------|--------|---------|-----------|------------------------|-------------------------------|
| | 338 | 296 | 287 | 408 | 323 | 187 | 403 | 315 | 306 | 363 | 410 | 291 | 288 | 124 | | |
| 125 | — | 34 | — | — | — | 66 | 19 | 71 | 13 | 5 | — | — | 4 | 5 | 1979 | <i>Gortyna micacea</i> |
| | — | 28 | 23 | 85 | 2 | 49 | 20 | 64 | 20 | 3 | 9 | 15 | 15 | 2 | 1980 | Rosy Rustic |
| — | 1 | — | — | — | — | 2 | 0 | 0 | 0 | — | — | — | 0 | 0 | 1979 | <i>Bupalus piniaria</i> |
| 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Bordered White |
| — | 0 | — | — | — | — | 1 | 0 | 0 | 0 | — | — | — | 0 | 0 | 1979 | <i>Panolis flammea</i> |
| 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1980 | Pine Beauty |
| — | 5 | — | — | — | — | 8 | 0 | 3 | 3 | 0 | — | — | 0 | 3 | 1979 | <i>Cerapteryx graminis</i> |
| 25 | 18 | 9 | 32 | 2 | 17 | 4 | 4 | 3 | 6 | 0 | 2 | 3 | 0 | 1 | 1980 | Antler Moth |
| — | 23 | — | — | — | — | 12 | 11 | 7 | 0 | 1 | — | — | 5 | 28 | 1979 | <i>Erannis aurantiaria</i> |
| 20 | 24 | 14 | 3 | 0 | 5 | 0 | 11 | 0 | 4 | 14 | 2 | 1 | 10 | 1980 | Scarce Umber | |
| — | 68 | — | — | — | — | — | 6 | 0 | 0 | 0 | — | — | 0 | 3 | 1979 | <i>Operophtera fagata</i> |
| 126 | 89 | 3 | 19 | 0 | 4 | 6 | 0 | 0 | 0 | 0 | 27 | 1 | 0 | 0 | 1980 | Northern Winter Moth |
| — | 0 | — | — | — | — | 0 | 0 | 5 | 4 | 0 | — | — | 0 | 1 | 1979 | <i>Apamea sordens</i> |
| 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 5 | 0 | 0 | 6 | 0 | 0 | 1980 | Rustic Shoulder-knot |
| — | 0 | — | — | — | — | 0 | 1 | 1 | 0 | — | — | — | 0 | 0 | 1979 | <i>Gortyna flavago</i> |
| 4 | 0 | 1 | 0 | 0 | 0 | 2 | 8 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 1980 | Frosted Orange |
| — | 0 | — | — | — | — | 1 | 0 | 16 | 1 | 4 | — | — | 1 | 1 | 1979 | <i>Mamestra brassicae</i> |
| 0 | 0 | 0 | 0 | 8 | 2 | 0 | 11 | 0 | 1 | 0 | 7 | 2 | 0 | 1980 | Cabbage Moth | |
| — | 5 | — | — | — | — | 8 | 9 | 4 | 9 | 1 | — | — | 6 | 18 | 1979 | <i>Noctua pronuba</i> |
| 119 | 4 | 24 | 49 | 123 | 33 | 17 | 42 | 18 | 5 | 18 | 35 | 29 | 6 | 1980 | Large Yellow Underwing | |
| — | 0 | — | — | — | — | 0 | 0 | 5 | 2 | 3 | — | — | 5 | 1 | 1979 | <i>Diataraxia oleracea</i> |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 2 | 2 | 0 | 1980 | Bright-line Brown-eye | |
| — | 0 | — | — | — | — | 0 | 0 | 0 | 0 | 0 | — | — | 0 | 0 | 1979 | <i>Euxoa nigricans</i> |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1980 | Garden Dart | |
| — | 7 | — | — | — | — | 8 | 5 | 27 | 122 | 1 | — | — | 17 | 14 | 1979 | <i>Apamea secalis</i> |
| 12 | 1 | 10 | 0 | 29 | 11 | 2 | 68 | 37 | 3 | 20 | 21 | 8 | 6 | 1980 | Common Rustic | |
| — | 0 | — | — | — | — | 0 | 1 | 0 | 0 | 8 | — | — | 0 | 0 | 1979 | <i>Melanchnra persicariae</i> |
| 0 | 0 | 0 | 0 | 9 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 1980 | Dot Moth |
| — | 103 | — | — | — | — | — | 187 | 28 | 23 | 13 | — | — | 17 | 36 | 1979 | <i>Operophtera brumata</i> |
| 102 | 70 | 48 | 21 | 5 | 14 | 70 | 8 | 29 | 5 | 20 | 13 | 1 | 6 | 1980 | Winter Moth | |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Light Traps: annual records

| Pest Species | Year | Tarleton | Spurn Head | East Didsbury | Bangor | Jodrell Bank | Gleadthorpe | Matlock | Hope | Gibraltar Point | Leek | Empingham | Wells next the Sea | Shardlow | Sutton Bonington |
|---|------|----------|------------|---------------|--------|--------------|-------------|---------|------|-----------------|------|-----------|--------------------|----------|------------------|
| <i>Gortyna micacea</i> Rosy Rustic | 1979 | 11 | 43 | 5 | 0 | 21 | 40 | 5 | — | 9 | — | 280 | 4 | 12 | 14 |
| | 1980 | 12 | 42 | 4 | 0 | 24 | 21 | 5 | 24 | 13 | 21 | 4 | 1 | 9 | 7 |
| <i>Bupalus piniaria</i> Bordered White | 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 0 | — | 0 | 0 | 1 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Panolis flammea</i> Pine Beauty | 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 0 | — | 0 | 0 | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Cerapteryx graminis</i> Antler Moth | 1979 | 1 | 70 | 1 | 0 | 91 | 4 | 1 | — | 2 | — | 0 | 0 | 0 | 1 |
| | 1980 | 2 | 73 | 0 | 1 | 100 | 8 | 6 | 1 | 14 | 16 | 0 | 0 | 0 | 0 |
| <i>Erannis aurantiaria</i> Scarce Umber | 1979 | 0 | 0 | 1 | 0 | 22 | 1 | 0 | — | 0 | — | 0 | 0 | 2 | 1 |
| | 1980 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| <i>Operophtera fagata</i> Northern Winter Moth | 1979 | 0 | 0 | 0 | 0 | 4 | 3 | 0 | — | 0 | — | 0 | 0 | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Apamea sordens</i> Rustic Shoulder-knot | 1979 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | — | 2 | — | 0 | 0 | 0 | 1 |
| | 1980 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 18 | 1 | 8 | 3 | 0 | 0 | 3 |
| <i>Gortyna flavago</i> Frosted Orange | 1979 | 2 | 1 | 0 | 0 | 1 | 11 | 0 | — | 1 | — | 1 | 0 | 1 | 3 |
| | 1980 | 0 | 1 | 1 | 0 | 2 | 12 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 |
| <i>Mamestra brassicae</i> Cabbage Moth | 1979 | 7 | 2 | 5 | 10 | 0 | 3 | 18 | — | 0 | — | 20 | 4 | 1 | 0 |
| | 1980 | 9 | 0 | 1 | 2 | 0 | 3 | 7 | 17 | 0 | 5 | 18 | 3 | 2 | 5 |
| <i>Noctua pronuba</i> Large Yellow Underwing | 1979 | 13 | 30 | 2 | 9 | 11 | 8 | 37 | — | 4 | — | 44 | 5 | 11 | 39 |
| | 1980 | 22 | 59 | 5 | 12 | 12 | 6 | 14 | 29 | 15 | 108 | 54 | 6 | 5 | 28 |
| <i>Diataraxia oleracea</i> Bright-line Brown-eye | 1979 | 14 | 53 | 0 | 3 | 0 | 13 | 10 | — | 1 | — | 7 | 3 | 22 | 15 |
| | 1980 | 12 | 41 | 0 | 0 | 0 | 37 | 1 | 2 | 4 | 2 | 2 | 1 | 7 | 16 |
| <i>Euxoa nigricans</i> Garden Dart | 1979 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | — | 0 | — | 1 | 0 | 0 | 0 |
| | 1980 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| <i>Apamea secalis</i> Common Rustic | 1979 | 15 | 17 | 2 | 5 | 3 | 21 | 28 | — | 10 | — | 90 | 0 | 8 | 52 |
| | 1980 | 10 | 9 | 1 | 3 | 9 | 14 | 51 | 53 | 5 | 16 | 44 | 4 | 10 | 45 |
| <i>Melanchra persicariae</i> Dot Moth | 1979 | 15 | 1 | 0 | 0 | 0 | 0 | 1 | — | 0 | — | 11 | 1 | 0 | 1 |
| | 1980 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 14 | 0 | 0 | 3 |
| <i>Operophtera brumata</i> Winter Moth | 1979 | 0 | 17 | 0 | 0 | 54 | 8 | 9 | — | 5 | — | 47 | 3 | 4 | 16 |
| | 1980 | 0 | 4 | 0 | 0 | 25 | 4 | 0 | 6 | 0 | 1 | 32 | 1 | 1 | 4 |

ROTHAMSTED INSECT SURVEY

2(b)

of moths of economic, or other importance for 1979 and 1980

| | Preston Montford | Wolverhampton I | Santon Downham | Aberystwyth | Monks Wood | Monks Wood (Ewingswode) | Broom's Barn | Tregaron | Waresley | Luddington | Cockayne Hatley | Hereford | Rhandirmwyn | Year | Pest Species |
|--|------------------|-----------------|----------------|-------------|------------|-------------------------|--------------|----------|----------|------------|-----------------|----------|-------------|------|------------------------------|
| | 382 | 267 | 259 | 340 | 94 | 277 | 88 | 331 | 360 | 414 | 336 | 212 | 346 | | |
| | 47 | 0 | — | 7 | 41 | — | 3 | 39 | 21 | — | 14 | — | 32 | 1979 | <i>Gortyna micacea</i> |
| | 21 | 0 | 10 | 13 | 19 | 8 | 4 | 18 | 10 | 5 | 11 | 10 | 29 | 1980 | Rosy Rustic |
| | 0 | 0 | — | 3 | 0 | — | 0 | 0 | 0 | — | 0 | — | 0 | 1979 | <i>Bupalus piniaria</i> |
| | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Bordered White |
| | 0 | 0 | — | 0 | 0 | — | 0 | 0 | 0 | — | 0 | — | 0 | 1979 | <i>Panolis flammea</i> |
| | 0 | 0 | 69 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Pine Beauty |
| | 1 | 0 | — | 1 | 0 | — | 1 | 88 | 0 | — | 0 | — | 3 | 1979 | <i>Cerapteryx graminis</i> |
| | 1 | 0 | 21 | 0 | 1 | 0 | 1 | 165 | 1 | 0 | 0 | 1 | 19 | 1980 | Antler Moth |
| | 10 | 0 | — | 3 | 0 | — | 0 | 115 | 0 | — | 0 | — | 309 | 1979 | <i>Erannis aurantiaria</i> |
| | 2 | 0 | 4 | 0 | 0 | 74 | 0 | 41 | 0 | 2 | 0 | 0 | 270 | 1980 | Scarce Umber |
| | 0 | 0 | — | 1 | 2 | — | 0 | 188 | 0 | — | 0 | — | 7 | 1979 | <i>Operophtera fagata</i> |
| | 1 | 0 | 0 | 0 | 0 | 127 | 0 | 53 | 0 | 0 | 0 | 0 | 10 | 1980 | Northern Winter Moth |
| | 1 | 0 | — | 0 | 0 | — | 2 | 0 | 13 | — | 3 | — | 0 | 1979 | <i>Apamea sordens</i> |
| | 3 | 0 | 4 | 0 | 6 | 3 | 0 | 0 | 28 | 1 | 4 | 0 | 3 | 1980 | Rustic Shoulder-knot |
| | 1 | 0 | — | 0 | 3 | — | 0 | 8 | 4 | — | 2 | — | 2 | 1979 | <i>Gortyna flavago</i> |
| | 3 | 0 | 1 | 1 | 5 | 6 | 0 | 10 | 7 | 0 | 2 | 0 | 2 | 1980 | Frosted Orange |
| | 2 | 0 | — | 0 | 0 | — | 6 | 0 | 2 | — | 0 | — | 0 | 1979 | <i>Mamestra brassicae</i> |
| | 3 | 0 | 12 | 1 | 0 | 0 | 3 | 0 | 6 | 11 | 1 | 0 | 1 | 1980 | Cabbage Moth |
| | 4 | 1 | — | 7 | 3 | — | 2 | 22 | 10 | — | 4 | — | 40 | 1979 | <i>Noctua pronuba</i> |
| | 24 | 2 | 2 | 36 | 6 | 13 | 0 | 50 | 8 | 11 | 6 | 3 | 63 | 1980 | Large Yellow Underwing |
| | 2 | 1 | — | 1 | 0 | — | 0 | 4 | 30 | — | 7 | — | 4 | 1979 | <i>Diataraxia oleracea</i> |
| | 10 | 4 | 0 | 1 | 0 | 1 | 2 | 1 | 19 | 1 | 21 | 0 | 4 | 1980 | Bright-line Brown-eye |
| | 0 | 10 | — | 0 | 1 | — | 1 | 0 | 4 | — | 2 | — | 0 | 1979 | <i>Euxoa nigricans</i> |
| | 0 | 9 | 2 | 0 | 0 | 7 | 1 | 0 | 5 | 0 | 3 | 0 | 0 | 1980 | Garden Dart |
| | 66 | 0 | — | 27 | 3 | — | 5 | 10 | 38 | — | 10 | — | 8 | 1979 | <i>Apamea secalis</i> |
| | 52 | 3 | 14 | 18 | 8 | 4 | 15 | 7 | 13 | 13 | 15 | 25 | 6 | 1980 | Common Rustic |
| | 1 | 0 | — | 1 | 0 | — | 1 | 1 | 2 | — | 2 | — | 2 | 1979 | <i>Melanchra persicariae</i> |
| | 1 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 10 | 5 | 0 | 0 | 1 | 1980 | Dot Moth |
| | 25 | 0 | — | 15 | 54 | — | 1 | 352 | 21 | — | 65 | — | 267 | 1979 | <i>Operophtera brumata</i> |
| | 12 | 0 | 6 | 14 | 2 | 285 | 0 | 196 | 2 | 0 | 1 | 0 | 319 | 1980 | Winter Moth |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Light Traps: annual records

| Pest Species | Year | Trelech | Eaton Bray | Rothamsted (Barnfield) | Rothamsted (Allotments) | Rothamsted (Geescroft) | Writtle | Dale Fort | Chigwell Row | Westonbirt | Hurley | Lambourne | Cardiff | Sheppey | Stratfield Mortimer |
|---|------|---------|------------|------------------------|-------------------------|------------------------|---------|-----------|--------------|------------|--------|-----------|---------|---------|---------------------|
| <i>Gortyna micacea</i> Rosy Rustic | 1979 | 17 | — | 4 | 2 | 10 | 2 | — | 1 | 2 | 8 | — | 0 | 12 | 3 |
| | 1980 | 20 | 0 | 21 | 6 | 11 | 3 | 6 | 0 | 1 | 13 | 0 | 1 | 6 | 0 |
| <i>Bupalus piniaria</i> Bordered White | 1979 | 0 | — | 0 | 0 | 0 | 0 | — | 0 | 4 | 0 | — | 0 | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| <i>Panolis flammea</i> Pine Beauty | 1979 | 0 | — | 0 | 0 | 0 | 0 | — | 0 | 0 | 0 | — | 0 | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| <i>Cerapteryx graminis</i> Antler Moth | 1979 | 2 | — | 0 | 1 | 0 | 0 | — | 1 | 0 | 0 | — | 0 | 0 | 0 |
| | 1980 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 2 | 0 |
| <i>Erannis aurantiaria</i> Scarce Umber | 1979 | 0 | — | 0 | 0 | 23 | 0 | — | 1 | 18 | 7 | — | 0 | 0 | 6 |
| | 1980 | 0 | 0 | 0 | 0 | 20 | 4 | 0 | 1 | 5 | 1 | 1 | 0 | 0 | 9 |
| <i>Operophtera fagata</i> Northern Winter Moth | 1979 | 0 | — | 0 | 0 | 3 | 0 | — | 3 | 4 | 10 | — | 0 | 1 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 0 |
| <i>Apamea sordens</i> Rustic Shoulder-knot | 1979 | 0 | — | 2 | 0 | 1 | 1 | — | 0 | 0 | 1 | — | 0 | 0 | 0 |
| | 1980 | 0 | 5 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 0 | 0 |
| <i>Gortyna flavago</i> Frosted Orange | 1979 | 10 | — | 0 | 0 | 1 | 0 | — | 0 | 1 | 1 | — | 0 | 0 | 1 |
| | 1980 | 6 | 2 | 1 | 0 | 0 | 3 | 0 | 0 | 1 | 7 | 0 | 0 | 1 | 1 |
| <i>Mamestra brassicae</i> Cabbage Moth | 1979 | 0 | — | 3 | 3 | 0 | 2 | — | 8 | 1 | 0 | — | 1 | 0 | 2 |
| | 1980 | 0 | 2 | 2 | 0 | 2 | 5 | 0 | 23 | 0 | 0 | 0 | 4 | 4 | 1 |
| <i>Noctua pronuba</i> Large Yellow Underwing | 1979 | 25 | — | 46 | 5 | 217 | 3 | — | 4 | 48 | 8 | — | 14 | 12 | 12 |
| | 1980 | 32 | 2 | 66 | 13 | 244 | 5 | 5 | 17 | 47 | 20 | 5 | 29 | 0 | 28 |
| <i>Diataraxia oleracea</i> Bright-line Brown-eye | 1979 | 0 | — | 24 | 3 | 8 | 14 | — | 4 | 0 | 2 | — | 10 | 20 | 2 |
| | 1980 | 0 | 5 | 25 | 1 | 3 | 11 | 2 | 3 | 0 | 1 | 0 | 10 | 14 | 1 |
| <i>Euxoa nigricans</i> Garden Dart | 1979 | 0 | — | 5 | 0 | 2 | 2 | — | 0 | 0 | 0 | — | 0 | 0 | 1 |
| | 1980 | 0 | 0 | 2 | 1 | 5 | 1 | 6 | 11 | 0 | 0 | 0 | 0 | 0 | 1 |
| <i>Apamea secalis</i> Common Rustic | 1979 | 49 | — | 90 | 7 | 57 | 21 | — | 25 | 39 | 17 | — | 35 | 17 | 11 |
| | 1980 | 12 | 12 | 179 | 23 | 42 | 32 | 13 | 9 | 8 | 10 | 16 | 40 | 13 | 7 |
| <i>Melanchra persicariae</i> Dot Moth | 1979 | 0 | — | 0 | 0 | 3 | 3 | — | 0 | 0 | 1 | — | 0 | 1 | 0 |
| | 1980 | 0 | 4 | 0 | 0 | 1 | 3 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| <i>Operophtera brumata</i> Winter Moth | 1979 | 18 | — | 7 | 0 | 156 | 19 | — | 7 | 29 | 14 | — | 2 | 3 | 162 |
| | 1980 | 17 | 1 | 1 | 0 | 101 | 3 | 0 | 5 | 11 | 0 | 11 | 0 | 0 | 88 |

ROTHAMSTED INSECT SURVEY

2(c)
of moths of economic, or other importance for 1979 and 1980

| | Windlesham | Wisley | Lordsfield | Alice Holt | Haslemere | Winchester | Lydd | Denny Lodge | Starcross | Yarner Wood | Rosewarne | Guernsey | Jersey | Year | Pest Species |
|----|------------|--------|------------|------------|-----------|------------|------|-------------|-----------|-------------|-----------|----------|--------|------|------------------------------|
| | 171 | 289 | 406 | 46 | 219 | 379 | 366 | 368 | 149 | 266 | 114 | 252 | 146 | | |
| 0 | 2 | — | 4 | 3 | 2 | 10 | 0 | 8 | 5 | 4 | 4 | 2 | 1 | 1979 | <i>Gortyna micacea</i> |
| 0 | 2 | 11 | 9 | 2 | 7 | 4 | 0 | 3 | 3 | 4 | 1 | 2 | 2 | 1980 | Rosy Rustic |
| 5 | 2 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 | <i>Bupalus piniaria</i> |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Bordered White |
| 1 | 0 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 | <i>Panolis flammea</i> |
| 4 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 2 | 0 | 1980 | Pine Beauty |
| 0 | 1 | — | 10 | 1 | 0 | 33 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 1979 | <i>Cerapteryx graminis</i> |
| 0 | 0 | 0 | 10 | 0 | 1 | 7 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1980 | Antler Moth |
| 27 | 1 | — | — | 16 | 0 | 0 | 15 | 0 | 63 | 0 | 0 | 0 | 0 | 1979 | <i>Erannis aurantiaria</i> |
| 12 | 1 | 3 | — | 11 | 0 | 0 | 3 | 0 | 102 | 0 | 0 | 0 | 0 | 1980 | Scarce Umber |
| 0 | 1 | — | — | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1979 | <i>Operophtera fagata</i> |
| 0 | 1 | 0 | — | 1 | 1 | 0 | 4 | 0 | 14 | 0 | 0 | 0 | 0 | 1980 | Northern Winter Moth |
| 0 | 4 | — | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 | <i>Apamea sordens</i> |
| 0 | 4 | 5 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Rustic Shoulder-knot |
| 0 | 1 | — | 1 | 0 | 1 | 0 | 1 | 0 | 8 | 0 | 0 | 0 | 1 | 1979 | <i>Gortyna flavago</i> |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 1 | 1980 | Frosted Orange |
| 9 | 4 | — | 0 | 5 | 5 | 0 | 0 | 1 | 0 | 5 | 1 | 11 | 8 | 1979 | <i>Mamestra brassicae</i> |
| 7 | 7 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 8 | 11 | 8 | 8 | 1980 | Cabbage Moth |
| 4 | 1 | — | 10 | 9 | 22 | 3 | 2 | 0 | 29 | 7 | 1 | 0 | 0 | 1979 | <i>Noctua pronuba</i> |
| 15 | 5 | 26 | 21 | 9 | 34 | 2 | 4 | 4 | 74 | 19 | 2 | 3 | 3 | 1980 | Large Yellow Underwing |
| 2 | 1 | — | 1 | 6 | 30 | 4 | 3 | 1 | 1 | 10 | 10 | 9 | 9 | 1979 | <i>Diataraxia oleracea</i> |
| 0 | 0 | 1 | 0 | 0 | 12 | 0 | 1 | 3 | 4 | 4 | 18 | 6 | 6 | 1980 | Bright-line Brown-eye |
| 1 | 0 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 1979 | <i>Euxoa nigricans</i> |
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Garden Dart |
| 6 | 16 | — | 16 | 9 | 55 | 321 | 1 | 9 | 30 | 8 | 3 | 16 | 16 | 1979 | <i>Apamea secalis</i> |
| 6 | 21 | 11 | 1 | 20 | 39 | 24 | 5 | 19 | 13 | 14 | 12 | 1 | 1 | 1980 | Common Rustic |
| 0 | 0 | — | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1979 | <i>Melanchra persicariae</i> |
| 0 | 1 | 1 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1980 | Dot Moth |
| 13 | 9 | — | — | 20 | 4 | 0 | 2 | 6 | 269 | 3 | 1 | 3 | 3 | 1979 | <i>Operophtera brumata</i> |
| 9 | 9 | 15 | — | 23 | 1 | 0 | 19 | 3 | 76 | 2 | 7 | 1 | 1 | 1980 | Winter Moth |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Light Traps: annual records

| Pest Species | Year | Reay | Stronchrubie | Inverpolly | Knockan | Cromarty | Newton, Elgin | Beinn Eighe | Rannoch | Dundee | Rowardennan | East Craigs | Glentress | Culzean Castle | Auchincruive |
|---|------|------|--------------|------------|---------|----------|---------------|-------------|---------|--------|-------------|-------------|-----------|----------------|--------------|
| | | 415 | 418 | 352 | 351 | 398 | 58 | 350 | 29 | 47 | 97 | 261 | 339 | 264 | 293 |
| <i>Abraxas grossulariata</i> Magpie Moth | 1979 | — | — | 13 | — | 0 | — | 80 | 0 | 0 | 0 | 0 | — | 1 | 0 |
| | 1980 | 0 | 34 | 16 | 6 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| <i>Agrotis segetum</i> Turnip Moth | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | — | — | 1 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 1 |
| <i>Erannis defoliaria</i> Mottled Umber | 1979 | — | — | 1 | — | 3 | — | 4 | 24 | 1 | 1984 | 0 | — | 5 | 0 |
| | 1980 | 0 | 0 | 8 | 0 | 11 | 3 | 13 | 26 | 2 | 1453 | 0 | 4 | 3 | 0 |
| <i>Phlogophora meticulosa</i> Angle Shades | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | — | — | 0 | 0 |
| | 1980 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Alsophila aescularia</i> March Moth | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 3 | 66 | 1 | — | 8 | 1 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | — | 0 | 0 | 14 | 0 |
| <i>Hepialus humuli</i> Ghost Swift | 1979 | — | — | 0 | — | 2 | — | 0 | 3 | 0 | 0 | 0 | — | 4 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 0 |
| <i>Hepialus lupulina</i> Common Swift | 1979 | — | — | 7 | — | 0 | — | 0 | 7 | 1 | 0 | 0 | — | 0 | 7 |
| | 1980 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 2 | 1 | 0 | 0 |
| <i>Agrotis ipsilon</i> Dark Sword Grass | 1979 | — | — | 1 | — | 2 | — | 0 | 0 | 0 | 0 | 0 | — | 0 | 0 |
| | 1980 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Euproctis chryssorrhoea</i> Brown-tail | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | 0 | — | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Agrotis exclamationis</i> Heart and Dart | 1979 | — | — | 0 | — | 2 | — | 1 | 0 | 6 | 0 | 15 | — | 54 | 29 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 2 | 0 | 51 | 2 | 16 | 4 |
| <i>Plusia gamma</i> Silver Y | 1979 | — | — | 0 | — | 3 | — | 0 | 6 | 2 | 0 | 0 | — | 4 | 0 |
| | 1980 | 3 | 3 | 8 | 1 | 13 | 1 | 10 | 3 | 13 | 1 | 1 | 5 | 12 | 0 |
| <i>Laphygma exigua</i> Small Mottled Willow | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | 0 | — | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Nycterosea obstipata</i> The Gem | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | 0 | — | 0 | 0 |
| | 1980 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| <i>Nomophila noctuella</i> Rush Veneer Pearl | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | 0 | — | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5 | 2 | 0 | 0 | 9 | 2 |
| <i>Plutella maculipennis</i> Diamond-back Moth | 1979 | — | — | 0 | — | 2 | — | 0 | 0 | 0 | 0 | 0 | — | 0 | 29 |
| | 1980 | 15 | 96 | 0 | 209 | 0 | 7 | 0 | 0 | 2534 | 0 | 11 | 0 | 7 | 647 |
| <i>Udea ferrugalis</i> Rusty Dot Pearl | 1979 | — | — | 0 | — | 0 | — | 0 | 0 | 0 | 0 | 0 | — | 0 | 0 |
| | 1980 | 0 | 1 | 0 | 6 | 17 | 24 | 1 | 0 | 49 | 19 | 0 | 18 | 179 | 13 |

ROTHAMSTED INSECT SURVEY

2(d)
of moths of economic, or other importance for 1979 and 1980

| | Waterside Mains | Kielder | Gatehouse of Fleet | Alston | Windermere | Wykeham | Arnside | Baldersby | Castletown I.O.M. | Acomb | Harrogate | Hayton | Preston | Longridge | Year | Pest Species |
|-----|-----------------|---------|--------------------|--------|------------|---------|---------|-----------|-------------------|-------|-----------|--------|---------|-----------|---------------|--------------------------------|
| | 338 | 296 | 287 | 408 | 323 | 187 | 403 | 315 | 306 | 363 | 410 | 291 | 288 | 124 | | |
| | — | 0 | — | — | — | 0 | 10 | 11 | 13 | 5 | — | — | 4 | 0 | 1979 | <i>Abraxas grossulariata</i> |
| | 0 | 0 | 4 | 0 | 0 | 4 | 10 | 3 | 7 | 9 | 0 | 6 | 1 | 1 | 1980 | Magpie Moth |
| | — | 0 | — | — | — | 0 | 0 | 1 | 0 | — | — | — | 0 | 0 | 1979 | <i>Agrotis segetum</i> |
| | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1980 | Turnip Moth |
| | — | 13 | — | — | — | 53 | 26 | 5 | 16 | 3 | — | — | 15 | 16 | 1979 | <i>Erannis defoliaria</i> |
| 251 | 16 | 95 | 1 | 2 | 21 | 18 | 8 | 2 | 2 | 8 | 5 | 6 | 22 | 1980 | Mottled Umber | |
| | — | 0 | — | — | — | 0 | 5 | 2 | 18 | — | — | — | 2 | 0 | 1979 | <i>Phlogophora meticulosa</i> |
| | 5 | 0 | 4 | 0 | 11 | 1 | 1 | 2 | 12 | 0 | 0 | 1 | 1 | 0 | 1980 | Angle Shades |
| | — | 0 | — | — | — | — | 24 | 20 | 0 | — | — | — | 11 | 7 | 1979 | <i>Alsophila aescularia</i> |
| 19 | 0 | 44 | 1 | 2 | 12 | 28 | 8 | 0 | 0 | 0 | 27 | 11 | 7 | 1980 | March Moth | |
| | — | 0 | — | — | — | 3 | 0 | 0 | 0 | — | — | — | 2 | 0 | 1979 | <i>Hepialus humuli</i> |
| | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1980 | Ghost Swift |
| | — | 0 | — | — | — | 0 | 1 | 9 | 0 | — | — | — | 3 | 0 | 1979 | <i>Hepialus lupulina</i> |
| | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 17 | 0 | 1 | 64 | 25 | 0 | 1 | 1980 | Common Swift |
| | — | 1 | — | — | — | 0 | 0 | 0 | 1 | — | — | — | 0 | 0 | 1979 | <i>Agrotis ipsilon</i> |
| 2 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1980 | Dark Sword Grass |
| | — | 0 | — | — | — | 0 | 0 | 0 | 0 | — | — | — | 0 | 0 | 1979 | <i>Euproctis chryssorrhoea</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Brown-tail |
| | — | 0 | — | — | — | 13 | 9 | 11 | 124 | 15 | — | — | 14 | 11 | 1979 | <i>Agrotis exclamationis</i> |
| 14 | 0 | 1 | 0 | 44 | 10 | 11 | 18 | 63 | 37 | 31 | 23 | 5 | 14 | 14 | 1980 | Heart and Dart |
| | — | 0 | — | — | — | 5 | 19 | 47 | 40 | 86 | — | — | 14 | 1 | 1979 | <i>Plusia gamma</i> |
| 60 | 6 | 15 | 12 | 2 | 7 | 42 | 103 | 56 | 54 | 1 | 47 | 41 | 3 | 1980 | Silver Y | |
| | — | 0 | — | — | — | 0 | 1 | 0 | 0 | — | — | — | 0 | 0 | 1979 | <i>Laphygma exigua</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Small Mottled Willow |
| | — | 0 | — | — | — | 0 | 0 | 0 | 0 | — | — | — | 0 | 0 | 1979 | <i>Nycterosea obstipata</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | The Gem |
| | — | 0 | — | — | — | 0 | 0 | 0 | 0 | — | — | — | 1 | 0 | 1979 | <i>Nomophila noctuella</i> |
| | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | — | 5 | 0 | 1980 | Rush Veneer Pearl |
| | — | 0 | — | — | — | 9 | 0 | 5 | 0 | 15 | — | — | 1 | 0 | 1979 | <i>Plutella maculipennis</i> |
| | 0 | 2 | 9 | 0 | 4 | 196 | 0 | 225 | 0 | 869 | 0 | — | 222 | 4 | 1980 | Diamond-back Moth |
| | — | 0 | — | — | — | 0 | 0 | 0 | 0 | — | — | — | 0 | 0 | 1979 | <i>Udea ferrugalis</i> |
| 116 | 64 | 65 | 0 | 82 | 7 | 5 | 106 | 0 | 13 | 0 | — | — | 117 | 10 | 1980 | Rusty Dot Pearl |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Light Traps: annual records

| Pest Species | Year | Tarleton | Spurn Head | East Didsbury | Bangor | Jodrell Bank | Gleadthorpe | Matlock | Hope | Gibraltar Point | Leek | Empingham | Wells next the Sea | Shardlow | Sutton Bonington |
|---|------|----------|------------|---------------|--------|--------------|-------------|---------|------|-----------------|------|-----------|--------------------|----------|------------------|
| | | 371 | 131 | 269 | 35 | 337 | 257 | 279 | 380 | 223 | 385 | 280 | 274 | 378 | 168 |
| <i>Abraxas grossulariata</i> Magpie Moth | 1979 | 7 | 1 | 0 | 1 | 1 | 2 | 28 | — | 0 | — | 44 | 11 | 6 | 0 |
| | 1980 | 4 | 0 | 1 | 0 | 0 | 0 | 15 | 28 | 0 | 1 | 25 | 1 | 3 | 2 |
| <i>Agrotis segetum</i> Turnip Moth | 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 0 | — | 2 | 0 | 0 | 2 |
| | 1980 | 1 | 1 | 0 | 0 | 0 | 16 | 0 | 1 | 0 | 0 | 4 | 1 | 2 | 2 |
| <i>Erannis defoliaria</i> Mottled Umber | 1979 | 0 | 1 | 1 | 1 | 66 | 0 | 3 | — | 0 | — | 1 | 1 | 5 | 1 |
| | 1980 | 0 | 1 | 0 | 0 | 99 | 0 | 0 | 9 | 0 | 1 | 3 | 0 | 0 | 1 |
| <i>Phlogophora meticulosa</i> Angle Shades | 1979 | 3 | 7 | 0 | 1 | 0 | 1 | 1 | — | 1 | — | 6 | 1 | 0 | 2 |
| | 1980 | 4 | 4 | 0 | 2 | 1 | 0 | 2 | 2 | 1 | 0 | 19 | 1 | 0 | 2 |
| <i>Alsophila aescularia</i> March Moth | 1979 | 1 | 0 | 1 | 0 | 33 | 2 | 3 | — | 0 | — | 5 | 0 | 2 | 5 |
| | 1980 | 2 | 0 | 1 | 0 | 18 | 8 | 3 | 2 | 4 | 3 | 4 | 2 | 6 | 15 |
| <i>Hepialus humuli</i> Ghost Swift | 1979 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | — | 0 | — | 0 | 2 | 0 | 1 |
| | 1980 | 2 | 0 | 1 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| <i>Hepialus lupulina</i> Common Swift | 1979 | 2 | 6 | 4 | 0 | 2 | 10 | 4 | — | 4 | — | 57 | 4 | 3 | 44 |
| | 1980 | 0 | 42 | 4 | 0 | 2 | 46 | 6 | 5 | 7 | 7 | 99 | 15 | 18 | 92 |
| <i>Agrotis ipsilon</i> Dark Sword Grass | 1979 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | — | 0 | — | 0 | 0 | 0 | 0 |
| | 1980 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Euproctis chrysorrhoea</i> Brown-tail | 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 0 | — | 0 | 0 | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Agrotis exclamationis</i> Heart and Dart | 1979 | 8 | 18 | 11 | 5 | 6 | 26 | 8 | — | 18 | — | 33 | 6 | 70 | 61 |
| | 1980 | 18 | 52 | 6 | 19 | 24 | 67 | 12 | 125 | 73 | 73 | 150 | 10 | 212 | 334 |
| <i>Plusia gamma</i> Silver Y | 1979 | 21 | 66 | 0 | 1 | 4 | 2 | 4 | — | 8 | — | 44 | 5 | 4 | 3 |
| | 1980 | 21 | 79 | 0 | 2 | 10 | 10 | 8 | 89 | 63 | 9 | 41 | 5 | 23 | 6 |
| <i>Laphygma exigua</i> Small Mottled Willow | 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 0 | — | 0 | 0 | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Nycterosea obstipata</i> The Gem | 1979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 0 | — | 0 | 0 | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Nomophila noctuella</i> Rush Veneer Pearl | 1979 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | — | 0 | — | 0 | 0 | — | 0 |
| | 1980 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| <i>Plutella maculipennis</i> Diamond-back Moth | 1979 | 0 | 31 | 0 | 1 | 0 | 0 | 6 | — | 0 | — | 3 | 0 | — | 1 |
| | 1980 | 1 | 600 | 0 | 6 | 0 | 236 | 76 | 3 | 0 | 167 | 10 | 0 | 534 | 19 |
| <i>Udea ferrugalis</i> Rusty Dot Pearl | 1979 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | — | 0 | — | 0 | 0 | — | 0 |
| | 1980 | 1 | 0 | 0 | 1 | 0 | 8 | 0 | 71 | 0 | 3 | 0 | 0 | 0 | 0 |

ROTHAMSTED INSECT SURVEY

2(e)
of moths of economic, or other importance for 1979 and 1980

| | Preston Montford | Wolverhampton I | Santon Downham | Aberystwyth | Monks Wood | Monks Wood (Ewingswoode) | Broom's Barn | Tregaron | Waresley | Luddington | Cockayne Hatley | Hereford | Rhandirmwyn | Year | Pest Species |
|-----|------------------|-----------------|----------------|-------------|------------|--------------------------|--------------|----------|----------|------------|-----------------|----------|-------------|-------------------------------|------------------------------|
| | 382 | 267 | 259 | 340 | 94 | 277 | 88 | 331 | 360 | 414 | 336 | 212 | 346 | | |
| 0 | 0 | — | — | 12 | 6 | — | 2 | 17 | 18 | — | 10 | — | 3 | 1979 | <i>Abraxas grossulariata</i> |
| 5 | 0 | 1 | 7 | 12 | 107 | 1 | 18 | 18 | — | 1 | 1 | 4 | 2 | 1980 | Magpie Moth |
| 0 | 0 | — | 0 | 0 | — | 0 | 0 | 2 | — | — | 2 | — | 0 | 1979 | <i>Agrotis segetum</i> |
| 0 | 1 | 0 | 0 | 0 | 4 | 6 | 1 | 5 | 14 | 27 | 0 | 0 | 0 | 1980 | Turnip Moth |
| 40 | 0 | — | 30 | 1 | — | 0 | 657 | 4 | — | 4 | — | 1452 | 1979 | <i>Erannis defoliaria</i> | |
| 26 | 0 | 2 | 13 | 0 | 480 | 0 | 264 | 1 | 0 | 0 | 2 | 1118 | 1980 | Mottled Umber | |
| 3 | 0 | — | 1 | 2 | — | 1 | 5 | 6 | — | 1 | — | 8 | 1979 | <i>Phlogophora meticulosa</i> | |
| 0 | 0 | 3 | 1 | 2 | 8 | 7 | 7 | 4 | 1 | 0 | 1 | 6 | 1980 | Angle Shades | |
| 55 | 0 | — | — | 4 | — | 2 | 41 | 30 | — | 10 | — | 19 | 1979 | <i>Alsophila aescularia</i> | |
| 29 | 0 | 17 | 5 | 7 | 127 | 7 | 99 | 27 | 2 | 4 | 19 | 22 | 1980 | March Moth | |
| 1 | 0 | — | 1 | 1 | — | 0 | 0 | 1 | — | 2 | — | 0 | 1979 | <i>Hepialus humuli</i> | |
| 2 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1980 | Ghost Swift | |
| 0 | 0 | — | 0 | 35 | — | 4 | 1 | 7 | — | 44 | — | 0 | 1979 | <i>Hepialus lupulina</i> | |
| 2 | 0 | 1 | 0 | 74 | 119 | 6 | 0 | 3 | 3 | 5 | 0 | 0 | 1980 | Common Swift | |
| 1 | 0 | — | 0 | 0 | — | 0 | 1 | 0 | — | 0 | — | 0 | 1979 | <i>Agrotis ipsilon</i> | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1980 | Dark Sword Grass | |
| 0 | 0 | — | 0 | 0 | — | 0 | 0 | 0 | — | 0 | — | 0 | 1979 | <i>Euproctis chrysorrhoea</i> | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Brown-tail | |
| 44 | 1 | — | 9 | 24 | — | 9 | 44 | 42 | — | 13 | — | 7 | 1979 | <i>Agrotis exclamationis</i> | |
| 133 | 2 | 23 | 34 | 40 | 13 | 25 | 34 | 120 | 234 | 90 | 79 | 47 | 1980 | Heart and Dart | |
| 8 | 0 | — | 17 | 3 | — | 9 | 7 | 31 | — | 3 | — | 26 | 1979 | <i>Plusia gamma</i> | |
| 9 | 0 | 19 | 14 | 12 | 34 | 11 | 28 | 17 | 4 | 7 | 6 | 76 | 1980 | Silver Y | |
| 0 | 0 | — | 0 | 0 | — | 0 | 0 | 0 | — | 0 | — | 0 | 1979 | <i>Laphygma exigua</i> | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Small Mottled Willow | |
| 0 | 0 | — | 0 | 0 | — | 0 | 0 | 0 | — | 0 | — | 0 | 1979 | <i>Nycterosea obstipata</i> | |
| 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1980 | The Gem | |
| 0 | 0 | — | — | 0 | — | 0 | — | 0 | — | 1 | — | 0 | 1979 | <i>Nomophila noctuella</i> | |
| 4 | 0 | 0 | — | 0 | 0 | 8 | — | 0 | 0 | 0 | 9 | 4 | 1980 | Rush Veneer Pearl | |
| 0 | 0 | — | — | 10 | — | 3 | — | 22 | — | 31 | — | 0 | 1979 | <i>Plutella maculipennis</i> | |
| 51 | 0 | 0 | — | 162 | 2 | 19 | — | 88 | 129 | 415 | 78 | 1 | 1980 | Diamond-back Moth | |
| 0 | 0 | — | — | 0 | — | 1 | — | 0 | — | 1 | — | 2 | 1979 | <i>Udea ferrugalis</i> | |
| 70 | 0 | 1 | — | 3 | 9 | 4 | — | 0 | 11 | 1 | 11 | 42 | 1980 | Rusty Dot Pearl | |

ROTHAMSTED REPORT FOR 1981, PART 2

TABLE
The Rothamsted Insect Survey—Light Traps: annual records

| Pest Species | Year | Trelech | Eaton Bray | Rothamsted (Barnfield) | Rothamsted (Allotments) | Rothamsted (Geescroft) | Writtle | Dale Fort | Chigwell Row | Westonbirt | Hurley | Lambourne | Cardiff | Sheppey | Stratfield Mortimer |
|---|------|---------|------------|------------------------|-------------------------|------------------------|---------|-----------|--------------|------------|--------|-----------|---------|---------|---------------------|
| | | 233 | 412 | 1 | 34 | 22 | 87 | 17 | 305 | 292 | 180 | 328 | 347 | 370 | 16 |
| <i>Abraxas grossulariata</i> Magpie Moth | 1979 | 41 | — | 3 | 1 | 41 | 7 | — | 0 | 7 | 0 | — | 8 | 0 | 23 |
| | 1980 | 20 | 65 | 1 | 1 | 23 | 5 | 36 | 0 | 0 | 0 | 2 | 2 | 2 | 23 |
| <i>Agrotis segetum</i> Turnip Moth | 1979 | 0 | — | 4 | 1 | 8 | 2 | — | 0 | 3 | 1 | — | 0 | 0 | 0 |
| | 1980 | 0 | 2 | 15 | 17 | 11 | 4 | 7 | 0 | 0 | 1 | 0 | 0 | 2 | 1 |
| <i>Erannis defoliaria</i> Mottled Umber | 1979 | 14 | — | 0 | 0 | 43 | 3 | — | 1 | 79 | 5 | — | 0 | 0 | 28 |
| | 1980 | 1 | 0 | 0 | 0 | 36 | 0 | 0 | 2 | 13 | 7 | 4 | 1 | 0 | 33 |
| <i>Phlogophora meticulosa</i> Angle Shades | 1979 | 9 | — | 0 | 0 | 4 | 1 | — | 2 | 10 | 0 | — | 1 | 8 | 0 |
| | 1980 | 8 | 1 | 0 | 1 | 9 | 2 | 5 | 3 | 8 | 0 | 0 | 2 | 1 | 2 |
| <i>Alsophila aescularia</i> March Moth | 1979 | 30 | — | 0 | 0 | 36 | 0 | — | 0 | 8 | 24 | — | 0 | 0 | 17 |
| | 1980 | 8 | 4 | 1 | 3 | 58 | 2 | 5 | 0 | 2 | 31 | 1 | 0 | 0 | 9 |
| <i>Hepialus humuli</i> Ghost Swift | 1979 | 0 | — | 0 | 1 | 3 | 0 | — | 2 | 2 | 0 | — | 0 | 0 | 1 |
| | 1980 | 0 | 1 | 1 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 |
| <i>Hepialus lupulina</i> Common Swift | 1979 | 0 | — | 12 | 1 | 10 | 3 | — | 19 | 13 | 28 | — | 27 | 13 | 8 |
| | 1980 | 0 | 77 | 22 | 11 | 16 | 0 | 1 | 18 | 5 | 8 | 15 | 28 | 5 | 9 |
| <i>Agrotis ipsilon</i> Dark Sword Grass | 1979 | 4 | — | 0 | 0 | 0 | 0 | — | 0 | 1 | 0 | — | 0 | 0 | 0 |
| | 1980 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Euproctis chryorrhoea</i> Brown-tail | 1979 | 0 | — | 0 | 0 | 0 | 2 | — | 3 | 0 | 0 | — | 0 | 19 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| <i>Agrotis exclamationis</i> Heart and Dart | 1979 | 43 | — | 41 | 2 | 20 | 45 | — | 5 | 2 | 13 | — | 7 | 51 | 11 |
| | 1980 | 37 | 95 | 108 | 29 | 42 | 64 | 10 | 34 | 29 | 37 | 66 | 27 | 56 | 26 |
| <i>Plusia gamma</i> Silver Y | 1979 | 5 | — | 0 | 5 | 11 | 29 | — | 25 | 16 | 0 | — | 25 | 10 | 12 |
| | 1980 | 22 | 7 | 8 | 3 | 10 | 11 | 19 | 20 | 22 | 5 | 6 | 24 | 21 | 9 |
| <i>Laphygma exigua</i> Small Mottled Willow | 1979 | 0 | — | 0 | 0 | 0 | 0 | — | 0 | 0 | 0 | — | 0 | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Nycterosea obstipata</i> The Gem | 1979 | 0 | — | 0 | 0 | 0 | 0 | — | 0 | 0 | 0 | — | 0 | 0 | 0 |
| | 1980 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Nomophila noctuella</i> Rush Veneer Pearl | 1979 | 0 | — | 0 | 0 | 0 | — | — | 0 | 0 | 0 | — | 0 | 0 | 0 |
| | 1980 | 0 | — | 4 | 2 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| <i>Plutella maculipennis</i> Diamond-back Moth | 1979 | 0 | — | 49 | 35 | 0 | — | — | 7 | 0 | 0 | — | 3 | 29 | 0 |
| | 1980 | 0 | — | 580 | 471 | 5 | 271 | 82 | 36 | 0 | 0 | 0 | 55 | 202 | 0 |
| <i>Udea ferrugalis</i> Rusty Dot Pearl | 1979 | 0 | — | 0 | 0 | 0 | — | — | 0 | 0 | 0 | — | 0 | 0 | 0 |
| | 1980 | 3 | — | 11 | 2 | 8 | 1 | 419 | 0 | 3 | 5 | 0 | 0 | 0 | 0 |

ROTHAMSTED INSECT SURVEY

2(f)

of moths of economic, or other importance for 1979 and 1980

| | Windlesham | Wisley | Lordsfield | Alice Holt | Haslemere | Winchester | Lydd | Denny Lodge | Starcross | Yarner Wood | Rosewarne | Guernsey | Jersey | Year | Pest Species |
|--|------------|--------|------------|------------|-----------|------------|------|-------------|-----------|-------------|-----------|----------|--------|------|-------------------------------|
| | 171 | 289 | 406 | 46 | 219 | 379 | 366 | 368 | 149 | 266 | 114 | 252 | 146 | | |
| | 0 | 0 | — | 0 | 0 | 15 | 6 | 0 | 7 | 3 | 4 | 9 | 8 | 1979 | <i>Abraxas grossulariata</i> |
| | 0 | 0 | 21 | 0 | 0 | 14 | 6 | 1 | 7 | 3 | 4 | 19 | 2 | 1980 | Magpie Moth |
| | 0 | 2 | — | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 16 | 11 | 4 | 1979 | <i>Agrotis segetum</i> |
| | 3 | 0 | 1 | 8 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1980 | Turnip Moth |
| | 33 | 9 | — | — | 7 | 1 | 0 | 36 | 1 | 122 | 1 | 1 | 1 | 1979 | <i>Erannis defoliaria</i> |
| | 15 | 15 | 2 | — | 7 | 1 | 0 | 26 | 3 | 61 | 0 | 0 | 1 | 1980 | Mottled Umber |
| | 0 | 0 | — | 3 | 0 | 6 | 0 | 0 | 2 | 10 | 1 | 2 | 1 | 1979 | <i>Phlogophora meticulosa</i> |
| | 0 | 2 | 1 | 0 | 1 | 0 | 3 | 0 | 1 | 14 | 2 | 0 | 3 | 1980 | Angle Shades |
| | 5 | 7 | — | 23 | 5 | 4 | 0 | 3 | 1 | 39 | 1 | 0 | 5 | 1979 | <i>Alsophila aescularia</i> |
| | 4 | 6 | 21 | — | 6 | 6 | 1 | 2 | 4 | 33 | 3 | 0 | 6 | 1980 | March Moth |
| | 1 | 1 | — | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1979 | <i>Hepialus humuli</i> |
| | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Ghost Swift |
| | 8 | 0 | — | 5 | 1 | 14 | 64 | 6 | 3 | 0 | 1 | 2 | 0 | 1979 | <i>Hepialus lupulina</i> |
| | 23 | 1 | 14 | 7 | 0 | 0 | 21 | 3 | 0 | 0 | 2 | 2 | 0 | 1980 | Common Swift |
| | 0 | 0 | — | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 2 | 2 | 0 | 1979 | <i>Agrotis ipsilon</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 3 | 0 | 1 | 1980 | Dark Sword Grass |
| | 0 | 0 | — | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 2 | 0 | 1979 | <i>Euproctis chrysorrhoea</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 0 | 5 | 1 | 1980 | Brown-tail |
| | 16 | 23 | — | 26 | 12 | 49 | 41 | 11 | 13 | 12 | 77 | 9 | 34 | 1979 | <i>Agrotis exclamationis</i> |
| | 54 | 88 | 59 | 68 | 49 | 35 | 52 | 24 | 32 | 36 | 40 | 23 | 36 | 1980 | Heart and Dart |
| | 17 | 15 | — | 11 | 19 | 10 | 0 | 4 | 1 | 41 | 22 | 13 | 12 | 1979 | <i>Plusia gamma</i> |
| | 35 | 12 | 5 | 3 | 10 | 18 | 4 | 2 | 12 | 62 | 28 | 2 | 16 | 1980 | Silver Y |
| | 0 | 0 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1979 | <i>Laphygma exigua</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1980 | Small Mottled Willow |
| | 0 | 0 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1979 | <i>Nycterosea obstipata</i> |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 1980 | The Gem |
| | 0 | 0 | — | 3 | 1 | 0 | 0 | — | 1 | 0 | 12 | 0 | 13 | 1979 | <i>Nomophila noctuella</i> |
| | 0 | 1 | 4 | 3 | 2 | 0 | 0 | — | 2 | — | 75 | 11 | 12 | 1980 | Rush Veneer Pearl |
| | 1 | 25 | — | 3 | 1 | 0 | 50 | — | 6 | 0 | — | 27 | 12 | 1979 | <i>Plutella maculipennis</i> |
| | 12 | 206 | 50 | 19 | 16 | 0 | 0 | — | 99 | — | 2010 | 203 | 54 | 1980 | Diamond-back Moth |
| | 0 | 0 | — | 0 | 1 | 0 | 0 | — | 1 | 0 | 0 | 0 | 2 | 1979 | <i>Udea ferrugalis</i> |
| | 0 | 0 | 35 | 9 | 1 | 0 | 0 | — | 52 | — | 434 | 49 | 56 | 1980 | Rusty Dot Pearl |

CONVERSION FACTORS

Factors for the Conversion of Imperial to Metric Units

| | |
|--------------------------------------|--|
| 1 inch (in.) | = 2.540 centimetres (cm) |
| 1 foot (ft) (=12 in.) | = 30.48 cm |
| 1 yard (yd) (=3 ft) | = 0.9144 metre (m) |
| 1 square yard (yd ²) | = 0.8361 m ² |
| 1 acre (ac) (=4840 yd ²) | = 0.4047 hectare (ha) |
| 1 ounce (oz) | = 28.35 grams (g) |
| 1 pound (lb) | = 0.4536 kilogram (kg) |
| 1 hundredweight (cwt) (=112 lb) | = 50.80 kg |
| 1 ton (=2240 lb) | = 1016 kg = 1.016 metric tons (tonnes) (t) |
| 1 pint | = 0.5682 litre (l) |
| 1 gallon (gal) (=8 pints) | = 4.546 litres |
| 1 fluid ounce = 1/20 pint | = 0.02841 litre = 28.41 ml |
| 1 cubic foot | = 28.32 litres |

To convert

Multiply by

| | |
|---|--------|
| oz ac ⁻¹ to g ha ⁻¹ | 70.06 |
| lb ac ⁻¹ to kg ha ⁻¹ | 1.121 |
| cwt ac ⁻¹ to kg ha ⁻¹ | 125.5 |
| cwt ac ⁻¹ to t ha ⁻¹ | 0.1255 |
| ton ac ⁻¹ to kg ha ⁻¹ | 2511 |
| ton ac ⁻¹ to t ha ⁻¹ | 2.511 |
| gal ac ⁻¹ to l ha ⁻¹ | 11.233 |

The following factors are accurate to about 2 parts in 100:

| |
|---|
| 1 lb ac ⁻¹ = 1.1 kg ha ⁻¹ |
| 1 gal ac ⁻¹ = 11 litres ha ⁻¹ |
| 1 ton ac ⁻¹ = 2.5 t ha ⁻¹ |

In general reading of the text there will be no great inaccuracy in regarding:

| |
|---|
| 1 lb = 0.5 kg |
| 1 lb ac ⁻¹ = 1 kg ha ⁻¹ |

Temperatures

To convert °F into °C subtract 32 and multiply by $\frac{5}{9}$ (0.556)

To convert °C into °F multiply by $\frac{9}{5}$ (1.8) and add 32

ROTHAMSTED REPORT FOR 1981, PART 2

Factors for the Conversion of Metric to Imperial Units

| | |
|----------------------------------|--|
| 1 centimetre (cm) | = 0.3937 inch (in.) = 0.03281 ft |
| 1 metre (m) | = 1.094 yards (yd) |
| 1 square metre (m ²) | = 1.196 square yards (yd ²) |
| 1 hectare (ha) | = 2.471 acres (ac) |
| 1 gram (g) | = 0.03527 ounce (oz) |
| 1 kilogram (kg) | = 2.205 pounds (lb) |
| 1 kg | = 0.01968 hundredweight (cwt) = 0.0009842 ton |
| 1 metric ton (tonne) (t) | = 0.9842 ton |
| 1 litre | = 1.760 pints = 0.2200 gallon (gal) |
| 1 litre = 1000 millilitres (ml) | = 35.20 fluid ounces = 0.03531 cubic foot (ft ³) |

| <i>To convert</i> | <i>Multiply by</i> |
|--|--------------------|
| g ha ⁻¹ to oz ac ⁻¹ | 0.01427 |
| kg ha ⁻¹ to lb ac ⁻¹ | 0.8921 |
| kg ha ⁻¹ to cwt ac ⁻¹ | 0.007966 |
| t ha ⁻¹ to cwt ac ⁻¹ | 7.966 |
| kg ha ⁻¹ to tons ac ⁻¹ | 0.0003983 |
| t ha ⁻¹ to tons ac ⁻¹ | 0.3983 |
| l ha ⁻¹ to gal ac ⁻¹ | 0.08902 |

Plant nutrients

Plant nutrients are best stated in terms of amounts of the elements (P, K, Na, Ca, Mg, S); the old 'oxide' terminology (P₂O₅, K₂O, Na₂O, CaO, MgO, SO₃) is still used in work involving fertilisers and liming since Regulations require statements of P₂O₅, K₂O, etc.

For quick conversions

(accurate to within 2%) the following factors may be used:

| | |
|----------------------------------|---------------------------------|
| $2\frac{1}{3} \times P = P_2O_5$ | $\frac{3}{7} \times P_2O_5 = P$ |
| $1\frac{1}{3} \times K = K_2O$ | $\frac{5}{8} \times K_2O = K$ |
| $1\frac{2}{3} \times Ca = CaO$ | $\frac{7}{10} \times CaO = Ca$ |
| $1\frac{2}{3} \times Mg = MgO$ | $\frac{3}{5} \times MgO = Mg$ |

For accurate conversions:

| <i>To convert</i> | <i>Multiply by</i> | <i>To convert</i> | <i>Multiply by</i> |
|------------------------------------|--------------------|------------------------------------|--------------------|
| P ₂ O ₅ to P | 0.4364 | P to P ₂ O ₅ | 2.2915 |
| K ₂ O to K | 0.8301 | K to K ₂ O | 1.2047 |
| CaO to Ca | 0.7146 | Ca to CaO | 1.3994 |
| MgO to Mg | 0.6031 | Mg to MgO | 1.6581 |

WOBURN EXPERIMENTAL FARM, HUSBORNE CRAWLEY, BEDFORD

Area: 76 ha (188 acres)
 Elevation: 79–110 m (260–360 ft)
 Annual Rainfall: 630 mm (25 in)

