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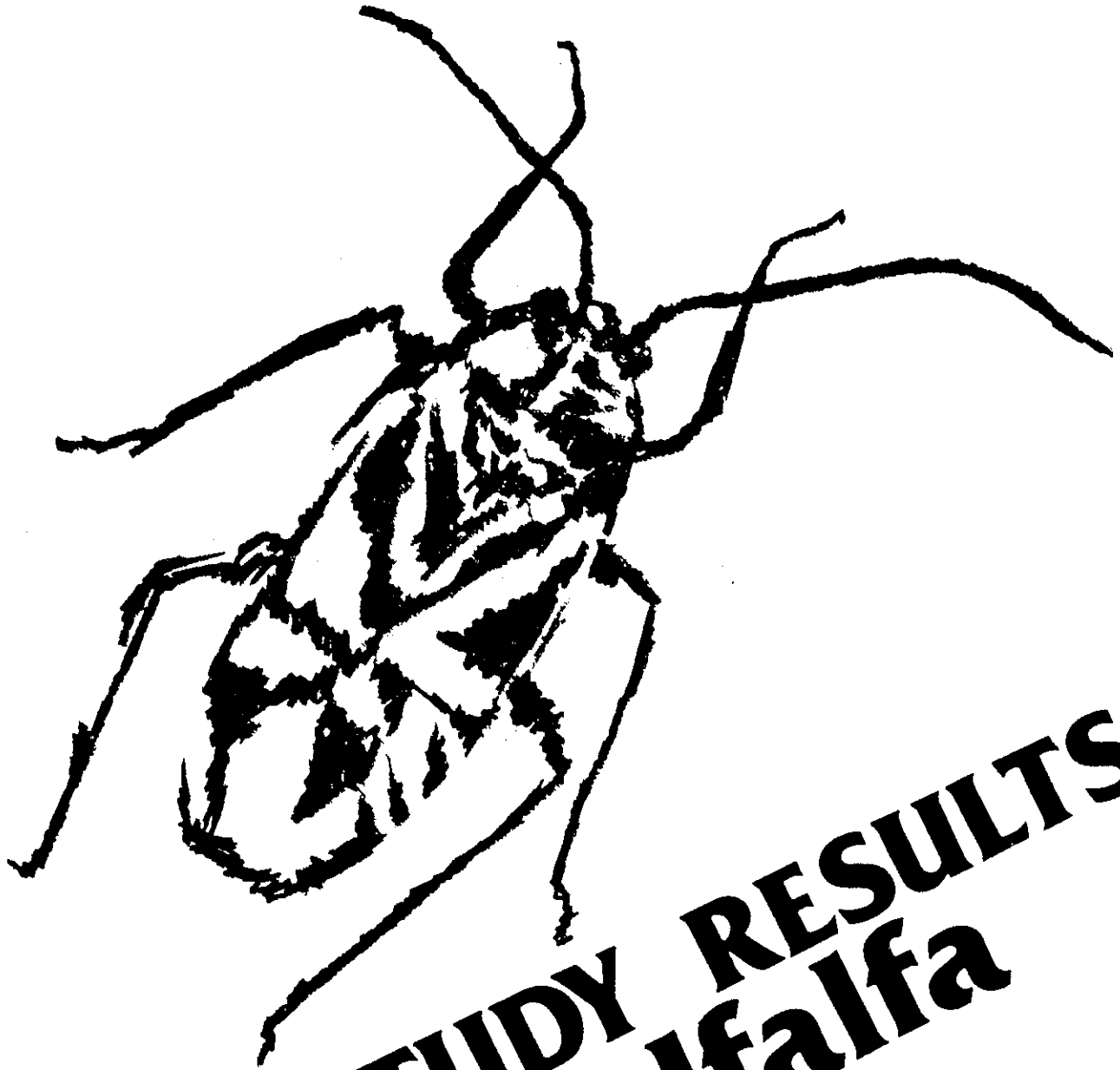

# INSECT STUDY RESULTS in seed alfalfa 1979

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# Research on Insects Affecting Seed Alfalfa 1979

O. G. Bacon[1], W. R. Sheesley[2], R. H. James[3] and G. W. Forister[3]

## Introduction

In general, insect problems in seed alfalfa during the 1979 season were light to moderate, an exception was the spotted alfalfa aphid which occurred in very large numbers on certain varieties that were reported to be resistant to SAA attack. Populations of the blue alfalfa aphid and pea aphid were low but it was observed that the blue alfalfa aphid persisted in seed fields longer into the season (Mid-May) than in previous years. Lygus bug populations were low. The western yellow striped armyworm and the beet armyworm were not prevalent in seed fields on the west side of the San Joaquin Valley. Populations of the consperse stink bug were very low and spider mite populations were generally low, although high populations were induced in experimental plots where certain insecticides were applied.

Populations of adult males of the Omnivorous leafroller were monitored with traps baited with a female sex attractant from March thru August in 5 alfalfa seed fields near Firebaugh, in 3 fields near San Joaquin and in 3 fields near Five Points. Populations of OLR were lower than in 1978 and no larvae were found infesting alfalfa plants in these fields.

During 1979 three separate experiments were conducted in which 11 insecticides, 5 acaricides and 15 insecticide-acaricide combinations were evaluated for control of lygus bugs, the spotted alfalfa aphid, the pea aphid and spider mites. Stink bug populations were assessed in 11 alfalfa seed fields in the Firebaugh, Five Points and San Joaquin areas and seed samples were hand stripped from 18 alfalfa seed fields on the west side of Fresno County for analysis of damage by the alfalfa seed chalcid.

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As in past years, although data were obtained on several insect species in each of the experiments and surveys, the results are categorized and reported according to species rather than by individual experiments.

Lygus bugs

The results of the lygus bug studies are presented in Tables 1 through 6. The following insecticides and combinations were evaluated for control of lygus bugs; Carzol, Lorsban, Orthene, Monitor, Pydrin, Ambush, Vydate, Amaze, Carzol + Lorsban, Ambush + Comite, Pydrin + Plictran, Pydrin + Comite, Monitor + Lorsban, Monitor + Systox, Lorsban + Plictran, Lorsban + Comite, Orthene + Lorsban + Comite, Vydate + Lorsban + Comite, Comite + Carzol + Lorsban, Vendex + Vydate + Lorsban, UC55248 + Vydate + Lorsban, Plictran + Vydate + Lorsban. Plictran, Comite, Vendex and UC55248 are acaricides and were included in the combinations to control spider mites. The materials were all applied as foliar sprays by aircraft in early morning prior to 5:00 AM.

In the initial lygus bug control experiment the first applications (6/6), with the exception of a Monitor-Systox combination, were single insecticides. The alfalfa variety chosen for the lygus bug control experiments (CW-2) was expected to be resistant to the Spotted Alfalfa Aphid. It soon became evident that this variety was susceptible to infestation by the aphid. It thus became necessary in subsequent applications throughout the season to include the aphicide Lorsban to prevent severe aphid damage. The data presented in the tables thus represent, in essence, several season long programs with several materials to control lygus bugs, spider mites and aphids in seed alfalfa susceptible to the spotted alfalfa aphid. The following briefly summarizes the results obtained with each of the materials in controlling lygus bugs.

Carzol at 0.75 lb AI/acre was used as a standard for comparison of other materials. In this experiment Carzol alone or in combination with Lorsban 0.5 lb AI/acre controlled lygus bug populations for 2 to 3 weeks.

Monitor was also used as a standard and was evaluated at dosages of 0.5 and 0.75 lb AI/acre. Monitor was also evaluated at 0.5 lb AI/acre in combination with Systox 0.5 lb AI/acre and with Lorsban 0.5 lb AI/acre. Initial applications of Monitor were highly effective, con-

trolling lygus bugs for periods of up to 35 days after application. There was no difference in control between the dosages of 0.5 and 0.75 lb AI/acre. Later applications of Monitor at 0.5 lb AI/acre in combination with Systox or Lorsban controlled lygus bugs for approximately 14 days.

Orthene was evaluated at dosages of 0.5 and 1.0 lb AI/acre. Initial applications of the material alone resulted in control of lygus bugs for 27 days with the 1.0 lb rate appearing slightly more effective than the 0.5 lb rate. Applications later in the season (7/27) in combination with Lor=ban 0.5 lb AI/acre and Comite 1.69 lb AI/acre resulted in lygus bug control for approximately 14 days. The Orthene plots, however, became infested with extremely heavy populations of the SAA. As will be discussed later, there seemed to be no question that Orthene stimulated these extremely heavy population increases.

Vydate was evaluated at 0.5 lb AI/acre. The initial application (6/6) gave control of lygus bugs for 35 days. A second application (7/11) in combination with Lorsban 0.5 lb AI/acre and Plictran 0.75 lb AI/acre controlled lygus bugs for 28 days. Vydate, in another experiment, at 0.5 lb AI/acre in combination with various acaricides and Lorsban, applied on 7/27, controlled lygus bugs for approximately 12 days. The application of Vydate resulted in extremely heavy spider mite populations.

Pydrin and Ambush, two synthetic pyrethroid compounds, were each applied at the rate of 0.2 lb AI/acre. Initial applications of these materials (6/6) resulted in control of lygus bugs for 27 days after application. There did not appear to be any significant difference between the two materials with respect to lygus bug control. Subsequent applications (7/27) of Pydrin or Ambush in combination with Comite 1.69 lb AI/acre resulted in lygus bug control for about 12 days. These materials applied in another experiment for aphid control resulted in control of lygus bugs for 14 days.

Amaze, applied at the rate of 1.0 lb AI/acre resulted in lygus bug control for approximately 27 days. In a subsequent experiment Amaze resulted in excellent control of lygus bugs 8 days after application but the plot required treatment to control a heavy infestation of SAA.

Lorsban, applied at 0.5 lb AI/acre to control aphids also affected

lygus bugs, reducing populations for approximately 14 days after application.

Aphids

Data on control of aphids, Tables 7, 8, 9 were obtained for all materials evaluated for lygus bug control and for spider mite control. In addition, an experiment was conducted to evaluate specific aphicides. The variety of alfalfa used in all studies was CW-2 which was understood to be resistant to the spotted alfalfa aphid but was subsequently shown to be highly susceptible. Of the insecticides evaluated in 1979 the only materials that effectively reduced aphid populations were Lorsban 0.5 lb AI/acre, Pydrin 0.2 lb AI/acre, Ambush 0.2 lb AI/acre and a combination of Phosdrin 0.25 lb AI/acre + Thiodan 1.0 lb AI/acre. Lorsban in these experiments was generally effective in controlling the spotted alfalfa aphid. In all instances where it was applied alone or in combination with other insecticides SAA populations were reduced, but some applications were more effective than others. Also, population reductions of SAA were frequently of short duration, 7 to 14 days.

Pydrin and Ambush were both effective in controlling the spotted alfalfa aphid and the pea aphid. Populations were not eliminated but were effectively reduced for periods of 14 to 21 days.

Amaze did not control either the spotted alfalfa aphid or the pea aphid.

The combination of Phosdrin 0.25 lb AI/acre plus Thiodan 1.0 lb AI/acre was not evaluated beyond 12 days after application. During that period excellent control was obtained, although populations of SAA had increased significantly by the end of 12 days.

During the period March 14 through May 22 populations of the blue alfalfa aphid, the pea aphid and the spotted alfalfa aphid were monitored weekly in 3 alfalfa seed fields in each of three localities, Firebaugh, Five Points and San Joaquin. The varieties at Firebaugh were Williamsburg, De Kalb 131, and Luna, at Five Points FM-129, WL310 and CUF101 and at San Joaquin De Kalb 123, Weevilcheck, and CUF101. None of these fields were treated with insecticides during the study period.

The populations were sampled with a D-Vac suction maching taking 25 D-Vac samples in each field on each sampling date. The results of these studies are shown in Tables 10 through 18. Blue alfalfa aphid

and pea aphid populations were low in the three areas sampled. The blue alfalfa aphid populations were the lowest since studies were begun in 1975. In contrast to previous years where the blue alfalfa aphid greatly exceeded the pea aphid in early season samples, populations of the two species were more nearly equal (Fig. 1). The heaviest populations of the blue alfalfa aphid and the pea aphid, although very low from an economic standpoint, occurred in the San Joaquin area on the De Kalb 123 variety. The blue alfalfa aphid population reached a peak in this field of 2656 aphids per 25 D-Vac samples on April 3. The pea aphid population in this field peaked on March 20 with 1188 aphids per 25 D-Vac samples. In the Firebaugh area the blue alfalfa aphid reached peak numbers in 2 of the three fields on March 20 with populations of 220 and 112 aphids per 25 D-Vac samples respectively.

The two fields of CUF101 at San Joaquin and Five Points had low populations of blue alfalfa aphid reaching peaks of 55 and 97 aphids per 25 D-Vac samples respectively on April 3. Populations of the blue alfalfa aphid declined after the peaks but populations, although very low, persisted in most of the fields through May 22 when the survey was terminated.

Spider Mites

The effects of insecticide applications on spider mite populations were evaluated in all experiments. In experiments conducted for lygus bug control, Table 19, it appeared that early applications of Carzol, 0.75 lb AI/acre, (6/6) resulted in control of mites for approximately 21 days. Later applications of Carzol (7/23-7/27) at the same rate showed little initial reduction in mite populations with significant increases in mites and eggs occurring 12 days after application. Comite at 1.69 lb AI/acre in most instances resulted in good mite control although the effects on the mite populations were not immediate, requiring 12 to 14 days for maximum reduction of mites and eggs. Several of the materials in the lygus bug control experiment resulted in increased spider mite and/or egg populations. These materials were, Orthene, Pydrin, Ambush and Vydate. Amaze, Monitor and Lorsban did not control mites but populations did not appear to increase as significantly as with the above mentioned materials. Plictran 0.75 lb AI/acre combined with Lorsban or Vydate in these experiments did not control spider mite infestations.

Spider mite populations were evaluated in plots treated for aphid control. The results are shown in Table 20. The aphicides used were Amaze, Lorsban, Pydrin, Ambush, Systox and a Carzol-Lorsban combination. None of these treatments effectively controlled mites.

One experiment was conducted to evaluate specific acaricides. Because of heavy lygus bug and spotted alfalfa aphid populations in the field it was necessary to apply the acaricides in combination with other materials to control the lygus bugs and aphids. Since Vydate and Lorsban had shown little effect in controlling spider mites these materials were used in the trials. The acaricides tested in combination with the insecticides were Comite 1.69 lb AI/acre, Vendex 1.00 lb AI/acre, UC55248 0.5 and 0.25 lb AI/acre, Plictran 0.75 lb AI/acre, and Carzol 0.75 lb AI/acre (applied on 7/27). The results are shown in Table 21. None of the materials proved highly effective in controlling spider mites. Evalutions made 5 days after application showed that mite populations had been reduced slightly in all treatments except Carzol. At the second evaluation, 12 days after application, mite and egg populations exceeded pretreatment levels in all treatments except Comite. The entire experimental area was treated on 8/10 with a combination of Comite 1.69 lb AI/acre + Carzol 0.75 lb AI/acre + Lorsban 0.50 lb AI/ acre. Evaluations made 5 days after this treatment revealed significant decreases in the spider mite and egg populations.

Effects of insecticides on beneficial insect species

Data were obtained in all experiments on the effects of the various insecticides and acaricides on the following group of predatory and parasitic organisms, Orius (minute pirate bugs), Geocoris, (big-eyed bugs), Nabis (damsel bugs), lacewings, syrphid flies, coccinellid beetles (lady beetles), collops beetles, parasitic wasps and spiders.

Populations of most predatory species were low in the fields selected for study and they were generally further reduced by the insecticide treatments. Of the predatory insect species, the minute pirate bug, Orius was the most abundant. Populations of this insect, although reduced by the treatments, appeared to be least affected by Pydrin, Ambush and Vydate. Parasitic wasps appeared to survive the initial applications of Carzol, Orthene, Pydrin, Ambush, Monitor, Vydate and Amaze but succeeding applications of these and other materials virtually eliminated them. Spider populations, although not large,

were highest in plots treated with Orthene, Monitor, Vydate and Amaze. The other predatory species were virtually eliminated by all the insecticides used in 1979 trials. The results of these analyses are shown in Tables 22 through 24.

The Alfalfa Seed Chalcid

A survey was conducted in the Firebaugh, Five Points and San Joaquin areas to evaluate alfalfa seed chalcid infestations. Samples of seed pods were hand stripped, before commercial harvest from 18 fields, 8 in the Firebaugh area, and 5 each from the Five Points and San Joaquin areas. Four one-quart samples of seed pods were taken from each field. The seeds were hand threshed and lightly cleaned with a Clipper seed cleaner. An average of approximately 1,500 seeds were examined from each field for seed chalcid damage. In addition, the seeds were examined for lygus bug and stink bug injury and for water damaged, green and shriveled seeds. The results are shown in Table 25. The quality of the seed was high and seed chalcid injury was very low. The percentages of chalcid damaged seeds in individual fields ranged from 0 to 1.3 and averaged 0.2. Seeds showing lygus bug injury ranged from 2.5 to 13.4 and averaged 4.6 for the 18 fields. The percentages of seeds showing damage attributed to stink bug feeding ranged from 0 to 0.2 and averaged 0.1

Stink Bug

Stink bug populations were measured on July 27 in 6 alfalfa seed fields near Firebaugh, in 3 fields near San Joaquin and in 2 fields in the Five Points area. Thus a total of 11 fields were surveyed in 1979. The stink bug populations were sampled using the "beating pan" technique whereby 25 feet of row were examined in each field on each sampling date. The results are shown in Table 26. The populations were extremely low. A total of only 18 consperse stink bugs were found, and of the 18, 16 were nymphs. They were found in 3 fields with totals of 2, 9 and 7 per 25 feet of row. The Say stink bug was present in 6 fields. A total of 146 of this species was found in the survey of which 131 were nymphs. Populations in the infestd fields numbered 1, 11, 91, 8, 5 and 30 per 25 feet of row.

Seed samples were hand stripped from each of the fields included in the stink bug survey. The percentages of good seeds in these fields ranged from 83.8 to 96.5. The percentages of seeds with damage attributed to stink bug ranged from 0 to 0.2 and averaged 0.1, Table 27.

## The Omnivorous Leafroller

Populations of the omnivorous leafroller were monitored in 11 commercial alfalfa seed fields by trapping adult male moths in traps baited with a female sex attractant or pheromne. A water pan trap was used in one field while a commercial sticky trap (Pherocon®1C) was used in the remaining 10 fields. The traps were hung so that they were at the tops of the alfalfa plants. One trap was placed on the edge of each of the fields. Trapping was done in 5 fields near Firebaugh, in 3 fields near San Joaquin and in 3 fields near Five Points. The traps were examined weekly from March 20 through August 28. Trapping in 2 of the Firebaugh fields and one field at Five Points was terminated on June 26. The results are shown in Table 28. The graphs, Fig. 2, depict population trends of the omnivorous leafroller in selected fields that were typical of each area. Male moths were taken in traps in all of the study fields throughout the trapping period. However, although plants in each field were examined throughout the summer, no omnivorous leafroller larvae were found nor was any evidence of leafrolling or tip webbing observed. The populations in 1979 were much lower than in 1978. The maximum number of moths per trap per night ranged from 3 to 42 in 1979, whereas in 1978 in the same areas, Firebaugh, San Joaquin, Five Points, the maximum number of moths per trap per night ranged from 63 to 126. An examination of seed samples, hand stripped from these fields revealed only 3 seeds with damage that might be attributed to feeding by omnivorous leafroller larvae. From the results obtained in 1979 it would appear unlikely that this insect would have a serious impact on alfalfa seed production.

## Summary and Conclusions

Insect populations were generally low in alfalfa seed fields in 1979. An exception was the spotted alfalfa aphid. Heavy infestations of this insect occurred on certain varieties that were supposedly resistant to the aphid. Control of the spotted alfalfa aphid was

Weekly surveys from March 14 through May 22 in untreated alfalfa seed fields showed the blue alfalfa aphid present in all fields but in very low numbers. In contrast to previous years where the blue alfalfa aphid populations exceeded those of the pea aphid in early season samples, the populations of the two species were nearly equal in 1979. In the Firebaugh area populations of the blue alfalfa aphid peaked on March 20 and at San Joaquin and Five Points on April 3. The heaviest populations of the blue alfalfa aphid occurred in the San Joaquin area but populations in all areas sampled were far below those of previous years and were of no economic significance. Populations declined after the peaks but the blue alfalfa persisted in the fields in small numbers through May 22 when the survey was terminated.

Of the specific acaricides tested in 1979 none proved highly effective in controlling spider mites. Comite, presently registered for mite control on seed alfalfa, resulted in the best spider mite control. Plant growth was extremely dense in the experimental field and the poor results with many of the acaricides may have been due to poor penetration and lack of contact with the mites. Vendex, UC55248 and Plictran should probably receive further study.

A survey was conducted in 18 alfalfa seed fields in the Firebaugh, San Joaquin and Five Points areas to evaluate damage caused by the alfalfa seed chalcid. In addition, data were obtained on percentages of seeds showing feeding injury attributed to lygus bugs and stink bugs. The percent of chalcid damaged seed in individual fields ranged from 0 to 1.3 and averaged 0.2. Seeds showing lygus bug injury ranged from 2.5 to 13.4 and averaged 4.6 for the 18 fields. The percentages of seeds showing damage attributed to stink bug feeding ranged from 0 to 0.2 and averaged 0.1

Stink bug populations were measured in 11 alfalfa seed fields in the Firebaugh, San Joaquin and Five Points areas on July 27. Populations were low, A total of 18 consperse stink bugs and 146 Say stink bugs were collected in samples from all 11 fields.

Seasonal population trends of the omnivorous leafroller were monitored by capturing male moths in sex attractant traps in 11 alfalfa seed fields on the west side of Fresno County. The trapping period extended from March 20 through August 28. The omnivorous leafroller was present in all fields where traps were operated but populations

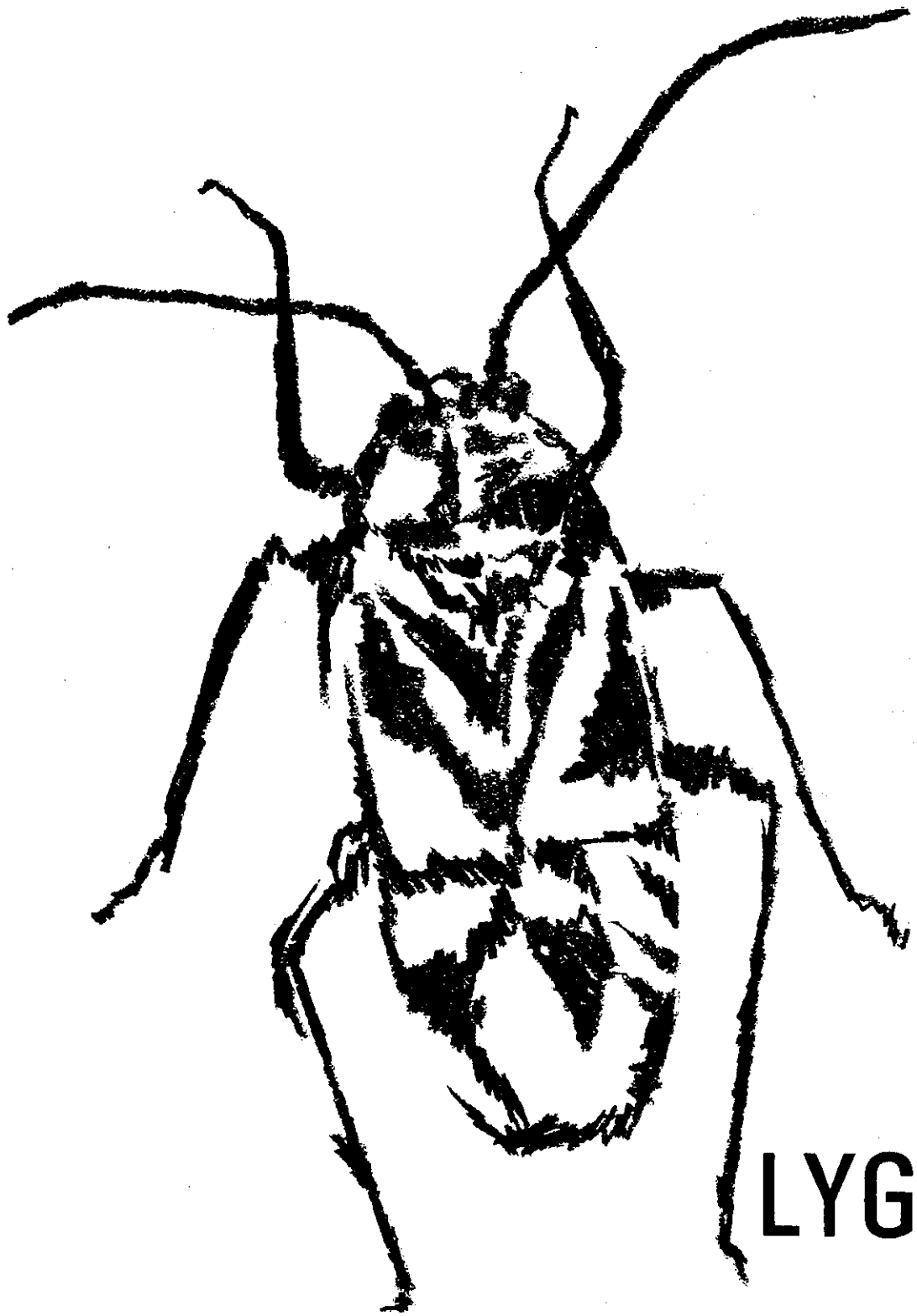
reported to be difficult to achieve in some of these fields with the widely used aphicide Lorsban. Heavy spotted alfalfa populations in the field used for experimental purposes in 1979 complicated the insecticide trials and made it very difficult to evaluate materials applied for lygus bug control and for spider mite control. It was necessary to combine Lorsban with most of the other insecticides and acaricides to prevent severe damage by the spotted alfalfa aphid.

Of the 11 insecticides evaluated for control of insects affecting seed alfalfa those that controlled lygus bugs were Carzol, Monitor, Orthene, Pydrin, Ambush, Vydate and Amaze. Carzol, Monitor and Vydate are presently registered for lygus bug control on seed alfalfa in California but all must be used with caution. Vydate is known to induce severe spider mite infestations and this was clearly demonstrated in the 1979 trials. None of the three registered compounds control the spotted alfalfa aphid and populations of this insect are increased as a result of Carzol and Monitor applications. Orthene also induced severe SAA populations that were extremely difficult to control with currently used aphicides. Pydrin and Ambush resulted in good control of lygus bugs and aphids but induced spider mite populations. Control of lygus bugs in mid season with these pyrethroids lasted for only approximately 14 days. Amaze resulted in good control of lygus bugs but did not control the spotted alfalfa aphid.

The problem of controlling the spotted alfalfa aphid is especially critical. As stated previously some of the proprietary alfalfa varieties thought to be resistant to this aphid were severely infested and damaged in 1979. The problem was especially critical because applications of Lorsban did not provide consistent control of spotted alfalfa aphid in these fields.

Of the insecticides evaluated for control of the spotted alfalfa aphid in 1979 trials those most effective were Lorsban, Pydrin, Ambush and a combination of Phosdrin and Thiodan. Pydrin and Ambush are not commercially available for use in seed alfalfa and the performance of Lorsban was erratic. The Phosdrin-Thiodan combination, although initially effective, was not evaluated beyond 12 days after application, so the long term effects of this combination are not known. There are some concerns with respect to hazards of the combination to honey bees.

were much lower than in 1978. Peak numbers of moths per trap per night in 1979 ranged from 3 to 42, while in the same areas in 1978 the maximum number of moths per trap per night ranged from 63 to 126. Although plants were examined in each field throughout the trapping period no omnivorous leafroller larvae were found nor was leafrolling or tip webbing observed. There was little evidence from the results obtained in 1979, that the omnivorous leafroller will likely become a serious pest in alfalfa seed production.



LYGUS

Table 1 - Lygus bug populations in seed alfalfa plots treated by aircraft for lygus bug control. Firebaugh, California, 1979.

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number of lygus bugs per sweep[3] Adults | Nymphs | | | | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|
| | | | | Small | Medium | Large | Total | |
| | | Pre | 0.3 | 0.1 | 0.7 | 0.2 | 1.0 | 1.3 |
| | | Pre | 0.4 | 0.7 | 2.2 | 1.6 | 4.5 | 4.9 |
| Carzol (6/6) | 0.75 | | | | | | | |
| | | 7 | 0.1 | 0.2 | 0.1 | 0.3 | 0.6 | 0.7 |
| | | 14 | 0.5 | 0.1 | 0.1 | 0.1 | 0.3 | 0.8 |
| | | 21 | 0.4 | 0.2 | 0.3 | 0.1 | 0.6 | 1.0 |
| Lorsban (6/27) | 0.50 | | | | | | | |
| | | 7 | 0.3 | 0.2 | 0.0 | 0.1 | 0.3 | 0.6 |
| | | 14 | 0.5 | 0.2 | 0.8 | 0.1 | 1.1 | 1.6 |
| | | 21 | 0.8 | 0.2 | 0.6 | 0.5 | 1.3 | 2.1 |
| Lorsban (7/18) | 0.50 | | | | | | | |
| | | 7 | 2.3 | 1.2 | 2.0 | 0.6 | 3.8 | 6.1 |
| Carzol + (7/27) Lorsban | 0.75 + 0.50 | | | | | | | |
| | | 5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 |
| | | 12 | 1.5 | 2.0 | 1.6 | 0.3 | 3.9 | 5.4 |
| Carzol + Lorsban (8/10) + Comite | 0.75 + 0.50 + 1.69 | | | | | | | |
| | | 5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 |
| | | 12 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 |
| | | 19 | 0.2 | 0.2 | 1.2 | 0.0 | 1.4 | 1.6 |
| | | Pre | 0.2 | 0.1 | 1.4 | 0.5 | 2.0 | 2.2 |
| | | Pre | 0.2 | 0.2 | 1.7 | 2.3 | 4.2 | 4.4 |
| Amaze (6/6) | 1.00 | | | | | | | |
| | | 7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| | | 14 | 0.7 | 0.4 | 0.2 | 0.1 | 0.7 | 1.4 |
| | | 21 | 0.3 | 0.5 | 0.7 | 0.3 | 1.5 | 1.8 |
| | | 27 | 1.0 | 1.4 | 2.6 | 0.8 | 4.8 | 5.8 |
| Monitor (7/3) | 0.50 | | | | | | | |
| | | 8 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 |
| | | 15 | 0.1 | 0.2 | 0.1 | 0.0 | 0.3 | 0.4 |
| | | 22 | 0.1 | 0.3 | 0.2 | 0.3 | 0.8 | 0.9 |
| Lorsban + (7/27) Comite | 0.50 + 1.69 | | | | | | | |
| | | 5 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 | 0.3 |
| | | 12 | 0.5 | 0.4 | 0.2 | 0.1 | 0.7 | 1.2 |

Table 1 - (continued)

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number of lygus bugs per sweep[3] Adults | Nymphs Small | Nymphs Medium | Nymphs Large | Nymphs Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|
| | | Pre | 0.2 | 0.0 | 1.6 | 0.3 | 1.9 | 2.1 |
| | | Pre | 0.7 | 0.3 | 2.0 | 2.4 | 4.7 | 5.4 |
| Orthene (6/6) | 0.50 | | | | | | | |
| | | 7 | 0.0 | 0.2 | 0.0 | 0.0 | 0.3 | 0.3 |
| | | 14 | 0.2 | 0.4 | 0.7 | 0.0 | 1.1 | 1.3 |
| | | 21 | 0.3 | 0.4 | 1.4 | 0.3 | 2.1 | 2.4 |
| | | 27 | 0.8 | 1.1 | 1.9 | 0.8 | 3.8 | 4.6 |
| Lorsban (7/3) | 0.50 | | | | | | | |
| | | 8 | 0.9 | 0.0 | 0.1 | 0.1 | 0.2 | 1.1 |
| Plictran (7/11) | 0.75 | | | | | | | |
| | | 7 | 0.6 | 0.9 | 1.6 | 0.1 | 2.6 | 3.2 |
| | | 14 | 0.9 | 2.0 | 4.1 | 1.8 | 7.9 | 8.8 |
| Orthene | 0.50 | | | | | | | |
| + | + | | | | | | | |
| Lorsban (7/27) | 0.50 | | | | | | | |
| + | + | | | | | | | |
| Comite | 1.69 | | | | | | | |
| | | 5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | 12 | 0.3 | 1.6 | 3.5 | 0.9 | 6.0 | 6.3 |
| | | Pre | 0.2 | 0.0 | 1.2 | 0.2 | 1.4 | 1.6 |
| | | Pre | 0.5 | 0.3 | 2.2 | 1.6 | 4.1 | 4.6 |
| Orthene (6/6) | 1.00 | | | | | | | |
| | | 7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | 14 | 0.1 | 0.4 | 0.3 | 0.0 | 0.7 | 0.8 |
| | | 21 | 0.2 | 0.1 | 0.5 | 0.0 | 0.6 | 0.8 |
| | | 27 | 0.6 | 0.5 | 0.6 | 0.4 | 1.5 | 2.1 |
| Lorsban (7/3) | 0.50 | | | | | | | |
| | | 8 | 0.6 | 0.0 | 0.0 | 0.1 | 0.1 | 0.7 |
| Comite (7/11) | 1.69 | | | | | | | |
| | | 7 | 0.3 | 0.2 | 1.7 | 0.1 | 2.0 | 2.3 |
| | | 14 | 1.0 | 2.1 | 4.4 | 1.7 | 8.2 | 9.2 |
| Orthene | 1.00 | | | | | | | |
| + | + | | | | | | | |
| Lorsban (7/27) | 0.50 | | | | | | | |
| + | + | | | | | | | |
| Comite | 1.69 | | | | | | | |
| | | 5 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 |
| | | 12 | 0.5 | 1.2 | 3.5 | 1.2 | 5.9 | 6.4 |

Table 1 - (continued)

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number of lygus bugs per sweep[3] Adults | Nymphs | | | | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|
| | | | | Small | Medium | Large | Total | |
| | | Pre | 0.3 | 0.0 | 1.0 | 0.2 | 1.2 | 1.5 |
| | | Pre | 0.6 | 0.3 | 1.9 | 1.8 | 4.0 | 4.6 |
| Pydrin (6/6) | 0.20 | | | | | | | |
| | | 7 | 0.1 | 0.0 | 0.2 | 0.6 | 0.8 | 0.9 |
| | | 14 | 0.7 | 0.3 | 0.8 | 0.3 | 1.4 | 2.1 |
| | | 21 | 0.3 | 0.1 | 0.5 | 0.1 | 0.7 | 1.0 |
| | | 27 | 0.8 | 0.4 | 0.5 | 0.3 | 1.2 | 2.0 |
| | | 35 | 1.0 | 0.6 | 2.2 | 0.0 | 2.8 | 3.8 |
| Pydrin + (7/11) Plictran | 0.20 + 0.75 | | | | | | | |
| | | 7 | 0.6 | 1.0 | 1.0 | 0.4 | 2.4 | 3.0 |
| | | 14 | 2.0 | 3.4 | 6.1 | 4.0 | 13.5 | 15.5 |
| Pydrin + (7/27) Comite | 0.20 + 1.69 | | | | | | | |
| | | 5 | 0.2 | 0.0 | 0.2 | 1.8 | 2.0 | 2.2 |
| | | 12 | 2.1 | 3.1 | 5.2 | 2.1 | 10.4 | 12.5 |
| Pydrin + (8/8) Comite | 0.20 + 1.69 | | | | | | | |
| | | 7 | 0.0 | 0.0 | 0.2 | 0.1 | 0.3 | 0.3 |
| | | 14 | 0.4 | 0.1 | 0.6 | 0.3 | 1.0 | 1.4 |
| | | 21 | 0.3 | 0.0 | 7.1 | 2.4 | 9.5 | 9.8 |
| | | Pre | 0.3 | 0.0 | 1.0 | 0.1 | 1.1 | 1.4 |
| | | Pre | 0.7 | 0.5 | 2.0 | 2.8 | 5.3 | 6.0 |
| Ambush (6/6) | 0.20 | | | | | | | |
| | | 7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| | | 14 | 0.1 | 0.1 | 0.3 | 0.0 | 0.4 | 0.5 |
| | | 21 | 0.6 | 0.2 | 0.3 | 0.2 | 0.7 | 1.3 |
| | | 27 | 0.6 | 0.6 | 0.3 | 0.6 | 1.5 | 2.1 |
| Lorsban (7/3) | 0.50 | | | | | | | |
| | | 8 | 0.5 | 0.2 | 0.0 | 0.1 | 0.3 | 0.8 |
| | | 14 | 0.6 | 0.2 | 2.3 | 0.2 | 2.7 | 3.3 |
| | | 21 | 1.7 | 2.4 | 5.7 | 4.9 | 13.0 | 14.7 |
| Ambush + (7/27) Comite | 0.20 + 1.69 | | | | | | | |
| | | 5 | 0.0 | 0.1 | 0.1 | 0.1 | 0.3 | 0.3 |
| | | 12 | 0.9 | 2.7 | 5.0 | 2.8 | 10.5 | 11.4 |

Table 1 - (continued)

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number of lygus bugs per sweep[3] Adults | Nymphs Small | Nymphs Medium | Nymphs Large | Nymphs Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|
| | | Pre | 0.1 | 0.1 | 1.0 | 0.3 | 1.4 | 1.5 |
| | | Pre | 0.5 | 0.6 | 1.2 | 1.7 | 3.5 | 4.0 |
| Vydate (6/6) | 0.50 | | | | | | | |
| | | 7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| | | 14 | 0.4 | 0.1 | 0.4 | 0.1 | 0.6 | 1.0 |
| | | 21 | 0.2 | 0.0 | 0.2 | 0.1 | 0.3 | 0.5 |
| | | 27 | 0.4 | 0.1 | 0.4 | 0.2 | 0.7 | 1.1 |
| | | 35 | 0.6 | 0.2 | 2.3 | 0.5 | 3.0 | 3.6 |
| Vydate | 0.50 | | | | | | | |
| + | + | | | | | | | |
| Lorsban (7/11) | 0.50 | | | | | | | |
| + | + | | | | | | | |
| Plictran | 0.75 | | | | | | | |
| | | 7 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.2 |
| | | 14 | 0.1 | 0.4 | 1.1 | 0.0 | 1.5 | 1.6 |
| | | 21 | 0.3 | 0.1 | 0.1 | 1.4 | 1.6 | 1.9 |
| | | 28 | 0.3 | 0.9 | 1.3 | 0.1 | 2.3 | 2.6 |
| | | Pre | 0.2 | 0.1 | 1.0 | 0.3 | 1.4 | 1.6 |
| | | Pre | 0.4 | 0.2 | 2.5 | 1.3 | 4.0 | 4.4 |
| Monitor | 0.50 | | | | | | | |
| + (6/6) | + | | | | | | | |
| Systox | 0.50 | | | | | | | |
| | | 7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| | | 14 | 0.2 | 0.5 | 0.0 | 0.1 | 0.6 | 0.8 |
| | | 21 | 0.2 | 0.1 | 0.9 | 0.2 | 1.2 | 1.4 |
| | | 27 | 0.6 | 0.4 | 0.7 | 0.4 | 1.5 | 2.1 |
| | | 35 | 0.5 | 0.2 | 0.8 | 0.1 | 1.1 | 1.6 |
| Monitor | 0.50 | | | | | | | |
| + (7/11) | + | | | | | | | |
| Systox | 0.50 | | | | | | | |
| | | 7 | 0.1 | 0.2 | 0.0 | 0.0 | 0.2 | 0.3 |
| | | 14 | 0.0 | 1.0 | 1.4 | 0.0 | 2.4 | 2.4 |
| Lorsban | 0.50 | | | | | | | |
| + (7/27) | + | | | | | | | |
| Plictran | 0.75 | | | | | | | |
| | | 5 | 0.4 | 0.0 | 0.1 | 1.0 | 1.1 | 1.4 |
| | | 12 | 0.3 | 0.3 | 0.8 | 0.0 | 1.1 | 1.4 |

Table 1 - (continued)

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number of lygus bugs per sweep[3] Adults | Nymphs | | | | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|
| | | | | Small | Medium | Large | Total | |
| | | Pre | 0.2 | 0.1 | 1.5 | 0.1 | 1.7 | 1.9 |
| | | Pre | 0.4 | 0.3 | 2.7 | 1.4 | 4.4 | 4.8 |
| Monitor (6/6) | 0.50 | | | | | | | |
| | | 7 | 0.2 | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 |
| | | 14 | 0.2 | 0.2 | 0.3 | 0.0 | 0.5 | 0.7 |
| | | 21 | 0.1 | 0.4 | 1.0 | 0.3 | 1.7 | 1.8 |
| | | 27 | 1.0 | 0.3 | 0.5 | 0.2 | 1.0 | 2.0 |
| | | 35 | 0.8 | 0.4 | 1.8 | 0.4 | 2.6 | 3.4 |
| Monitor + (7/11) Lorsban | 0.50 + 0.50 | | | | | | | |
| | | 7 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 | 0.2 |
| | | 14 | 0.1 | 1.0 | 2.1 | 0.0 | 3.1 | 3.2 |
| Lorsban + (7/27) Plictran | 0.50 + 0.75 | | | | | | | |
| | | 5 | 0.3 | 0.0 | 0.1 | 1.2 | 1.3 | 1.6 |
| | | 12 | 0.4 | 1.3 | 1.3 | 0.0 | 2.6 | 3.0 |
| | | Pre | 0.3 | 0.1 | 1.4 | 0.1 | 1.6 | 1.9 |
| | | Pre | 0.6 | 0.3 | 2.6 | 1.4 | 4.3 | 4.9 |
| Monitor (6/6) | 0.75 | | | | | | | |
| | | 6 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.2 |
| | | 13 | 0.1 | 0.8 | 0.1 | 0.0 | 0.9 | 1.0 |
| | | 20 | 0.1 | 0.1 | 0.6 | 0.4 | 1.1 | 1.2 |
| | | 26 | 1.7 | 0.3 | 0.4 | 0.4 | 1.1 | 1.8 |
| Carzol + (7/9) Lorsban | 0.75 + 0.50 | | | | | | | |
| | | 1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 |
| | | 7 | 0.2 | 0.3 | 0.1 | 0.0 | 0.4 | 0.6 |
| Carzol + (7/23) Lorsban | 0.75 + 0.50 | | | | | | | |
| | | 1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| | | 8 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 |
| | | 15 | 0.3 | 0.8 | 0.3 | 0.0 | 1.1 | 1.4 |

1 Plot size: Each treatment 5 acres (165'x1320'). Orthene and Plictran were wettable powders 75% and 50% respectively. Carzol was a 92% soluble powder while the others were emulsifiable concentrates. Sprays were applied at 10 GPA. Plots were treated from 1:00 AM to 5:00 AM.

2 Pretreatment counts were made on May 29 and June 5.

3 Average of 20 sweeps (10-2 sweep samples) per treatment on each sampling date.

Table 2 - Lygus bug populations in seed alfalfa plots treated by aircraft for lygus bug control. Firebaugh, California. 1979.

| Treatment[1] Insecticides | Dates | AI/Acre lb. | Days after treatment[2] | Number per 50 D-Vac Sample[3] Adults ♂ | Adults ♀ | Adults Total | Nymphal Instars 1 | 2 | 3 | 4 | 5 | Nymphal Instars Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Pre | 2 | 0 | 2 | 7 | 4 | 3 | 5 | 1 | 20 | 22 |
| | | | Pre | 3 | 2 | 5 | 4 | 2 | 4 | 2 | 3 | 15 | 20 |
| Carzol | (6/6) | 0.75 | | | | | | | | | | | |
| | | | 7 | 6 | 5 | 11 | 3 | 0 | 0 | 1 | 0 | 4 | 15 |
| | | | 14 | 9 | 4 | 13 | 1 | 1 | 1 | 1 | 0 | 4 | 17 |
| | | | 21 | 2 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 1 | 4 |
| Lorsban | (6/27) | 0.50 | | | | | | | | | | | |
| | | | 7 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 2 | 5 |
| | | | 14 | 0 | 1 | 1 | 0 | 1 | 3 | 2 | 1 | 7 | 8 |
| | | | 21 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Lorsban | (7/18) | 0.50 | | | | | | | | | | | |
| | | | 7 | 3 | 5 | 8 | 3 | 2 | 1 | 3 | 1 | 10 | 18 |
| Carzol + Lorsban | (7/27) | 0.75 + 0.50 | | | | | | | | | | | |
| | | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 12 | 1 | 1 | 2 | 15 | 6 | 2 | 0 | 0 | 23 | 25 |
| Carzol + Lorsban + Comite | (8/10) | 0.75 + 0.50 + 1.69 | | | | | | | | | | | |
| | | | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 2 | 3 |
| | | | 12 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | | 19 | 5 | 3 | 8 | 18 | 7 | 3 | 0 | 0 | 28 | 36 |
| | | | Pre | 2 | 0 | 2 | 1 | 2 | 0 | 1 | 0 | 4 | 6 |
| | | | Pre | 2 | 1 | 3 | 5 | 4 | 2 | 5 | 3 | 19 | 22 |
| Amaze | (6/6) | 1.00 | | | | | | | | | | | |
| | | | 7 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| | | | 14 | 3 | 4 | 7 | 0 | 1 | 4 | 0 | 0 | 5 | 12 |
| | | | 21 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 3 |
| | | | 27 | 3 | 3 | 6 | 0 | 5 | 1 | 1 | 4 | 11 | 17 |
| Monitor | (7/3) | 0.50 | | | | | | | | | | | |
| | | | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 22 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 5 | 5 |
| Lorsban + Comite | (7/27) | 0.50 + 1.69 | | | | | | | | | | | |
| | | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 12 | 1 | 3 | 4 | 1 | 3 | 1 | 1 | 0 | 6 | 10 |

Table 2 - (continued)

| Treatment[1] Insecticides | Dates | AI/Acre lb. | Days after treatment[2] | Number per 50 D-Vac Sample[3] Adults ♂ | Adults ♀ | Adults Total | Nymphal Instars 1 | 2 | 3 | 4 | 5 | Nymphal Instars Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Pre | 1 | 0 | 1 | 1 | 3 | 3 | 4 | 0 | 11 | 12 |
| | | | Pre | 3 | 1 | 4 | 2 | 9 | 6 | 6 | 6 | 29 | 33 |
| Orthene | (6/6) | 0.50 | | | | | | | | | | | |
| | | | 7 | 3 | 2 | 5 | 1 | 1 | 1 | 1 | 1 | 5 | 10 |
| | | | 14 | 2 | 11 | 13 | 0 | 0 | 1 | 1 | 0 | 2 | 15 |
| | | | 21 | 3 | 0 | 3 | 1 | 2 | 1 | 3 | 1 | 8 | 11 |
| | | | 27 | 5 | 3 | 8 | 1 | 4 | 4 | 1 | 2 | 12 | 20 |
| Lorsban | (7/3) | 0.50 | | | | | | | | | | | |
| | | | 8 | 1 | 2 | 3 | 0 | 1 | 1 | 0 | 0 | 2 | 5 |
| Plictran | (7/11) | 0.75 | | | | | | | | | | | |
| | | | 7 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| | | | 14 | 1 | 2 | 3 | 54 | 10 | 9 | 5 | 5 | 83 | 86 |
| Orthene | | 0.50 | | | | | | | | | | | |
| + | | + | | | | | | | | | | | |
| Lorsban | (7/27) | 0.50 | | | | | | | | | | | |
| + | | + | | | | | | | | | | | |
| Comite | | 1.69 | | | | | | | | | | | |
| | | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 12 | 0 | 0 | 0 | 2 | 4 | 4 | 0 | 0 | 10 | 10 |
| | | | Pre | 1 | 0 | 1 | 0 | 3 | 3 | 1 | 0 | 7 | 8 |
| | | | Pre | 3 | 1 | 4 | 0 | 5 | 6 | 4 | 4 | 19 | 23 |
| Orthene | (6/6) | 1.00 | | | | | | | | | | | |
| | | | 7 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | | | 14 | 2 | 2 | 4 | 0 | 5 | 9 | 1 | 0 | 15 | 19 |
| | | | 21 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 2 |
| | | | 27 | 2 | 1 | 3 | 2 | 2 | 3 | 1 | 3 | 11 | 14 |
| Lorsban | (7/3) | 0.50 | | | | | | | | | | | |
| | | | 8 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 3 |
| Comite | (7/11) | 1.69 | | | | | | | | | | | |
| | | | 7 | 0 | 0 | 0 | 1 | 5 | 3 | 0 | 0 | 9 | 9 |
| | | | 14 | 1 | 3 | 4 | 32 | 5 | 4 | 6 | 2 | 49 | 53 |
| Orthene | | 1.00 | | | | | | | | | | | |
| + | | + | | | | | | | | | | | |
| Lorsban | (7/27) | 8.50 | | | | | | | | | | | |
| + | | + | | | | | | | | | | | |
| Comite | | 1.69 | | | | | | | | | | | |
| | | | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | | 12 | 0 | 0 | 0 | 1 | 14 | 7 | 2 | 0 | 24 | 24 |

Table 2 - (continued)

| Treatment[1] Insecticides | Dates | AI/Acre lb. | Days after treatment[2] | Number per 50 D-Vac Sample[3] Adults ♂ | Adults ♀ | Adults Total | Nymphal Instars 1 | 2 | 3 | 4 | 5 | Nymphal Instars Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Pre | 1 | 1 | 2 | 3 | 4 | 7 | 2 | 1 | 17 | 19 |
| | | | Pre | 2 | 6 | 8 | 1 | 6 | 12 | 10 | 11 | 49 | 57 |
| Pydrin | (6/6) | 0.20 | | | | | | | | | | | |
| | | | 7 | 2 | 2 | 4 | 1 | 1 | 1 | 1 | 6 | 10 | 14 |
| | | | 14 | 1 | 1 | 2 | 2 | 1 | 4 | 0 | 2 | 9 | 11 |
| | | | 21 | 6 | 1 | 7 | 1 | 2 | 0 | 3 | 1 | 7 | 14 |
| | | | 27 | 4 | 2 | 6 | 0 | 2 | 2 | 0 | 0 | 4 | 10 |
| | | | 35 | 1 | 7 | 8 | 1 | 3 | 8 | 10 | 4 | 26 | 34 |
| Pydrin + Plictran | (7/11) | 0.20 + 0.75 | | | | | | | | | | | |
| | | | 7 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 3 | 4 |
| | | | 14 | 3 | 4 | 7 | 25 | 7 | 5 | 5 | 4 | 46 | 53 |
| Pydrin + Comite | (7/27) | 0.20 + 1.69 | | | | | | | | | | | |
| | | | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 2 |
| | | | 12 | 11 | 10 | 21 | 28 | 29 | 28 | 4 | 1 | 90 | 111 |
| Pydrin + Comite | (8/8) | 0.20 + 1.69 | | | | | | | | | | | |
| | | | 7 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 4 | 5 |
| | | | 14 | 2 | 1 | 3 | 4 | 4 | 0 | 0 | 0 | 8 | 11 |
| | | | 21 | 2 | 2 | 4 | 8 | 9 | 12 | 11 | 5 | 45 | 49 |
| | | | Pre | 0 | 0 | 0 | 5 | 4 | 1 | 1 | 0 | 11 | 11 |
| | | | Pre | 2 | 3 | 5 | 2 | 5 | 6 | 6 | 4 | 23 | 28 |
| Ambush | (6/6) | 0.20 | | | | | | | | | | | |
| | | | 7 | 1 | 3 | 4 | 1 | 0 | 0 | 2 | 1 | 4 | 8 |
| | | | 14 | 4 | 7 | 11 | 0 | 2 | 1 | 0 | 1 | 4 | 15 |
| | | | 21 | 2 | 4 | 6 | 0 | 0 | 1 | 0 | 0 | 1 | 7 |
| | | | 27 | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 1 | 11 | 14 |
| Lorsban | (7/3) | 0.50 | | | | | | | | | | | |
| | | | 8 | 2 | 4 | 6 | 0 | 0 | 0 | 0 | 1 | 1 | 7 |
| | | | 14 | 2 | 1 | 3 | 0 | 0 | 1 | 2 | 0 | 3 | 6 |
| | | | 21 | 4 | 9 | 13 | 19 | 17 | 11 | 13 | 8 | 68 | 81 |
| Ambush + Comite | (7/27) | 0.20 + 1.69 | | | | | | | | | | | |
| | | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 12 | 2 | 3 | 5 | 29 | 5 | 4 | 0 | 0 | 38 | 43 |

Table 2 - (continued)

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number per 50 D-Vac Sample[3] Adults ♂ | Adults ♀ | Adults Total | Nymphal Instars 1 | 2 | 3 | 4 | 5 | Nymphal Instars Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pre | 1 | 2 | 3 | 1 | 0 | 3 | 3 | 1 | 8 | 11 |
| | | Pre | 1 | 1 | 2 | 0 | 6 | 6 | 3 | 4 | 19 | 21 |
| Vydate (6/6) | 0.50 | | | | | | | | | | | |
| | | 7 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 2 | 3 |
| | | 14 | 2 | 5 | 7 | 6 | 2 | 0 | 0 | 0 | 8 | 15 |
| | | 21 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 3 | 5 |
| | | 27 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | | 35 | 0 | 1 | 1 | 0 | 3 | 2 | 5 | 7 | 17 | 18 |
| Vydate + Lorsban (7/11) + Plictran | 0.50 + 0.50 + 0.75 | | | | | | | | | | | |
| | | 7 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 14 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 3 | 4 |
| | | 21 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| | | 28 | 6 | 1 | 7 | 12 | 16 | 14 | 10 | 1 | 53 | 60 |
| | | Pre | 1 | 3 | 4 | 0 | 2 | 3 | 3 | 2 | 10 | 14 |
| | | Pre | 4 | 4 | 8 | 3 | 5 | 9 | 9 | 16 | 42 | 50 |
| Monitor + (6/6) Systox | 0.50 + 0.50 | | | | | | | | | | | |
| | | 7 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 3 |
| | | 14 | 2 | 2 | 4 | 2 | 0 | 0 | 2 | 0 | 4 | 8 |
| | | 21 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 2 |
| | | 27 | 0 | 2 | 2 | 2 | 6 | 2 | 2 | 4 | 16 | 18 |
| | | 35 | 3 | 3 | 6 | 3 | 7 | 4 | 3 | 0 | 17 | 23 |
| Monitor + (7/11) Systox | 0.50 + 0.50 | | | | | | | | | | | |
| | | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 14 | 0 | 1 | 1 | 2 | 5 | 5 | 4 | 0 | 16 | 17 |
| Lorsban + (7/27) Plictran | 0.50 + 0.75 | | | | | | | | | | | |
| | | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| | | 12 | 9 | 3 | 12 | 5 | 9 | 4 | 1 | 0 | 19 | 31 |

Table 2 - (continued)

| Treatment[1] Insecticides | Dates | AI/Acre lb. | Days after treatment[2] | Number per 50 D-Vac Sample[3] Adults ♂ | Adults ♀ | Adults Total | Nymphal Instars 1 | 2 | 3 | 4 | 5 | Nymphal Instars Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Pre | 2 | 1 | 3 | 0 | 2 | 5 | 3 | 4 | 14 | 17 |
| | | | Pre | 2 | 5 | 7 | 9 | 6 | 23 | 9 | 5 | 52 | 59 |
| Monitor | (6/6) | 0.50 | | | | | | | | | | | |
| | | | 7 | 0 | 1 | 1 | 5 | 0 | 1 | 0 | 0 | 6 | 7 |
| | | | 14 | 0 | 2 | 2 | 3 | 1 | 0 | 1 | 0 | 5 | 7 |
| | | | 21 | 1 | 0 | 1 | 3 | 1 | 4 | 5 | 2 | 15 | 16 |
| | | | 27 | 4 | 0 | 4 | 2 | 11 | 14 | 2 | 7 | 35 | 39 |
| | | | 35 | 0 | 3 | 3 | 1 | 2 | 3 | 4 | 4 | 14 | 17 |
| Monitor + Lorsban | (7/11) | 0.50 + 0.50 | | | | | | | | | | | |
| | | | 7 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | | 14 | 0 | 0 | 0 | 10 | 11 | 4 | 3 | 0 | 28 | 28 |
| Lorsban + Plictran | (7/27) | 0.50 + 0.75 | | | | | | | | | | | |
| | | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 12 | 9 | 4 | 13 | 39 | 14 | 5 | 1 | 0 | 59 | 72 |
| | | | Pre | 0 | 3 | 3 | 1 | 2 | 1 | 1 | 0 | 5 | 8 |
| | | | Pre | 1 | 1 | 2 | 2 | 3 | 1 | 4 | 3 | 13 | 15 |
| Monitor | (6/6) | 0.75 | | | | | | | | | | | |
| | | | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | | 13 | 1 | 1 | 2 | 0 | 4 | 3 | 0 | 0 | 7 | 9 |
| | | | 20 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 2 | 8 | 8 |
| | | | 26 | 3 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 2 | 5 |
| Carzol + Lorsban | (7/9) | 0.75 + 0.50 | | | | | | | | | | | |
| | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Carzol + Lorsban | (7/23) | 0.75 + 0.50 | | | | | | | | | | | |
| | | | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| | | | 8 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 4 | 4 |
| | | | 15 | 0 | 1 | 1 | 14 | 10 | 2 | 0 | 0 | 26 | 27 |

1 Plot size: Each treatment 5 acres (165'x1320'). Orthene and Plictran were wettable powders 75% and 50% respectively. Carzol was a 92% soluble powder while the others were emulsifiable concentrates. Sprays were applied at 10 GPA. Plots were treated from 1:00 AM to 5:00 AM.

2 Pretreatment counts were made on May 29 and June 5.

3 2-25 suck D-Vac samples per treatment on each sampling date.

Table 3 - Lygus bug populations in seed alfalfa plots treated by aircraft for aphid control. Firebaugh, California, 1979.

| Treatment[1] | | | | Number of lygus bugs per sweep[3] | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Adults | Nymphs | | | | Adults + |
| Insecticides | Dates | AI/Acre lb. | Days after treatment[2] | | Small | Medium | Large | Total | Nymphs |
| | | | Pre | 0.4 | 0.2 | 1.3 | 0.7 | 2.2 | 2.6 |
| | | | Pre | 0.4 | 0.2 | 1.5 | 0.7 | 2.4 | 2.8 |
| Amaze | (7/3) | 1.00 | | | | | | | |
| | | | 8 | 0.1 | 0.1 | 0.0 | 0.1 | 0.2 | 0.3 |
| Lorsban | (7/11) | 0.50 | | | | | | | |
| | | | 15 | 0.2 | 0.8 | 0.2 | 0.0 | 1.0 | 1.2 |
| | | | 22 | 0.4 | 0.3 | 14.3 | 0.0 | 15.4 | 15.8 |
| | | | Pre | 0.2 | 0.1 | 0.9 | 0.9 | 1.9 | 2.1 |
| | | | Pre | 0.6 | 0.4 | 1.5 | 0.9 | 2.8 | 3.4 |
| Pydrin | (9/3) | 0.20 | | | | | | | |
| | | | 8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | 14 | 1.0 | 0.0 | 0.5 | 0.5 | 1.0 | 2.0 |
| Pydrin | (7/18) | 0.20 | | | | | | | |
| | | | 7 | 0.3 | 0.1 | 0.3 | 0.2 | 0.6 | 0.9 |
| | | | Pre | 0.2 | 0.2 | 0.9 | 0.4 | 1.5 | 1.7 |
| | | | Pre | 0.8 | 0.4 | 1.8 | 0.9 | 3.1 | 3.9 |
| Ambush | (7/3) | 0.20 | | | | | | | |
| | | | 8 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 |
| | | | 15 | 1.1 | 0.1 | 1.1 | 0.4 | 1.6 | 2.7 |
| | | | 22 | 1.0 | 0.2 | 3.2 | 1.8 | 5.2 | 6.2 |
| | | | Pre | 0.1 | 0.1 | 0.8 | 0.4 | 1.3 | 1.4 |
| | | | Pre | 0.5 | 0.2 | 1.6 | 0.9 | 2.7 | 3.2 |
| Systox | (7/3) | 0.50 | | | | | | | |
| | | | 8 | 0.4 | 0.0 | 0.4 | 0.8 | 1.2 | 1.6 |
| | | | 15 | 1.2 | 0.2 | 1.5 | 0.1 | 1.8 | 3.0 |
| | | | 22 | 0.5 | 1.4 | 12.1 | 6.2 | 19.7 | 20.2 |
| | | | Pre | 0.1 | 0.2 | 0.6 | 0.5 | 1.3 | 1.4 |
| | | | Pre | 0.4 | 0.1 | 1.2 | 0.9 | 2.2 | 2.6 |
| Lorsban | (7/3) | 0.50 | | | | | | | |
| | | | 8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| | | | 15 | 0.8 | 0.2 | 0.7 | 0.0 | 0.9 | 1.7 |
| | | | 22 | 0.4 | 0.1 | 5.6 | 1.6 | 7.3 | 7.7 |

Table 3 - (continued)

| Treatment[1] | | | | Number of lygus bugs per sweep[3] | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Adults | Nymphs | | | | Adults + |
| Insecticides | Dates | AI/Acre lb. | Days after treatment[2] | | Small | Medium | Large | Total | Nymphs |
| | | | Pre | 0.1 | 0.1 | 0.5 | 1.4 | 2.0 | 2.1 |
| | | | Pre | 0.5 | 0.1 | 1.0 | 1.0 | 2.1 | 2.6 |
| Carzol + Lorsban | (7/9) | 0.75 + 0.50 | | | | | | | |
| | | | 1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 |
| | | | 8 | 0.3 | 0.1 | 0.0 | 0.0 | 0.1 | 0.4 |
| Carzol + Lorsban | (7/23) | 0.75 + 0.50 | | | | | | | |
| | | | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

1 Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol was a 92% soluble powder while the others were emulsifiable concentrates. Plots were treated from 1:00 AM to 4:00 AM.

2 Pretreatment counts were made on June 26 and July 2.

3 Average of 20 sweeps (10-2 sweep samples) per treatment on each sampling date.

Table 4 - Lygus bug populations in seed alfalfa plots treated by aircraft for aphid control. Firebaugh, California. 1979.

| Treatment[1] | | | | Number per 50 D-Vac Sample[3] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Adults | | | Nymphal Instars | | | | | | Adults + |
| Insecticides | Dates | AI/Acre lb. | Days after treatment[2] | ♂ | ♀ | Total | 1 | 2 | 3 | 4 | 5 | Total | Nymphs |
| | | | Pre | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| | | | Pre | 3 | 6 | 9 | 7 | 2 | 2 | 4 | 1 | 16 | 25 |
| Amaze | (7/3) | 1.00 | | | | | | | | | | | |
| | | | 8 | 7 | 1 | 8 | 0 | 0 | 0 | 0 | 4 | 4 | 12 |
| Lorsban | (7/11) | 0.50 | | | | | | | | | | | |
| | | | 15 | 4 | 1 | 5 | 1 | 2 | 0 | 0 | 0 | 3 | 8 |
| | | | 22 | 1 | 1 | 2 | 17 | 23 | 14 | 14 | 5 | 73 | 75 |
| | | | Pre | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| | | | Pre | 3 | 2 | 5 | 0 | 1 | 3 | 0 | 1 | 5 | 10 |
| Pydrin | (7/3) | 0.20 | | | | | | | | | | | |
| | | | 8 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 3 |
| | | | 14 | 3 | 3 | 6 | 1 | 2 | 0 | 1 | 3 | 7 | 13 |
| Pydrin | (7/18) | 0.20 | | | | | | | | | | | |
| | | | 7 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| | | | Pre | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 4 | 4 |
| | | | Pre | 0 | 2 | 2 | 1 | 1 | 2 | 2 | 5 | 11 | 13 |
| Ambush | (7/3) | 0.20 | | | | | | | | | | | |
| | | | 8 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 3 | 3 |
| | | | 15 | 1 | 2 | 3 | 5 | 7 | 4 | 1 | 2 | 19 | 22 |
| | | | 22 | 4 | 1 | 5 | 8 | 2 | 2 | 4 | 2 | 18 | 23 |
| | | | Pre | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | Pre | 2 | 2 | 4 | 15 | 3 | 1 | 3 | 3 | 25 | 29 |
| Systox | (7/3) | 0.50 | | | | | | | | | | | |
| | | | 8 | 2 | 3 | 5 | 1 | 0 | 1 | 2 | 1 | 5 | 10 |
| | | | 15 | 2 | 1 | 3 | 0 | 6 | 3 | 1 | 0 | 12 | 15 |
| | | | 22 | 2 | 0 | 2 | 9 | 17 | 6 | 23 | 7 | 62 | 64 |
| | | | Pre | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | | Pre | 5 | 1 | 6 | 2 | 3 | 3 | 2 | 4 | 14 | 20 |
| Lorsban | (7/3) | 0.50 | | | | | | | | | | | |
| | | | 8 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | | | 15 | 0 | 1 | 1 | 2 | 4 | 2 | 0 | 1 | 9 | 10 |
| | | | 22 | 3 | 1 | 4 | 18 | 6 | 5 | 4 | 3 | 36 | 40 |

Table 4 - (continued)

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number per 50 D-Vac Sample[3] Adults ♂ | Adults ♀ | Adults Total | Nymphal Instars 1 | 2 | 3 | 4 | 5 | Nymphal Instars Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pre | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Pre | 2 | 0 | 2 | 2 | 1 | 1 | 2 | 4 | 10 | 12 |
| Carzol + Lorsban (7/9) | 0.75 + 0.50 | | | | | | | | | | | |
| | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 |
| | | 8 | 1 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 4 |
| Carzol + Lorsban (7/23) | 0.75 + 0.50 | | | | | | | | | | | |
| | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1 Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol was a 92% soluble powder while the others were emulsifiable concentrates. Plots were treated from 1:00 AM to 4:00 AM.

2 Pretreatment counts were made on June 26 and July 2.

3 2-25 suck D-Vac samples per treatment on each sampling date.

Table 5 - Lygus bug populations in seed alfalfa plots treated by aircraft for spider mite control. Firebaugh, California, 1979.

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number of lygus bugs per sweep[3] Adults | Nymphs Small | Nymphs Medium | Nymphs Large | Nymphs Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|
| | | Pre | 2.3 | 1.2 | 2.0 | 0.6 | 3.8 | 6.1 |
| Comite + Vydate (7/27) + Lorsban | 1.69 + 0.50 + 0.50 | 5 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 | 0.3 |
| | | 12 | 0.2 | 1.1 | 7.8 | 0.0 | 8.9 | 9.1 |
| Comite + Carzol (8/10) + Lorsban | 1.69 + 0.75 + 0.50 | 5 | 0.1 | 0.0 | 0.1 | 0.4 | 0.5 | 0.6 |
| | | Pre | 1.7 | 2.4 | 5.7 | 4.9 | 13.0 | 14.7 |
| Vendex + Vydate (7/27) + Lorsban | 1.00 + 0.50 + 0.50 | 5 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| | | 12 | 0.2 | 1.1 | 4.9 | 0.0 | 6.0 | 6.2 |
| Comite + Carzol (8/10) + Lorsban | 1.69 + 0.75 + 0.50 | 5 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 |
| | | Pre | 0.9 | 2.0 | 4.1 | 1.8 | 7.9 | 8.8 |
| UC55248 + Vydate (7/27) + Lorsban | 0.50 + 0.50 + 0.50 | 5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | 12 | 0.2 | 2.8 | 13.7 | 0.0 | 16.5 | 16.7 |
| Comite + Carzol (8/10) + Lorsban | 1.69 + 0.75 + 0.50 | 5 | 0.0 | 0.0 | 0.3 | 0.1 | 0.4 | 0.4 |

Table 5 - (continued)

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number of lygus bugs per sweep[3] Adults | Nymphs | | | | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|
| | | | | Small | Medium | Large | Total | |
| | | Pre | 1.0 | 2.1 | 4.4 | 1.7 | 8.2 | 9.2 |
| Plictran | 0.75 | | | | | | | |
| Vydate (7/27) | 0.50 | | | | | | | |
| Lorsban | 0.50 | | | | | | | |
| | | 5 | 0.3 | 0.2 | 0.0 | 0.1 | 0.3 | 0.6 |
| | | 12 | 0.2 | 2.1 | 12.8 | 0.1 | 15.0 | 15.2 |
| Comite | 1.69 | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | |
| Lorsban | 0.50 | | | | | | | |
| | | 5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Pre | 2.0 | 3.4 | 6.1 | 4.0 | 13.5 | 15.5 |
| UC55248 | 0.25 | | | | | | | |
| Vydate (7/27) | 0.50 | | | | | | | |
| Lorsban | 0.50 | | | | | | | |
| | | 5 | 0.1 | 0.1 | 0.0 | 0.2 | 0.3 | 0.4 |
| | | 12 | 0.3 | 1.9 | 16.6 | 0.0 | 18.5 | 18.8 |
| Comite | 1.69 | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | |
| Lorsban | 0.50 | | | | | | | |
| | | 5 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 |
| | | Pre | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.2 |
| Carzol | 0.75 | | | | | | | |
| Lorsban (7/27) | 0.50 | | | | | | | |
| | | 1 | 0.1 | 0.4 | 1.1 | 0.0 | 1.5 | 1.6 |
| | | 8 | 0.2 | 0.2 | 0.4 | 0.1 | 0.7 | 0.9 |
| | | 15 | 1.0 | 0.5 | 9.1 | 0.4 | 10.0 | 11.0 |
| Comite | 1.69 | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | |
| Lorsban | 0.50 | | | | | | | |
| | | 5 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 |

1 Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol was a 92% soluble powder, Plictran a 50% wettable powder while the others were emulsifiable concentrates. Plots were treated from 1:00 AM to 4:00 AM.

2 Pretreatment counts were made July 24.

3 Average of 20 sweeps (10-2 sweep samples) per replication on each sampling date.

Table 6 - Lygus bug populations in seed alfalfa plots treated by aircraft for spider mite control. Firebaugh, California. 1979.

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number per 50 D-Vac Sample[3] Adults ♂ | Adults ♀ | Adults Total | Nymphal Instars 1 | 2 | 3 | 4 | 5 | Nymphal Instars Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pre | 1 | 1 | 2 | 17 | 23 | 14 | 14 | 5 | 73 | 75 |
| Comite + Vydate (7/27) + Lorsban | 1.69 + 0.50 + 0.50 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| | | 12 | 1 | 0 | 1 | 8 | 3 | 6 | 1 | 0 | 18 | 19 |
| Comite + Carzol (8/10) + Lorsban | 1.69 + 0.75 + 0.50 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Pre | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| Vendex + Vydate (7/27) + Lorsban | 1.00 + 0.50 + 0.50 | 5 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 12 | 2 | 1 | 3 | 14 | 2 | 8 | 2 | 0 | 26 | 29 |
| Comite + Carzol (8/10) + Lorsban | 1.69 + 0.75 + 0.50 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Pre | 4 | 1 | 5 | 8 | 2 | 2 | 4 | 2 | 18 | 23 |
| UC55248 + Vydate (7/27) + Lorsban | 0.50 + 0.50 + 0.50 | 5 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 2 |
| | | 12 | 2 | 0 | 2 | 31 | 26 | 9 | 0 | 0 | 66 | 68 |
| Comite + Carzol (8/10) + Lorsban | 1.69 + 0.75 + 0.50 | 5 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 2 |

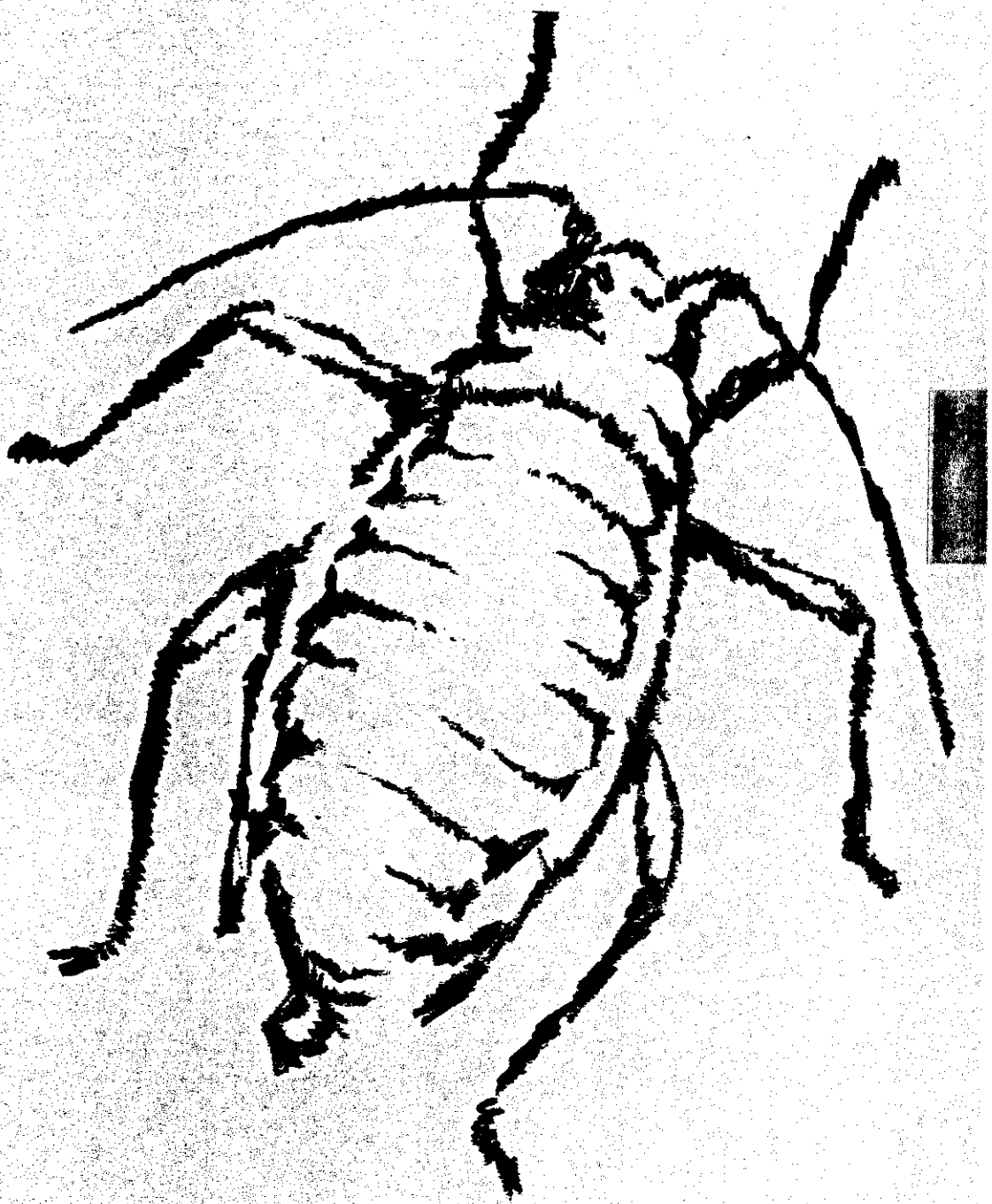
Table 6 - (continued))

| Treatment[1] Insecticides Dates | AI/Acre lb. | Days after treatment[2] | Number per 50 D-Vac Sample[3] Adults ♂ | Adults ♀ | Adults Total | Nymphal Instars 1 | 2 | 3 | 4 | 5 | Nymphal Instars Total | Adults + Nymphs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pre | 2 | 0 | 2 | 9 | 17 | 6 | 23 | 7 | 62 | 64 |
| Plictran | 0.75 | | | | | | | | | | | |
| Vydate (7/27) | 0.50 | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | |
| | | 5 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 12 | 2 | 2 | 4 | 0 | 7 | 26 | 15 | 0 | 48 | 52 |
| Comite | 1.69 | | | | | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 3 | 3 |
| | | Pre | 3 | 1 | 4 | 18 | 6 | 5 | 4 | 3 | 36 | 40 |
| UC55248 | 0.25 | | | | | | | | | | | |
| Vydate (7/27) | 0.50 | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | |
| | | 5 | 1 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 5 | 6 |
| | | 12 | 0 | 2 | 2 | 39 | 26 | 5 | 0 | 1 | 71 | 73 |
| Comite | 1.69 | | | | | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Pre | 1 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 4 |
| Carzol | 0.75 | | | | | | | | | | | |
| Lorsban (7/27) | 0.50 | | | | | | | | | | | |
| | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 8 | 1 | 2 | 3 | 10 | 6 | 0 | 0 | 0 | 16 | 19 |
| | | 15 | 2 | 1 | 3 | 15 | 7 | 9 | 6 | 1 | 38 | 41 |
| Comite | 1.69 | | | | | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 5 | 5 |

1 Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol was a 92% soluble powder, Plictran a 50% wettable powder while the others were emulsifiable concentrates. Plots were treated from 1:00 AM to 4:00 AM.

2 Pretreatment counts were made July 24.

3 2-25 suck D-Vac samples per replicate on each sampling date.



# APHID

Table 7 - Aphid populations in seed alfalfa plots treated by aircraft for lygus bug control. Firebaugh, California, 1979.

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per 50 D-Vac samples[3] Spotted alfalfa aphid | Pea aphid |
|---|---|---|---|---|---|
| | | | Pre | 19 | 5 |
| | | | Pre | 32 | 20 |
| Carzol | 0.75 | June 6 | | | |
| | | | 7 | 228 | 26 |
| | | | 14 | 2,494 | 619 |
| | | | 21 | 13,992 | 512 |
| Lorsban | 0.50 | June 27 | | | |
| | | | 7 | 1,342 | 655 |
| | | | 14 | 2,018 | 626 |
| | | | 21 | 671 | 60 |
| Lorsban | 0.50 | July 18 | | | |
| | | | 7 | 7,682 | 1,412 |
| Carzol | 0.75 | | | | |
| Lorsban + | 0.50 | July 27 | | | |
| | | | 5 | 819 | 2 |
| | | | 12 | 5,440 | 5 |
| Carzol | 0.75 | | | | |
| Lorsban + | 0.50 | August 10 | | | |
| Comite | 1.69 | | | | |
| | | | 5 | 643 | 0 |
| | | | 12 | 476 | 1 |
| | | | 19 | 2,772 | 0 |
| | | | Pre | 0 | 6 |
| | | | Pre | 3 | 12 |
| Amaze | 1.00 | June 6 | | | |
| | | | 7 | 6 | 0 |
| | | | 14 | 78 | 3 |
| | | | 21 | 414 | 12 |
| | | | 27 | 2,352 | 160 |
| Monitor | 0.50 | July 3 | | | |
| | | | 8 | 629 | 47 |
| | | | 15 | 708 | 11 |
| | | | 22 | 30,144 | 1,788 |
| Lorsban | 0.50 | | | | |
| Comite + | 1.69 | July 27 | | | |
| | | | 5 | 4,747 | 158 |
| | | | 12 | 111,322 | 864 |

Table 7 - (continued)

| Treatment[1] Insecticides | | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per 50 D-Vac samples[3] Spotted alfalfa aphid | Pea aphid |
|---|---|---|---|---|---|---|
| | | | | Pre | 1 | 5 |
| | | | | Pre | 2 | 17 |
| Orthene | | 0.50 | June 6 | | | |
| | | | | 7 | 33 | 12 |
| | | | | 14 | 273 | 91 |
| | | | | 21 | 1,139 | 333 |
| | | | | 27 | 27,316 | 809 |
| Lorsban | | 0.50 | July 3 | | | |
| | | | | 8 | 280 | 77 |
| Plictran | | 0.75 | July 11 | | | |
| | | | | 7 | 101 | 78 |
| | | | | 14 | 2,815 | 175 |
| Orthene | | 0.50 | | | | |
| Lorsban | + | 0.50 | July 27 | | | |
| Comite | | 1.69 | | | | |
| | | | | 5 | 729 | 2 |
| | | | | 12 | 83,424 | 0 |
| Carzol | | 0.75 | | | | |
| Lorsban | + | 0.50 | August 10 | | | |
| Comite | | 1.69 | | | | |
| | | | | 5 | 66,078 | 0 |
| Phosdrin | | 0.25 | | | | |
| Thiodan | + | 1.00 | August 17 | | | |
| | | | | 5 | 30 | 0 |
| | | | | 12 | 260 | 4 |
| | | | | Pre | 2 | 6 |
| | | | | Pre | 0 | 22 |
| Orthene | | 1.00 | June 6 | | | |
| | | | | 7 | 21 | 1 |
| | | | | 14 | 115 | 44 |
| | | | | 21 | 3,264 | 51 |
| | | | | 27 | 7,127 | 83 |
| Lorsban | | 0.50 | July 3 | | | |
| | | | | 8 | 348 | 55 |
| Comite | | 1.69 | July 11 | | | |
| | | | | 7 | 104 | 32 |
| | | | | 14 | 30,204 | 3,203 |
| Orthene | | 1.00 | | | | |
| Lorsban | + | 0.50 | July 27 | | | |
| Comite | | 1.69 | | | | |
| | | | | 5 | 2,893 | 3 |
| | | | | 12 | 268,432 | 0 |
| Carzol | | 0.50 | | | | |
| Lorsban | + | 0.50 | August 10 | | | |
| Comite | | 1.69 | | | | |
| | | | | 5 | 5,012 | 0 |
| Phosdrin | | 0.25 | | | | |
| Thiodan | + | 1.00 | August 17 | | | |
| | | | | 5 | 16 | 1 |
| | | | | 12 | 1,188 | 3 |

Table 7 - (continued)

| Treatment[1] Insecticides | | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per 50 D-Vac samples[3] Spotted alfalfa aphid | Pea aphid |
|---|---|---|---|---|---|---|
| | | | | Pre | 0 | 17 |
| | | | | Pre | 0 | 13 |
| Pydrin | | 0.20 | June 6 | | | |
| | | | | 7 | 1 | 1 |
| | | | | 14 | 39 | 8 |
| | | | | 21 | 288 | 32 |
| | | | | 27 | 790 | 175 |
| | | | | 35 | 203 | 184 |
| Pydrin | | 0.20 | | | | |
| Plictran | + | 0.75 | July 11 | | | |
| | | | | 7 | 23 | 3 |
| | | | | 14 | 329 | 23 |
| Pydrin | | 0.20 | | | | |
| Comite | + | 1.69 | July 27 | | | |
| | | | | 5 | 66 | 1 |
| | | | | 12 | 438 | 0 |
| Pydrin | | 0.20 | | | | |
| Comite | + | 1.69 | August 8 | | | |
| | | | | 7 | 99 | 0 |
| | | | | 14 | 246 | 0 |
| | | | | 21 | 1,149 | 3 |
| | | | | Pre | 4 | 1 |
| | | | | Pre | 18 | 22 |
| Ambush | | 0.20 | June 6 | | | |
| | | | | 7 | 2 | 7 |
| | | | | 14 | 88 | 29 |
| | | | | 21 | 509 | 237 |
| | | | | 27 | 1,062 | 43 |
| Lorsban | | 0.50 | July 3 | | | |
| | | | | 8 | 154 | 58 |
| | | | | 14 | 345 | 172 |
| | | | | 21 | 2,126 | 630 |
| Ambush | | 0.20 | | | | |
| Comite | + | 1.69 | July 27 | | | |
| | | | | 5 | 394 | 1 |
| | | | | 12 | 12,697 | 4 |
| Carzol | | 0.75 | | | | |
| Lorsban | + | 0.50 | August 10 | | | |
| Comite | | 1.69 | | | | |
| | | | | 5 | 1,310 | 0 |
| | | | | 12 | 83 | 1 |
| | | | | 19 | 20 | 4 |

Table 7 - (continued)

| Treatment[1] Insecticides | | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per 50 D-Vac samples[3] Spotted alfalfa aphid | Pea aphid |
|---|---|---|---|---|---|---|
| | | | | Pre | 3 | 1 |
| | | | | Pre | 0 | 11 |
| Vydate | | 0.50 | June 6 | | | |
| | | | | 7 | 18 | 8 |
| | | | | 14 | 48 | 92 |
| | | | | 21 | 182 | 837 |
| | | | | 27 | 3,150 | 2,996 |
| | | | | 35 | 1,661 | 6,485 |
| Vydate | | 0.50 | | | | |
| Lorsban | + | 0.50 | July 11 | | | |
| Plictran | | 0.75 | | | | |
| | | | | 7 | 25 | 12 |
| | | | | 14 | 621 | 23 |
| | | | | 21 | 5 | 7 |
| | | | | 28 | 408 | 97 |
| Carzol | | 0.50 | | | | |
| Lorsban | + | 0.50 | August 10 | | | |
| Comite | | 1.69 | | | | |
| | | | | 5 | 615 | 0 |
| | | | | Pre | 0 | 3 |
| | | | | Pre | 0 | 15 |
| Monitor | | 0.50 | | | | |
| Systox | + | 0.50 | June 6 | | | |
| | | | | 7 | 20 | 0 |
| | | | | 14 | 35 | 0 |
| | | | | 21 | 193 | 11 |
| | | | | 27 | 1,613 | 129 |
| | | | | 35 | 2,182 | 193 |
| Monitor | | 0.50 | | | | |
| Systox | + | 0.50 | July 11 | | | |
| | | | | 7 | 3,968 | 4 |
| | | | | 14 | 33,700 | 64 |
| Lorsban | | 0.50 | | | | |
| Plictran | + | 0.75 | July 27 | | | |
| | | | | 5 | 4,196 | 5 |
| | | | | 12 | 16,176 | 8 |

Table 7 - (continued)

| Treatment[1] Insecticides | | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per 50 D-Vac samples[3] Spotted alfalfa aphid | Pea aphid |
|---|---|---|---|---|---|---|
| | | | | Pre | 1 | 15 |
| | | | | Pre | 1 | 12 |
| Monitor | | 0.50 | June 6 | | | |
| | | | | 7 | 10 | 4 |
| | | | | 14 | 39 | 22 |
| | | | | 21 | 609 | 114 |
| | | | | 27 | 2,911 | 585 |
| | | | | 35 | 7,132 | 4,636 |
| Monitor | | 0.50 | | | | |
| Lorsban | + | 0.50 | July 11 | | | |
| | | | | 7 | 44 | 21 |
| | | | | 14 | 8,271 | 81 |
| Lorsban | | 0.50 | | | | |
| Plictran | + | 0.75 | July 27 | | | |
| | | | | 5 | 1,181 | 2 |
| | | | | 12 | 4,207 | 4 |
| | | | | Pre | 7 | 12 |
| | | | | Pre | 1 | 15 |
| Monitor | | 0.75 | June 6 | | | |
| | | | | 6 | 6 | 0 |
| | | | | 13 | 16 | 12 |
| | | | | 20 | 533 | 34 |
| | | | | 26 | 1,571 | 111 |
| Carzol | | 0.75 | | | | |
| Lorsban | + | 0.50 | July 9 | | | |
| | | | | 1 | 34 | 79 |
| | | | | 7 | 45 | 3 |
| Carzol | | 0.75 | | | | |
| Lorsban | + | 0.50 | July 23 | | | |
| | | | | 1 | 860 | 86 |
| | | | | 8 | 1,129 | 5 |
| | | | | 15 | 12,772 | 20 |

1 Plot size: Each treatment 5 acres (165'x1320'). Orthene and Plictran were wettable powders 75% and 50% respectively. Carzol was a 92% soluble powder while the others were emulsifiable concentrates. Sprays were applied at 10 GPA. Plots were treated June 6 from 1:00 AM to 5:00 AM.

2 Pretreatment counts were made on May 29 and June 5.

3 2-25 suck D-Vac samples per treatment on each sampling date.

Table 8 - Aphid populations in seed alfalfa plots treated by aircraft for aphid control. Firebaugh, California, 1979.

| Treatment[1] | | | | Number per 50 D-Vac samples[3] | |
|---|---|---|---|---|---|
| Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Spotted alfalfa aphid | Pea aphid |
| | | | Pre | 575 | 3 |
| | | | Pre | 8,413 | 199 |
| Amaze | 1.00 | July 3 | | | |
| | | | 8 | 12,245 | 315 |
| Lorsban | 0.50 | July 11 | | | |
| | | | 7 | 475 | 86 |
| | | | 14 | 2,559 | 17 |
| | | | Pre | 5,373 | 8 |
| | | | Pre | 32,765 | 209 |
| Pydrin | 0.20 | July 3 | | | |
| | | | 8 | 1,834 | 3 |
| | | | 14 | 58 | 8 |
| Pydrin | 0.20 | July 18 | | | |
| | | | 7 | 1,503 | 1 |
| | | | Pre | 2,083 | 50 |
| | | | Pre | 5,784 | 138 |
| Ambush | 0.20 | July 3 | | | |
| | | | 8 | 78 | 6 |
| | | | 15 | 186 | 168 |
| | | | 22 | 1,260 | 295 |
| | | | Pre | 1,472 | 104 |
| | | | Pre | 3,983 | 315 |
| Systox | 0.50 | July 3 | | | |
| | | | 8 | 3,788 | 2 |
| | | | 15 | 846 | 11 |
| | | | 22 | 18,538 | 23 |
| | | | Pre | 691 | 25 |
| | | | Pre | 5,869 | 420 |
| Lorsban | 0.50 | July 3 | | | |
| | | | 8 | 32 | 17 |
| | | | 15 | 138 | 52 |
| | | | 22 | 1,053 | 72 |

Table 8 - (continued)

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per 50 D-Vac samples[3] Spotted alfalfa aphid | Pea aphid |
|---|---|---|---|---|---|
| | | | Pre | 1,410 | 64 |
| | | | Pre | 21,398 | 630 |
| Carzol | 0.75 | | | | |
| Lorsban | 0.50 | July 9 | | | |
| | | | 1 | 44 | 243 |
| | | | 8 | 220 | 83 |
| Carzol | 0.75 | | | | |
| Lorsban | 0.50 | July 23 | | | |
| | | | 1 | 334 | 23 |

! Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol Was a 92% soluble powder while the others were emulsifiable concentrates. Plots were treated July 3 from 1:00 AM to 4:00 AM.

2 Pretreatment counts were made on June 26 and July 2.

3 2-25 suck D-Vac samples per treatment on each sampling date.

Table 9 - Aphid populations in seed alfalfa plots treated by aircraft for spider mite control. Firebaugh, California, 1979.

| Treatment[1] Insecticides | | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per 50 D-Vac samples[3] Spotted alfalfa aphid | Pea aphid |
|---|---|---|---|---|---|---|
| | | | | Pre | 2,559 | 17 |
| Comite | | 1.69 | | | | |
| Vydate | + | 0.50 | July 27 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 70 | 1 |
| | | | | 12 | 106 | 0 |
| Comite | | 1.69 | | | | |
| Carzol | + | 0.75 | August 10 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 92 | 0 |
| | | | | Pre | 1,503 | 1 |
| Vendex | | 1.00 | | | | |
| Vydate | + | 0.50 | July 27 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 3 | 0 |
| | | | | 12 | 5 | 1 |
| Comite | | 1.69 | | | | |
| Carzol | + | 0.75 | August 10 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 66 | 2 |
| | | | | Pre | 1,260 | 295 |
| UC 55248 | | 0.50 | | | | |
| Vydate | + | 0.50 | July 27 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 8 | 0 |
| | | | | 12 | 6 | 0 |
| Comite | | 1.69 | | | | |
| Carzol | + | 0.75 | August 10 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 21 | 1 |

Table 9 - (continued)

| Treatment[1] Insecticides | | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per 50 D-Vac samples[3] Spotted alfalfa aphid | Pea aphid |
|---|---|---|---|---|---|---|
| | | | | Pre | 18,538 | 23 |
| Plictran | | 0.75 | | | | |
| Vydate | + | 0.50 | July 27 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 7 | 2 |
| | | | | 12 | 32 | 1 |
| Comite | | 1.69 | | | | |
| Carzol | + | 0.75 | August 10 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 52 | 0 |
| | | | | Pre | 1,053 | 72 |
| UC 55248 | | 0.25 | | | | |
| Vydate | + | 0.50 | July 27 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 42 | 26 |
| | | | | 12 | 242 | 82 |
| Comite | | 1.69 | | | | |
| Carzol | + | 0.75 | August 10 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 104 | 0 |
| | | | | Pre | 220 | 83 |
| Carzol | | 0.75 | | | | |
| Lorsban | + | 0.50 | July 23 | | | |
| | | | | 1 | 334 | 23 |
| | | | | 8 | 744 | 154 |
| | | | | 15 | 444 | 45 |
| Comite | | 1.69 | | | | |
| Carzol | + | 0.75 | August 10 | | | |
| Lorsban | | 0.50 | | | | |
| | | | | 5 | 698 | 4 |

1 Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol was a 92% soluble powder, Plictran a 50% wettable powder while the others were emulsifiable concentrates. Plots were treated July 27 from 1:00 AM to 4:00 AM.

2 Pretreatment counts were made July 24.

3 2-25 suck D-Vac samples per replicate on each sampling date.

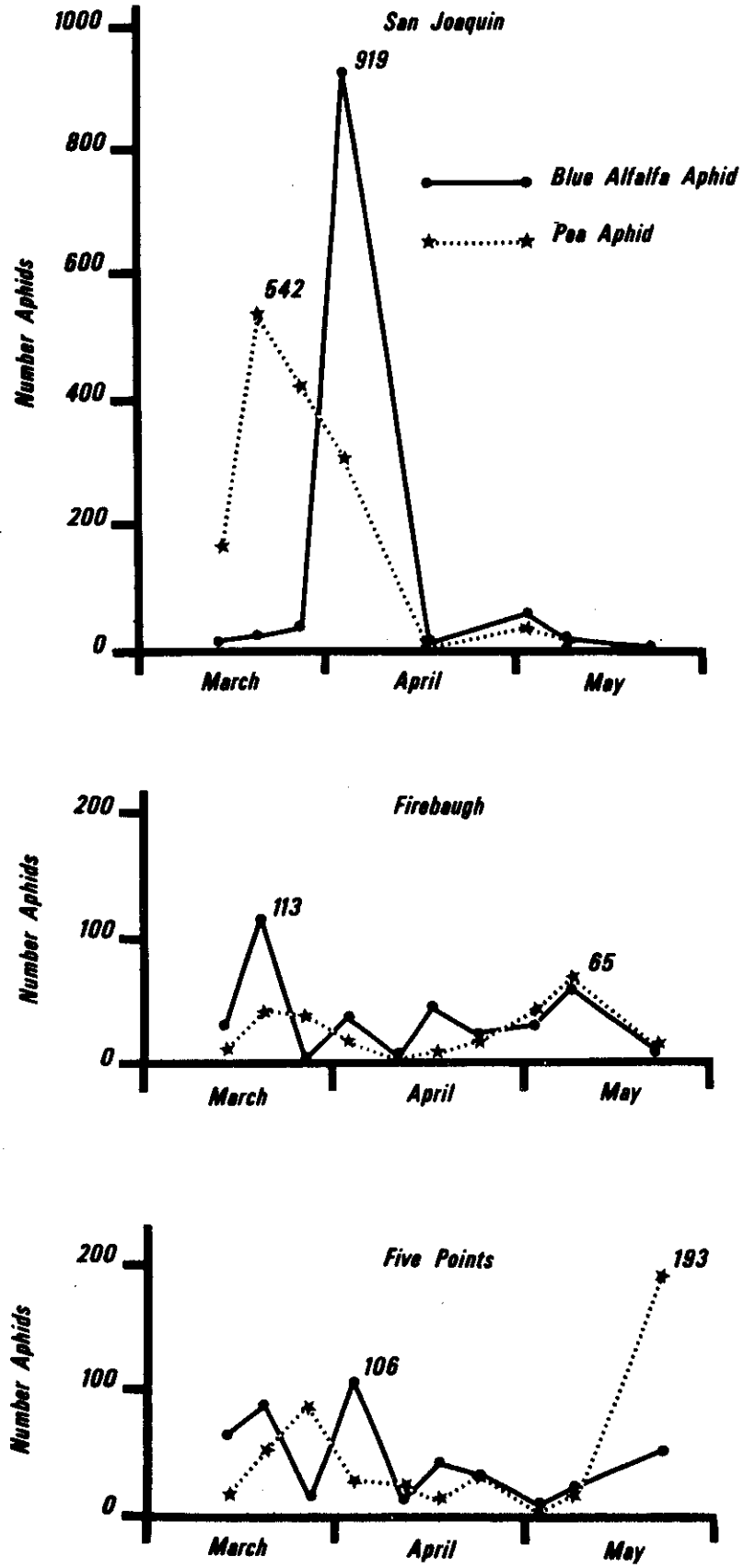



Fig. 1 - *Mean Populations Of BAA And PA Per 25 D-Vac Samples In 3 Seed Alfalfa Fields In Each Of 3 Areas Of Fresno County. 1979.*

Table 10 - Aphid populations in a commercial seed alfalfa field. Firebaugh, California. 1979[1]

| Field Location Variety | Date Sampled | Blue alfalfa aphid | | | Pea aphid | | | Spotted alfalfa aphid | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wingless | Winged | Total | Wingless | Winged | Total | Wingless | Winged | Total |
| 1 Firebaugh Williamsburg | March 14 | 20 | 0 | 20 | 12 | 0 | 12 | 3 | 0 | 3 |
| | March 20 | 112 | 0 | 112 | 65 | 1 | 66 | 1 | 0 | 1 |
| | March 27 | 2 | 0 | 2 | 25 | 1 | 26 | 6 | 0 | 6 |
| | April 3 | 53 | 1 | 54 | 23 | 0 | 23 | 11 | 0 | 11 |
| | April 11 | - | 1 | - | - | Clipped | - | - | - | - |
| | April 17 | - | - | - | - | - | - | - | - | - |
| | April 24 | 9 | 3 | 12 | 15 | 1 | 16 | 35 | 1 | 36 |
| | May 2 | 42 | 0 | 42 | 38 | 6 | 44 | 349 | 2 | 351 |
| | May 8 | 92 | 20 | 112 | 112 | 12 | 124 | 340 | 40 | 380 |
| | May 22 | 5 | 0 | 5 | 6 | 1 | 7 | 217 | 26 | 243 |

[1] Counts based on a 25 suck D-Vac sample on each sampling date. Samples were examined in the laboratory after 24 hour berlese funnel separation.

Table 11 - Aphid populations in a commercial seed alfalfa field. Firebaugh, California. 1979[1]

| Field Location Variety | Date Sampled | Blue alfalfa aphid | | | Pea aphid | | | Spotted alfalfa aphid | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wingless | Winged | Total | Wingless | Winged | Total | Wingless | Winged | Total |
| 2 Firebaugh DeKalb 131 | March 14 | 49 | 0 | 49 | 4 | 1 | 5 | 3 | 0 | 1 |
| | March 20 | 216 | 4 | 220 | 15 | 2 | 17 | 1 | 0 | 1 |
| | March 27 | 2 | 0 | 2 | 41 | 3 | 44 | 0 | 0 | 0 |
| | April 3 | 16 | 0 | 16 | 2 | 0 | 2 | 0 | 0 | 0 |
| | April 11 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | April 17 | 20 | 35 | 55 | 0 | 0 | 0 | 0 | 0 | 0 |
| | April 24 | - | - | - | - | Clipped | - | - | - | - |
| | May 2 | 24 | 9 | 33 | 13 | 0 | 13 | 1 | 0 | 1 |
| | May 8 | 18 | 1 | 19 | 22 | 4 | 26 | 0 | 0 | 0 |
| | May 22 | 17 | 2 | 19 | 4 | 0 | 4 | 0 | 0 | 0 |

[1] Counts based on a 25 suck D-Vac sample on each sampling date. Samples were examined in the laboratory after 24 hour berlese funnel separation.

Table 12 - Aphid populations in a commercial seed alfalfa field. Firebaugh, California. 1979[1]

| Field Location Variety | Date Sampled | Blue alfalfa aphid | | | Pea aphid | | | Spotted alfalfa aphid | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wingless | Winged | Total | Wingless | Winged | Total | Wingless | Winged | Total |
| 3 Firebaugh Luna | March 14 | 17 | 0 | 17 | 4 | 0 | 4 | 21 | 0 | 21 |
| | March 20 | 9 | 0 | 9 | 43 | 0 | 43 | 47 | 0 | 47 |
| | March 27 | 1 | 0 | 1 | 38 | 1 | 39 | 60 | 0 | 60 |
| | April 3 | - | - | - | - | Clipped | - | - | - | - |
| | April 11 | 5 | 0 | 5 | 1 | 0 | 1 | 1 | 0 | 1 |
| | April 17 | 23 | 10 | 33 | 3 | 6 | 9 | 0 | 100 | 100 |
| | April 24 | 18 | 14 | 32 | 12 | 6 | 18 | 223 | 0 | 223 |
| | May 2 | 6 | 5 | 11 | 48 | 4 | 52 | 101 | 3 | 104 |
| | May 8 | 38 | 3 | 41 | 45 | 2 | 47 | 47 | 0 | 47 |
| | May 22 | 2 | 0 | 2 | 10 | 2 | 12 | 232 | 28 | 260 |

[1] Counts based on a 25 suck D-Vac sample on each sampling date. Samples were examined in the laboratory after 24 hour berlese funnel separation.

Table 13 - Aphid populations in a commercial seed alfalfa field. Five Points, California. 1979[1]

| Field Location Variety | Date Sampled | Blue alfalfa aphid | | | Pea aphid | | | Spotted alfalfa aphid | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wingless | Winged | Total | Wingless | Winged | Total | Wingless | Winged | Total |
| 4 Five Points FM-129 | March 14 | 36 | 0 | 36 | 14 | 2 | 16 | 0 | 0 | 0 |
| | March 20 | 7 | 0 | 7 | 102 | 0 | 102 | 0 | 0 | 0 |
| | March 27 | 3 | 0 | 3 | 43 | 1 | 44 | 0 | 0 | 0 |
| | April 3 | 82 | 3 | 85 | 48 | 0 | 48 | 0 | 0 | 0 |
| | April 11 | 9 | 1 | 10 | 21 | 1 | 22 | 0 | 0 | 0 |
| | April 17 | - | - | - | - | Clipped | - | - | - | - |
| | April 24 | - | - | - | - | - | - | - | - | - |
| | May 2 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| | May 8 | 4 | 2 | 6 | 9 | 13 | 22 | 0 | 0 | 0 |
| | May 22 | 70 | 32 | 102 | 468 | 84 | 552 | 0 | 0 | 0 |

[1] Counts based on a 25 suck D-Vac sample on each sampling date. Samples were examined in the laboratory after 24 hour berlese funnel separation.

Table 14 - Aphid populations in a commercial seed alfalfa field. Five Points, California. 1979[1]

| Field Location Variety | Date Sampled | Blue alfalfa aphid | | | Pea aphid | | | Spotted alfalfa aphid | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wingless | Winged | Total | Wingless | Winged | Total | Wingless | Winged | Total |
| 5 Five Points WL 310 | March 14 | 47 | 2 | 49 | 20 | 1 | 21 | 0 | 0 | 0 |
| | March 20 | 174 | 2 | 176 | 20 | 5 | 25 | 0 | 0 | 0 |
| | March 27 | 17 | 0 | 17 | 69 | 5 | 74 | 0 | 0 | 0 |
| | April 3 | 133 | 3 | 136 | 19 | 0 | 19 | 0 | 0 | 0 |
| | April 11 | - | - | - | - | Clipped | - | - | - | - |
| | April 17 | 23 | 1 | 24 | 1 | 0 | 1 | 0 | 0 | 0 |
| | April 24 | 1 | 0 | 1 | 13 | 2 | 15 | 0 | 0 | 0 |
| | May 2 | 4 | 4 | 8 | 5 | 1 | 6 | 0 | 0 | 0 |
| | May 8 | 28 | 10 | 38 | 10 | 1 | 11 | 0 | 0 | 0 |
| | May 22 | 38 | 3 | 41 | 23 | 2 | 25 | 0 | 0 | 0 |

[1] Counts based on a 25 suck D-Vac sample on each sampling date. Samples were examined in the laboratory after 24 hour berlese funnel separation.

Table 15 - Aphid populations in a commercial seed alfalfa field. Five Points, California. 1979[1]

| Field Location Variety | Date Sampled | Blue alfalfa aphid | | | Pea aphid | | | Spotted alfalfa aphid | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wingless | Winged | Total | Wingless | Winged | Total | Wingless | Winged | Total |
| 6 Five Points CUF-101 | March 14 | 96 | 1 | 97 | 11 | 1 | 12 | 0 | 0 | 0 |
| | March 20 | 75 | 0 | 75 | 23 | 2 | 25 | 0 | 0 | 0 |
| | March 27 | 12 | 0 | 12 | 134 | 8 | 142 | 0 | 0 | 0 |
| | April 3 | 93 | 4 | 97 | 12 | 0 | 12 | 0 | 0 | 0 |
| | April 11 | - | - | - | - | Clipped | - | - | - | - |
| | April 17 | 32 | 24 | 56 | 13 | 8 | 21 | 0 | 0 | 0 |
| | April 24 | 35 | 24 | 59 | 42 | 6 | 48 | 2 | 0 | 2 |
| | May 2 | - | - | - | - | Wet | - | - | - | - |
| | May 8 | 14 | 3 | 17 | 10 | 0 | 10 | 0 | 0 | 0 |
| | May 22 | 1 | 0 | 1 | 4 | 0 | 4 | 0 | 0 | 0 |

1 Counts based on a 25 suck D-Vac sample on each sampling date. Samples were examined in the laboratory after 24 hour berlese funnel separation.

Table 16 - Aphid populations in a commercial seed alfalfa field. San Joaquin, California. 1979[1]

| Field Location Variety | Date Sampled | Blue alfalfa aphid | | | Pea aphid | | | Spotted alfalfa aphid | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wingless | Winged | Total | Wingless | Winged | Total | Wingless | Winged | Total |
| 7 San Joaquin De Kalb 123 | March 14 | 20 | 1 | 21 | 314 | 17 | 321 | 0 | 0 | 0 |
| | March 20 | 50 | 0 | 50 | 1160 | 28 | 1188 | 6 | 0 | 6 |
| | March 27 | 56 | 4 | 60 | 1052 | 32 | 1084 | 7 | 0 | 7 |
| | April 3 | 2600 | 56 | 2656 | 704 | 24 | 728 | 0 | 0 | 0 |
| | April 11 | - | - | - | - | Clipped | - | - | - | - |
| | April 17 | - | - | - | - | - | - | - | - | - |
| | April 24 | - | - | - | - | - | - | - | - | - |
| | May 2 | 7 | 10 | 17 | 5 | 3 | 8 | 0 | 1 | 1 |
| | May 8 | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 |
| | May 22 | - | - | - | - | Wet | - | - | - | - |

[1] Counts based on a 25 suck D-Vac sample on each sampling date. Samples were examined in the laboratory after 24 hour berlese funnel separation.

Table 17 - Aphid populations in a commercial seed alfalfa field. San Joaquin, California. 1979[1]

| Field Location Variety | Date Sampled | Blue alfalfa aphid | | | Pea aphid | | | Spotted alfalfa aphid | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wingless | Winged | Total | Wingless | Winged | Total | Wingless | Winged | Total |
| 8 San Joaquin Weevilcheck | March 14 | 0 | 0 | 0 | 11 | 1 | 12 | 0 | 0 | 0 |
| | March 20 | 2 | 0 | 2 | 46 | 2 | 48 | 0 | 0 | 0 |
| | March 27 | 2 | 0 | 2 | 16 | 1 | 17 | 2 | 0 | 2 |
| | April 3 | 42 | 5 | 47 | 48 | 1 | 49 | 0 | 0 | 0 |
| | April 11 | - | - | - | - | Clipped | - | - | - | - |
| | April 17 | - | - | - | - | - | - | - | - | - |
| | April 24 | - | - | - | - | - | - | - | - | - |
| | May 2 | 94 | 6 | 100 | 54 | 3 | 57 | 3 | 0 | 3 |
| | May 8 | 17 | 2 | 19 | 6 | 0 | 6 | 26 | 0 | 26 |
| | May 22 | 0 | 0 | 0 | 10 | 0 | 10 | 49 | 10 | 59 |

[1] Counts based on a 25 suck D-Vac sample on each sampling date. Samples were examined in the laboratory after 24 hour berlese funnel separation.

Table 18 - Aphid populations in a commercial seed alfalfa field. San Joaquin, California. 1979[1]

| Field Location Variety | Date Sampled | Blue alfalfa aphid | | | Pea aphid | | | Spotted alfalfa aphid | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Wingless | Winged | Total | Wingless | Winged | Total | Wingless | Winged | Total |
| | March 14 | 23 | 0 | 23 | 143 | 2 | 145 | 0 | 0 | 0 |
| | March 20 | 10 | 0 | 10 | 356 | 34 | 390 | 0 | 0 | 0 |
| | March 27 | 29 | 5 | 34 | 163 | 11 | 174 | 0 | 0 | 0 |
| | April 3 | 45 | 10 | 55 | 139 | 1 | 140 | 0 | 0 | 0 |
| 9 San Joaquin CUF-101 | April 11 | - | - | - | - | Clipped | - | - | - | - |
| | April 17 | 8 | 4 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| | April 24 | - | - | - | - | Wet | - | - | - | - |
| | May 2 | - | - | - | - | Wet | - | - | - | - |
| | May 8 | 19 | 1 | 20 | 23 | 0 | 23 | 0 | 0 | 0 |
| | May 22 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

[1] Counts based on a 25 suck D-Vac sample on each sampling date. Samples were examined in the laboratory after 24 hour berlese funnel separation.

# MITES

Table 19 - Spider mite populations in seed alfalfa plots treated by aircraft for lygus bug control. Firebaugh, California, 1979.

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per leaf[3] Mites | Eggs |
|---|---|---|---|---|---|
| | | | Pre | 0.0 | 0.0 |
| | | | Pre | 0.6 | 1.4 |
| Carzol | 0.75 | June 6 | | | |
| | | | 7 | 0.6 | 2.0 |
| | | | 14 | 0.3 | 0.6 |
| | | | 21 | 0.6 | 1.6 |
| Lorsban | 0.50 | June 27 | | | |
| | | | 7 | 1.4 | 6.8 |
| | | | 14 | 1.0 | 5.0 |
| | | | 21 | 1.8 | 12.2 |
| Lorsban | 0.50 | July 18 | | | |
| | | | 7 | 2.7 | 9.6 |
| Carzol | 0.75 | | | | |
| + | + | July 27 | | | |
| Lorsban | 0.50 | | | | |
| | | | 5 | 1.2 | 8.4 |
| | | | 12 | 5.7 | 19.9 |
| Carzol | 0.75 | | | | |
| + | + | | | | |
| Lorsban | 0.50 | August 10 | | | |
| + | + | | | | |
| Comite | 1.69 | | | | |
| | | | 5 | 2.2 | 9.8 |
| | | | 12 | 0.1 | 0.2 |
| | | | 19 | 0.0 | 0.0 |
| | | | Pre | 0.5 | 1.4 |
| | | | Pre | 0.8 | 2.9 |
| Amaze | 1.00 | June 6 | | | |
| | | | 7 | 1.1 | 2.6 |
| | | | 14 | 0.7 | 2.0 |
| | | | 21 | 2.1 | 12.7 |
| | | | 27 | 1.3 | 10.7 |
| Monitor | 0.50 | July 3 | | | |
| | | | 8 | 1.3 | 7.7 |
| | | | 15 | 1.8 | 11.6 |
| | | | 22 | 2.5 | 10.5 |
| Lorsban | 0.50 | | | | |
| + | + | July 27 | | | |
| Comite | 1.69 | | | | |
| | | | 7 | 0.8 | 5.5 |
| | | | 14 | 1.6 | 12.5 |

Table 19 - (continued)

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per leaf[3] Mites | Eggs |
|---|---|---|---|---|---|
| | | | Pre | 0.5 | 0.9 |
| | | | Pre | 1.4 | 0.6 |
| Orthene | 0.50 | June 6 | | | |
| | | | 7 | 5.3 | 12.4 |
| | | | 14 | 1.6 | 4.4 |
| | | | 21 | 3.8 | 7.7 |
| | | | 27 | 4.1 | 16.2 |
| Lorsban | 0.50 | July 3 | | | |
| | | | 8 | 8.3 | 13.8 |
| Plictran | 0.75 | July 11 | | | |
| | | | 7 | 4.3 | 8.9 |
| | | | 14 | 6.5 | 10.0 |
| Orthene | 0.50 | | | | |
| + | + | | | | |
| Lorsban | 0.50 | July 27 | | | |
| + | + | | | | |
| Comite | 1.69 | | | | |
| | | | 5 | 1.0 | 10.8 |
| | | | 12 | 1.9 | 4.3 |
| | | | Pre | 1.2 | 1.0 |
| | | | Pre | 1.2 | 3.7 |
| Orthene | 1.00 | June 6 | | | |
| | | | 7 | 2.2 | 6.9 |
| | | | 14 | 5.0 | 10.7 |
| | | | 21 | 2.7 | 11.0 |
| | | | 27 | 2.6 | 18.8 |
| Lorsban | 0.50 | July 3 | | | |
| | | | 8 | 4.8 | 16.3 |
| Comite | 1.69 | July 11 | | | |
| | | | 7 | 2.7 | 10.3 |
| | | | 14 | 4.3 | 5.4 |
| Orthene | 1.00 | | | | |
| + | + | | | | |
| Lorsban | 0.50 | July 27 | | | |
| + | + | | | | |
| Comite | 1.69 | | | | |
| | | | 5 | 1.7 | 3.6 |
| | | | 12 | 0.5 | 1.2 |

Table 19 - (continued)

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per leaf[3] Mites | Eggs |
|---|---|---|---|---|---|
| | | | Pre | 0.4 | 0.8 |
| | | | Pre | 0.4 | 1.8 |
| Pydrin | 0.20 | June 6 | | | |
| | | | 7 | 2.3 | 4.6 |
| | | | 14 | 2.2 | 8.5 |
| | | | 21 | 2.2 | 8.2 |
| | | | 27 | 4.1 | 10.4 |
| | | | 35 | 7.0 | 17.3 |
| Pydrin | 0.20 | | | | |
| + | + | July 11 | | | |
| Plictran | 0.75 | | | | |
| | | | 7 | 4.5 | 7.3 |
| | | | 14 | 8.3 | 16.9 |
| Pydrin | 0.20 | | | | |
| + | + | July 27 | | | |
| Comite | 1.69 | | | | |
| | | | 5 | 4.5 | 10.6 |
| | | | 12 | 5.7 | 10.1 |
| Pydrin | 0.20 | | | | |
| + | + | August 8 | | | |
| Comite | 1.69 | | | | |
| | | | 7 | 0.5 | 1.1 |
| | | | 14 | 0.2 | 0.3 |
| | | | 21 | 0.0 | 0.1 |
| | | | Pre | 0.7 | 2.4 |
| | | | Pre | 1.2 | 3.6 |
| Ambush | 0.20 | June 6 | | | |
| | | | 7 | 5.6 | 8.5 |
| | | | 14 | 1.1 | 1.7 |
| | | | 21 | 2.2 | 9.6 |
| | | | 27 | 2.3 | 10.7 |
| Lorsban | 0.50 | July 3 | | | |
| | | | 7 | 3.1 | 8.8 |
| | | | 14 | 5.1 | 21.7 |
| | | | 21 | 13.8 | 29.0 |
| Ambush | 0.20 | | | | |
| + | + | July 27 | | | |
| Comite | 1.69 | | | | |
| | | | 5 | 8.4 | 6.8 |
| | | | 12 | 1.9 | 6.4 |

Table 19 - (continued)

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per leaf[3] Mites | Eggs |
|---|---|---|---|---|---|
| | | | Pre | 0.3 | 3.4 |
| | | | Pre | 0.6 | 1.1 |
| Vydate | 0.50 | June 6 | | | |
| | | | 7 | 1.7 | 5.6 |
| | | | 14 | 1.7 | 3.8 |
| | | | 21 | 2.6 | 9.7 |
| | | | 27 | 2.3 | 13.6 |
| | | | 35 | 2.8 | 20.3 |
| Vydate | 0.50 | | | | |
| + | + | | | | |
| Lorsban | 0.50 | July 11 | | | |
| + | + | | | | |
| Plictran | 0.75 | | | | |
| | | | 7 | 1.4 | 13.9 |
| | | | 14 | 3.3 | 14.9 |
| | | | 21 | 13.6 | 35.6 |
| | | | 28 | 108.1 | 147.7 |
| | | | Pre | 0.3 | 2.4 |
| | | | Pre | 0.9 | 2.7 |
| Monitor | 0.50 | | | | |
| + | + | June 6 | | | |
| Systox | 0.50 | | | | |
| | | | 7 | 2.9 | 5.9 |
| | | | 14 | 1.1 | 3.1 |
| | | | 21 | 1.3 | 5.4 |
| | | | 27 | 1.9 | 16.1 |
| | | | 35 | 2.6 | 8.3 |
| Monitor | 0.50 | | | | |
| + | + | July 11 | | | |
| Systox | 0.50 | | | | |
| | | | 7 | 2.8 | 6.0 |
| | | | 14 | 1.7 | 24.7 |
| Lorsban | 0.50 | | | | |
| + | + | July 27 | | | |
| Plictran | 0.75 | | | | |
| | | | 5 | 1.4 | 11.2 |
| | | | 12 | 8.7 | 57.1 |

Table 19 - (continued)

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per leaf[3] Mites | Eggs |
|---|---|---|---|---|---|
| | | | Pre | 0.3 | 2.4 |
| | | | Pre | 0.9 | 2.7 |
| Monitor | 0.50 | June 6 | | | |
| | | | 7 | 2.9 | 5.9 |
| | | | 14 | 1.1 | 3.1 |
| | | | 21 | 1.3 | 5.4 |
| | | | 27 | 1.9 | 16.1 |
| | | | 35 | 2.6 | 8.3 |
| Monitor | 0.50 | | | | |
| + | + | July 11 | | | |
| Lorsban | 0.50 | | | | |
| | | | 7 | 2.8 | 6.0 |
| | | | 14 | 1.7 | 24.7 |
| Lorsban | 0.50 | | | | |
| + | + | July 27 | | | |
| Plictran | 0.75 | | | | |
| | | | 5 | 1.4 | 11.2 |
| | | | 12 | 8.7 | 57.1 |
| | | | Pre | 1.1 | 1.7 |
| | | | Pre | 0.3 | 0.4 |
| Monitor | 0.75 | June 6 | | | |
| | | | 6 | 0.6 | 1.7 |
| | | | 13 | 0.4 | 0.8 |
| | | | 20 | 1.1 | 8.0 |
| | | | 26 | 0.6 | 5.6 |
| Carzol | 0.75 | | | | |
| + (7/9) | + | July 9 | | | |
| Lorsban | 0.50 | | | | |
| | | | 1 | 1.2 | 6.5 |
| | | | 7 | 0.5 | 2.0 |
| Carzol | 0.75 | | | | |
| + (7/23) | + | July 23 | | | |
| Lorsban | 0.50 | | | | |
| | | | 1 | 0.6 | 6.5 |
| | | | 8 | 1.3 | 6.2 |
| | | | 15 | 16.5 | 110.0 |

1 Plot size: Each treatment 5 acres (165'x1320'). Orthene and Plictran were wettable powders 75% & 50% respectively. Carzol was a soluble powder while the others were emulsifiable concentrates. Sprays were applied at 10 GPA. Plots were treated June 6 from 1:00 AM to 5:00 AM.

2 Pretreatment counts were made on May 29 and June 5.

3 50 trifoliate leaves were examined from each treatment on each sampling date.

Table 20 - Spider mite populations in seed alfalfa plots treated by aircraft for aphid control. Firebaugh, California, 1979.

| Treatment[1] | | | | Number per leaf[3] | |
|---|---|---|---|---|---|
| Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Mites | Eggs |
| | | | Pre | 1.7 | 7.4 |
| | | | Pre | 1.8 | 8.6 |
| Amaze | 1.00 | July 3 | | | |
| | | | 8 | 1.1 | 3.2 |
| Lorsban | 0.50 | July 11 | | | |
| | | | 15 | 1.1 | 4.9 |
| | | | 22 | 2.5 | 20.0 |
| | | | Pre | 2.3 | 6.2 |
| | | | Pre | 2.8 | 12.6 |
| Pydrin | 0.20 | July 3 | | | |
| | | | 8 | 1.8 | 18.8 |
| | | | 14 | 5.0 | 31.0 |
| Pydrin | 0.20 | July 18 | | | |
| | | | 7 | 8.5 | 31.2 |
| | | | Pre | 1.2 | 7.3 |
| | | | Pre | 1.9 | 8.0 |
| Ambush | 0.20 | July 3 | | | |
| | | | 8 | 4.4 | 16.0 |
| | | | 15 | 4.5 | 22.5 |
| | | | 22 | 7.8 | 34.0 |
| | | | Pre | 2.9 | 10.6 |
| | | | Pre | 3.5 | 11.4 |
| Systox | 0.50 | July 3 | | | |
| | | | 8 | 1.1 | 11.5 |
| | | | 15 | 2.5 | 9.3 |
| | | | 22 | 6.9 | 23.8 |
| | | | Pre | 0.7 | 6.5 |
| | | | Pre | 2.1 | 13.5 |
| Lorsban | 0.50 | July 3 | | | |
| | | | 8 | 2.0 | 18.4 |
| | | | 15 | 1.6 | 3.9 |
| | | | 22 | 5.5 | 14.4 |

Table 20 - (continued)

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per leaf[3] Mites | Eggs |
|---|---|---|---|---|---|
| | | | Pre | 3.1 | 9.7 |
| | | | Pre | 2.2 | 16.8 |
| Carzol + Lorsban | 0.75 + 0.50 | July 9 | | | |
| | | | 1 | 2.0 | 7.9 |
| | | | 8 | 2.3 | 11.1 |
| Carzol + Lorsban | 0.75 + 0.50 | July 23 | | | |
| | | | 1 | 1.1 | 7.1 |

1 Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol was a 92% soluble powder while the others were emulsifiable concentrates. Plots were treated July 3 from 1:00 AM to 4:00 AM.

2 Pretreatment counts were made on June 26 and July 2.

3 50 trifoliate leaves were examined from each treatment on each sampling date.

Table 21 - Spider mite populations in seed alfalfa plots treated by aircraft for spider mite control. Firebaugh, California, 1979.

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per leaf[3] Mites | Eggs |
|---|---|---|---|---|---|
| | | | Pre | 2.5 | 20.0 |
| Comite + Vydate + Lorsban | 1.69 + 0.50 + 0.50 | July 27 | | | |
| | | | 5 | 7.3 | 16.5 |
| | | | 12 | 1.9 | 11.7 |
| Comite + Carzol + Lorsban | 1.69 + 0.75 + 0.50 | August 10 | | | |
| | | | 5 | 0.4 | 5.3 |
| | | | Pre | 8.5 | 31.2 |
| Vendex + Vydate + Lorsban | 1.00 + 0.50 + 0.50 | July 27 | | | |
| | | | 5 | 3.5 | 17.4 |
| | | | 12 | 13.2 | 57.1 |
| Comite + Carzol + Lorsban | 1.69 + 0.75 + 0.50 | August 10 | | | |
| | | | 5 | 1.6 | 5.9 |
| | | | Pre | 7.8 | 34.0 |
| UC55248 + Vydate + Lorsban | 0.50 + 0.50 + 0.50 | July 27 | | | |
| | | | 5 | 1.7 | 11.4 |
| | | | 12 | 3.7 | 42.9 |
| Comite + Carzol + Lorsban | 1.69 + 0.75 + 0.50 | August 10 | | | |
| | | | 5 | 0.6 | 2.4 |

Table 21 - (continued)

| Treatment[1] Insecticides | AI/Acre lb. | Dates of application | Days after treatment[2] | Number per leaf[3] Mites | Eggs |
|---|---|---|---|---|---|
| | | | Pre | 6.9 | 23.8 |
| Plictran | 0.75 | | | | |
| Vydate | 0.50 | July 27 | | | |
| Lorsban | 0.50 | | | | |
| | | | 5 | 6.3 | 20.1 |
| | | | 12 | 7.0 | 49.6 |
| Comite | 1.69 | | | | |
| Carzol | 0.75 | August 10 | | | |
| Lorsban | 0.50 | | | | |
| | | | 5 | 1.1 | 7.0 |
| | | | Pre | 5.5 | 14.4 |
| UC55248 | 0.25 | | | | |
| Vydate | 0.50 | July 27 | | | |
| Lorsban | 0.50 | | | | |
| | | | 5 | 0.6 | 14.1 |
| | | | 12 | 10.0 | 60.3 |
| Comite | 1.69 | | | | |
| Carzol | 0.75 | August 10 | | | |
| Lorsban | 0.50 | | | | |
| | | | 5 | 1.8 | 8.6 |
| | | | Pre | 2.3 | 11.1 |
| Carzol | 0.75 | | | | |
| Lorsban | 0.50 | July 23 | | | |
| | | | 1 | 1.1 | 7.1 |
| | | | 8 | 3.6 | 20.0 |
| | | | 15 | 15.5 | 93.9 |
| Comite | 1.69 | | | | |
| Carzol | 0.75 | August 10 | | | |
| Lorsban | 0.50 | | | | |
| | | | 5 | 2.1 | 14.2 |

1 Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol was a 92% soluble powder, Plictran a 50% wettable powder while the others were emulsifiable concentrates. Plots were treated July 27 from 1:00 AM to 4:00 AM.

2 Pretreatment counts were made July 24.

3 50 trifoliate leaves were examined from each treatment on each sampling date.

# PREDATORS & PARASITES

Table 22 - Predator and parasite populations in seed alfalfa plots treated by aircraft for lygus bug control. Firebaugh, California, 1979.

| Treatment[1] Insecticide Dates | AI/ Acre lb. | Days after treatment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| | | Pre | 0 | 12 | 2 | 5 | 33 | 5 | 1 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 68 | 7 |
| | | Pre | 2 | 10 | 2 | 27 | 36 | 26 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 72 | 8 |
| Carzol (6/6) | 0.75 | | | | | | | | | | | | | | | | | |
| | | 7 | 3 | 0 | 3 | 10 | 8 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 42 | 15 |
| | | 14 | 2 | 1 | 2 | 3 | 7 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 30 |
| | | 21 | 1 | 0 | 0 | 0 | 9 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 25 | 5 |
| Lorsban (6/27) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 7 | 4 | 1 | 0 | 0 | 24 | 6 | 3 | 6 | 1 | 0 | 2 | 10 | 1 | 0 | 26 | 19 |
| | | 14 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 9 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 9 |
| | | 21 | 0 | 0 | 0 | 0 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2 |
| Lorsban (7/18) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 7 | 0 | 0 | 0 | 1 | 87 | 3 | 21 | 5 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 13 |
| Carzol + Lorsban (7/27) | 0.75 + 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 3 | 2 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| | | 12 | 0 | 0 | 0 | 0 | 28 | 0 | 8 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 15 |
| Carzol + Lorsban + Comite (8/10) | 0.75 + 0.50 + 1.69 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 14 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 10 |
| | | 12 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 21 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| | | 19 | 1 | 0 | 0 | 0 | 7 | 0 | 32 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |

Table 22 - (continued)

| Treatment[1] Insecticide Dates | AI/ Acre lb. | Days after treatment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| | | Pre | 1 | 7 | 0 | 7 | 14 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 22 | 0 |
| | | Pre | 6 | 7 | 5 | 26 | 38 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13 | 8 |
| Orthene (6/6) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 7 | 6 | 0 | 1 | 7 | 11 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 65 | 15 |
| | | 14 | 0 | 0 | 0 | 0 | 4 | 3 | 2 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 27 | 69 |
| | | 21 | 0 | 0 | 0 | 0 | 6 | 11 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19 | 5 |
| | | 27 | 2 | 0 | 0 | 0 | 57 | 3 | 14 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 17 |
| Lorsban (7/3) | | | | | | | | | | | | | | | | | | |
| | | 8 | 1 | 0 | 0 | 0 | 10 | 0 | 3 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 11 |
| Plictran(7/11) | 0.75 | | | | | | | | | | | | | | | | | |
| | | 7 | 0 | 0 | 0 | 0 | 4 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 5 |
| | | 14 | 0 | 1 | 0 | 1 | 50 | 7 | 17 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 14 |
| Orthene | 0.50 | | | | | | | | | | | | | | | | | |
| Lorsban (7/27) | 0.50 | | | | | | | | | | | | | | | | | |
| Comite | 1.69 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | | 12 | 0 | 0 | 0 | 0 | 8 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 4 |
| | | Pre | 0 | 2 | 4 | 6 | 10 | 6 | 1 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 2 | 14 |
| | | Pre | 6 | 10 | 12 | 48 | 67 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 14 | 19 |
| Orthene (6/6) | 1.00 | | | | | | | | | | | | | | | | | |
| | | 7 | 3 | 1 | 0 | 6 | 3 | 0 | 2 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 12 | 31 |
| | | 14 | 3 | 2 | 0 | 5 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 47 | 93 |
| | | 21 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 22 | 7 |
| | | 27 | 1 | 0 | 0 | 0 | 24 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 33 | 24 |
| Lorsban (7/3) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 8 | 0 | 0 | 0 | 0 | 4 | 3 | 2 | 16 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 12 |
| Comite (7/11) | 1.69 | | | | | | | | | | | | | | | | | |
| | | 7 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 14 | 1 | 0 | 0 | 0 | 45 | 19 | 11 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 |
| Orthene | 1.00 | | | | | | | | | | | | | | | | | |
| Lorsban (7/27) | 0.50 | | | | | | | | | | | | | | | | | |
| Comite | 1.69 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | | 12 | 1 | 0 | 0 | 0 | 5 | 1 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 |

Table 2 (continued)

| Treatment[1] Insecticide Dates | AI/ Acre lb. | Days after treatment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| | | Pre | 0 | 3 | 4 | 5 | 28 | 7 | 0 | 1 | 0 | 0 | 3 | 0 | 2 | 0 | 5 | 2 |
| | | Pre | 4 | 2 | 21 | 63 | 80 | 15 | 3 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 32 | 19 |
| Pydrin (6/6) | 0.20 | | | | | | | | | | | | | | | | | |
| | | 7 | 5 | 4 | 0 | 2 | 28 | 3 | 2 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | 32 | 9 |
| | | 14 | 3 | 1 | 2 | 7 | 49 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 21 |
| | | 21 | 1 | 0 | 0 | 1 | 27 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 26 | 3 |
| | | 27 | 5 | 3 | 1 | 8 | 105 | 49 | 1 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 39 | 16 |
| | | 35 | 0 | 0 | 0 | 0 | 76 | 62 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Pydrin | 0.20 | | | | | | | | | | | | | | | | | |
| Plictran (7/11) | 0.75 | | | | | | | | | | | | | | | | | |
| | | 7 | 0 | 0 | 0 | 0 | 148 | 24 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 11 |
| | | 14 | 7 | 0 | 0 | 3 | 27 | 25 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6 |
| Pydrin | 0.20 | | | | | | | | | | | | | | | | | |
| Comite (7/17) | 1.69 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 1 | 0 | 0 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| | | 12 | 2 | 22 | 0 | 3 | 129 | 68 | 3 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 14 |
| Pydrin | 0.20 | | | | | | | | | | | | | | | | | |
| Comite (8/8) | 1.69 | | | | | | | | | | | | | | | | | |
| | | 7 | 0 | 0 | 0 | 0 | 11 | 2 | 0 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 8 |
| | | 14 | 1 | 0 | 0 | 1 | 3 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | 21 | 0 | 0 | 0 | 0 | 21 | 5 | 11 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Pre | 2 | 17 | 2 | 1 | 12 | 8 | 2 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 7 | 9 |
| | | Pre | 7 | 6 | 14 | 30 | 36 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 35 | 9 |
| Ambush (6/6) | 0.20 | | | | | | | | | | | | | | | | | |
| | | 7 | 11 | 4 | 11 | 22 | 16 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 1 |
| | | 14 | 4 | 0 | 5 | 20 | 27 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 19 |
| | | 21 | 4 | 0 | 0 | 1 | 6 | 1 | 10 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 8 | 2 |
| | | 27 | 11 | 0 | 6 | 7 | 32 | 19 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 7 |
| Lorsban (7/3) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 8 | 1 | 1 | 0 | 3 | 20 | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 9 |
| | | 14 | 2 | 0 | 0 | 0 | 10 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 |
| | | 21 | 0 | 2 | 0 | 9 | 58 | 42 | 10 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 8 |
| Ambush | 0.20 | | | | | | | | | | | | | | | | | |
| Comite (7/27) | 1.69 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 12 | 2 | 2 | 1 | 4 | 39 | 0 | 3 | 21 | 0 | 0 | 1 | 0 | 0 | 0 | 14 | 17 |

Table 22 - (continued)

| Treatment[1] Insecticide Dates | AI/ Acre lb. | Days after treatment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| | | Pre | 1 | 1 | 5 | 6 | 57 | 18 | 2 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 40 | 5 |
| | | Pre | 2 | 1 | 14 | 120 | 100 | 22 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 95 | 28 |
| Monitor (6/6) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 7 | 15 | 2 | 0 | 13 | 4 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 32 |
| | | 14 | 1 | 0 | 0 | 5 | 8 | 0 | 5 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 37 | 126 |
| | | 21 | 1 | 1 | 0 | 1 | 2 | 3 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 26 |
| | | 27 | 8 | 1 | 0 | 2 | 42 | 7 | 5 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 62 |
| | | 35 | 0 | 0 | 1 | 0 | 16 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 24 |
| Monitor | 0.50 | | | | | | | | | | | | | | | | | |
| Lorsban (7/11) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 13 |
| | | 14 | 0 | 0 | 1 | 0 | 0 | 0 | 7 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 41 |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| Plictran (7/27) | 0.75 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10 |
| | | 12 | 1 | 2 | 0 | 0 | 17 | 1 | 22 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 106 |
| | | Pre | 2 | 10 | 2 | 6 | 14 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 5 | 5 |
| | | Pre | 4 | 7 | 9 | 38 | 53 | 5 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 20 | 7 |
| Monitor (6/6) | 0.75 | | | | | | | | | | | | | | | | | |
| | | 6 | 1 | 1 | 1 | 3 | 2 | 1 | 5 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 18 | 23 |
| | | 13 | 0 | 0 | 1 | 8 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 49 | 83 |
| | | 20 | 1 | 3 | 0 | 1 | 6 | 4 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 90 | 76 |
| | | 26 | 2 | 0 | 0 | 0 | 33 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 9 | 6 |
| Carzol | 0.75 | | | | | | | | | | | | | | | | | |
| Lorsban (7/9) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| | | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Carzol | 0.75 | | | | | | | | | | | | | | | | | |
| Lorsban (7/23) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| | | 8 | 0 | 0 | 0 | 7 | 1 | 0 | 7 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 68 |
| | | 15 | 0 | 0 | 0 | 0 | 17 | 1 | 22 | 15 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 61 |

Table 22 - (continued)

| Treatment[1] Insecticide Dates | AI/ Acre lb. | Days after treat-ment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| | | Pre | 0 | 12 | 2 | 8 | 7 | 2 | 1 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 2 | 1 |
| | | Pre | 4 | 4 | 15 | 69 | 73 | 28 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 44 | 10 |
| Amaze (6/6) | 1.00 | | | | | | | | | | | | | | | | | |
| | | 7 | 3 | 0 | 3 | 1 | 3 | 0 | 2 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 7 | 12 |
| | | 14 | 2 | 0 | 1 | 10 | 5 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 100 |
| | | 21 | 1 | 0 | 1 | 2 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 31 | 24 |
| | | 27 | 0 | 1 | 2 | 0 | 25 | 0 | 4 | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 19 | 24 |
| Monitor (7/3) | 0.50 | | | | | | | | | | | | | | | | | |
| | | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6 |
| | | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 |
| | | 22 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| Comite (7/27) | 1.69 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| | | 12 | 1 | 0 | 0 | 0 | 5 | 0 | 11 | 20 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 11 |

1 Plot size: Each treatment 5 acres (165'x1320'). Orthene and Plictran were wettable powders 75% and 50% respectively. Carzol was a 92% soluble powder while the others were emulsifiable concentrates. Sprays were applied at 10 GPA. Plots were treated from 1:00 AM to 5:00 AM.

2 Pretreatment counts were made on May 29 and June 5.

3 2-25 suck D-Vac samples per treatment on each sampling date.

Table 23 - Predator and parasite populations in seed alfalfa plots treated by aircraft for aphid control. Firebaugh, California, 1979.

| Treatment[1] Insecticide | Dates | AI/ Acre lb. | Days after treatment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| | | | Pre | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 |
| | | | Pre | 2 | 0 | 4 | 2 | 50 | 4 | 4 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 52 | 10 |
| Amaze | (7/3) | 1.00 | | | | | | | | | | | | | | | | | |
| | | | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 18 |
| Lorsban | (7/11) | 0.50 | | | | | | | | | | | | | | | | | |
| | | | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 12 |
| | | | 22 | 2 | 0 | 1 | 0 | 6 | 2 | 25 | 5 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 16 |
| | | | Pre | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 3 |
| | | | Pre | 2 | 0 | 0 | 0 | 22 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 83 | 30 |
| Pydrin | (7/3) | 0.20 | | | | | | | | | | | | | | | | | |
| | | | 8 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 6 |
| | | | 14 | 2 | 0 | 0 | 3 | 9 | 1 | 4 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 13 |
| Pydrin | (7/18) | 0.20 | | | | | | | | | | | | | | | | | |
| | | | 7 | 2 | 1 | 0 | 1 | 4 | 0 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 12 |
| | | | Pre | 0 | 0 | 0 | 0 | 5 | 12 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 59 | 22 |
| | | | Pre | 3 | 1 | 0 | 5 | 54 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 16 | 25 |
| Ambush | (7/3) | 0.20 | | | | | | | | | | | | | | | | | |
| | | | 8 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 14 |
| | | | 15 | 0 | 2 | 0 | 1 | 4 | 2 | 3 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 44 |
| | | | 22 | 2 | 0 | 1 | 0 | 12 | 4 | 21 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 14 |

Table 23 - (continued)

| Treatment[1] Insecticide | Dates | AI/ Acre lb. | Days after treatment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| Systox | (7/3) | 0.50 | Pre | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 7 |
| | | | Pre | 0 | 0 | 4 | 2 | 27 | 5 | 2 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 13 |
| | | | 8 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 41 |
| | | | 15 | 0 | 0 | 0 | 0 | 1 | 1 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 260 |
| | | | 22 | 0 | 0 | 0 | 4 | 13 | 4 | 26 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 18 |
| Lorsban | (7/3) | 0.50 | Pre | 0 | 0 | 0 | 4 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 2 |
| | | | Pre | 6 | 0 | 0 | 2 | 58 | 2 | 2 | 12 | 0 | 0 | 0 | 2 | 0 | 0 | 63 | 30 |
| | | | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | | | 15 | 0 | 0 | 0 | 0 | 3 | 4 | 12 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 57 |
| | | | 22 | 6 | 0 | 0 | 0 | 5 | 0 | 15 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 34 |
| Carzol<br>Lorsban | (7/9) | 0.75<br>0.50 | Pre | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 1 |
| | | | Pre | 6 | 1 | 2 | 2 | 43 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 30 | 12 |
| | | | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12 |
| | | | 8 | 1 | 0 | 0 | 0 | 6 | 2 | 17 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 19 |
| Carzol<br>Lorsban | (7/23) | 0.75<br>0.50 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |

1 Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol was a 92% soluble powder while the others were emulsifiable concentrates. Plots were treated from 1:00 AM to 4:00 AM.

2 Pretreatment counts were made on June 26 and July 2.

3 2-25 suck D-Vac samples per treatment on each sampling date.

Table 24 - Predator and parasite populations in seed alfalfa plots treated by aircraft for spider mite control. Firebaugh, California, 1979.

| Treatment[1] Insecticide Dates | AI/ Acre lb. | Days after treatment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| | | Pre | 2 | 0 | 1 | 0 | 6 | 2 | 25 | 5 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 16 |
| Comite | 1.69 | | | | | | | | | | | | | | | | | |
| Vydate (7/27) | 0.50 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| | | 12 | 0 | 0 | 0 | 0 | 12 | 5 | 2 | 13 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 2 |
| Comite | 1.69 | | | | | | | | | | | | | | | | | |
| Vydate (8/10) | 0.50 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | | Pre | 2 | 1 | 0 | 1 | 4 | 0 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 12 |
| Vendex | 1.00 | | | | | | | | | | | | | | | | | |
| Vydate (7/27) | 0.50 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 8 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| | | 12 | 0 | 0 | 0 | 0 | 19 | 0 | 15 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 |
| Comite | 1.69 | | | | | | | | | | | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | | Pre | 2 | 0 | 1 | 0 | 12 | 4 | 21 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 14 |
| UC55248 | 0.50 | | | | | | | | | | | | | | | | | |
| Vydate (7/27) | 0.50 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 28 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 28 |
| | | 12 | 0 | 0 | 0 | 1 | 21 | 5 | 4 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 37 |
| Comite | 1.69 | | | | | | | | | | | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |

Table 24 - (continued)

| Treatment[1] Insecticide Dates | AI/ Acre lb. | Days after treatment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| | | Pre | 0 | 0 | 0 | 4 | 13 | 4 | 26 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 18 |
| Plictran | 0.75 | | | | | | | | | | | | | | | | | |
| Vydate (7/27) | 0.50 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 49 |
| | | 12 | 0 | 0 | 0 | 0 | 18 | 3 | 8 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 136 |
| Comite | 1.69 | | | | | | | | | | | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | | Pre | 6 | 0 | 0 | 0 | 5 | 0 | 15 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 34 |
| UC55248 | 0.25 | | | | | | | | | | | | | | | | | |
| Vydate (7/27) | 0.50 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 23 |
| | | 12 | 0 | 0 | 0 | 3 | 14 | 16 | 4 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 56 |
| Comite | 1.69 | | | | | | | | | | | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |

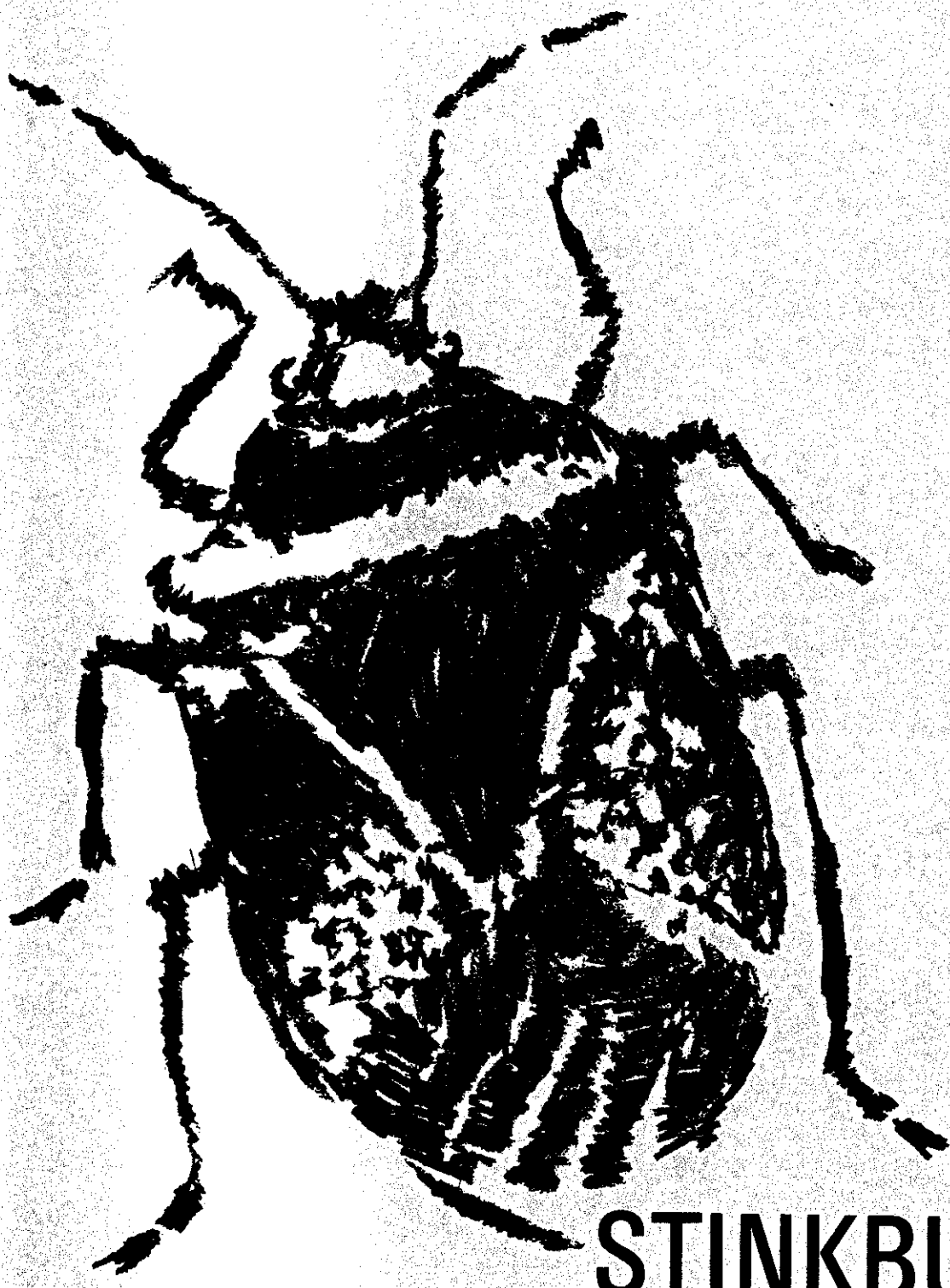
Table 24 - (continued)

| Treatment[1] Insecticide Dates | AI/ Acre lb. | Days after treatment[2] | Number Per 50 D-Vac Samples[3] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Geocoris | | Nabis | | Orius | | Lacewings | | Syrphids | | Cocci-nellidae | | Collops | | Parasitic Wasps | Spiders |
| | | | A | N | A | N | A | N | A | L | A | L | A | L | A | L | | |
| | | Pre | 1 | 0 | 0 | 0 | 6 | 2 | 17 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 19 |
| Carzol (7/23) | 0.75 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | | 8 | 0 | 0 | 0 | 0 | 11 | 1 | 7 | 9 | 0 | 1 | 0 | 0 | 1 | 0 | 5 | 71 |
| | | 15 | 0 | 0 | 0 | 0 | 9 | 7 | 13 | 9 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 21 |
| Comite | 1.69 | | | | | | | | | | | | | | | | | |
| Carzol (8/10) | 0.75 | | | | | | | | | | | | | | | | | |
| Lorsban | 0.50 | | | | | | | | | | | | | | | | | |
| | | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 15 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 29 |

1 Plot size: Each treatment 5 acres (165'x1320'). Sprays were applied at 10 GPA. Carzol was a 92% soluble powder, Plictran a 50% wettable powder while the others were emulsifiable concentrates. Plots were treated 1:00 AM to 4:00 AM.

2 Pretreatment counts were made July 24.

3 2-25 suck D-Vac samples per replicate on each sampling date.



STINKBUG

Table 26 - Stinkbug populatins in 11 seed alfalfa fields. Fresno, County, California. 1979.

| Field Number and Location [2] | Number per 25 ft of row[1] | | | | | |
|---|---|---|---|---|---|---|
| | Consperse stinkbug | | | Says stinkbug | | |
| | Adults | Nymphs | Total | Adults | Nymphs | Total |
| 1 Firebaugh | 0 | 7 | 7 | 0 | 1 | 1 |
| 2 Firebaugh | 0 | 0 | 0 | 6 | 5 | 11 |
| 3 Firebaugh | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 Firebaugh | 0 | 0 | 0 | 2 | 89 | 91 |
| 5 Firebaugh | 0 | 9 | 9 | 0 | 8 | 8 |
| 6 Firebaugh | 0 | 0 | 0 | 0 | 5 | 5 |
| 7 San Joaquin | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 San Joaquin | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 San Joaquin | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 Five Points | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 Five Points | 2 | 0 | 2 | 7 | 23 | 30 |
| Total | 2 | 16 | 18 | 15 | 131 | 146 |

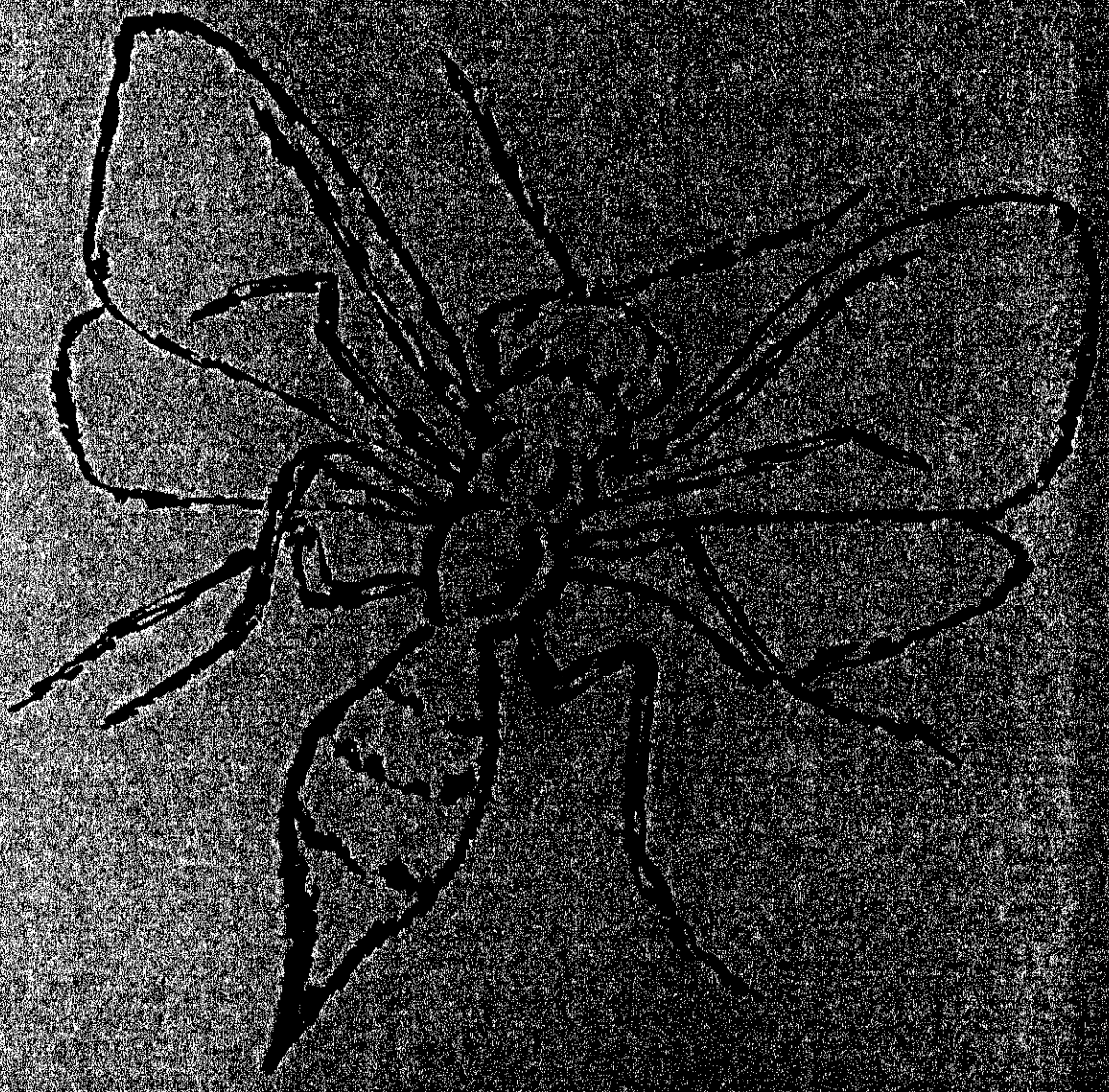
1 Five beating pan samples from each field. Samples were examined in laboratory after 24-hour berlese funnel separation.

2 Samples collected July 27.

Table 27 - Percentages of good and defective seeds in samples from 9 seed alfalfa fields surveyed for stinkbug damaged seed. Fresno County. 1979.

| Location | Field No. | Seeds Examined[1] | Good Seed | Defective Seeds | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Chalcid | Lygus bug | Stink bug | Shriveled | Water damage | Green |
| Firebaugh | 1 | 1393 | 92.8 | 0.1 | 3.3 | 0.1 | 0.1 | 0.7 | 2.9 |
| Firebaugh | 2 | 1479 | 94.0 | 0.9 | 4.0 | 0.1 | 0.0 | 0.3 | 0.7 |
| Firebaugh | 3 | 1400 | 94.9 | 0.1 | 3.0 | 0.0 | 0.1 | 0.4 | 1.5 |
| Firebaugh | 4 | 1428 | 89.6 | 0.0 | 3.1 | 0.0 | 0.1 | 1.5 | 5.7 |
| Firebaugh | 6 | 1535 | 95.7 | 0.1 | 2.5 | 0.1 | 0.0 | 0.8 | 0.8 |
| San Joaquin | 7 | 1397 | 96.5 | 0.0 | 2.3 | 0.1 | 0.0 | 0.2 | 0.9 |
| San Joaquin | 9 | 1483 | 92.9 | 0.0 | 6.1 | 0.2 | 0.0 | 0.3 | 0.5 |
| Five Points | 10 | 1629 | 83.8 | 0.0 | 13.4 | 0.2 | 0.0 | 0.9 | 1.7 |
| Five Points | 11 | 1558 | 89.5 | 0.3 | 8.3 | 0.2 | 0.1 | 0.9 | 0.7 |

[1] Four 2-quart samples of pods were hand stripped from plants prior to commercial harvest. Samples were hand threshed and lightly cleaned in a clipper seed cleaner. Counts are based on two subsamples from each of the threshed 2-quart samples.



# CHALCID

Table 25 - Percentages of good and defective seeds in samples from 18 seed alfalfa fields surveyed for chalcid damaged seed. Fresno County. 1979.

| Location | Field No. | Seeds Examined[1] | Good Seed | Defective Seeds | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Chalcid | Lygus bug | Stink bug | Shriveled | Water damage | Green |
| Firebaugh | 16 | 1422 | 85.9 | 0.1 | 4.4 | 0.1 | 0.6 | 0.3 | 8.6 |
| Firebaugh | 20 | 1393 | 92.8 | 0.1 | 3.3 | 0.1 | 0.1 | 0.7 | 2.9 |
| Firebaugh | 21 | 1400 | 94.8 | 0.1 | 3.0 | 0.0 | 0.1 | 0.4 | 1.6 |
| Firebaugh | 22 | 1535 | 95.7 | 0.1 | 2.5 | 0.1 | 0.0 | 0.8 | 0.8 |
| Firebaugh | 25 | 1417 | 92.8 | 1.3 | 3.1 | 0.2 | 0.1 | 1.6 | 0.9 |
| Firebaugh | 26 | 1397 | 94.2 | 0.0 | 4.6 | 0.0 | 0.0 | 0.6 | 0.6 |
| Firebaugh | 27 | 1428 | 89.6 | 0.0 | 3.1 | 0.0 | 0.1 | 1.5 | 5.7 |
| Firebaugh | 28 | 1479 | 94.0 | 0.9 | 4.0 | 0.1 | 0.0 | 0.3 | 0.7 |
| ------Average------ | | 1433.9 | 92.5 | 0.3 | 3.5 | 0.1 | 0.1 | 0.8 | 2.7 |
| Five Points | 3 | 1558 | 89.5 | 0.3 | 8.3 | 0.2 | 0.1 | 0.9 | 0.7 |
| Five Points | 4 | 1775 | 94.7 | 0.1 | 3.4 | 0.1 | 0.0 | 0.9 | 0.8 |
| Five Points | 5 | 1629 | 83.8 | 0.0 | 13.4 | 0.2 | 0.0 | 0.9 | 1.7 |
| Five Points | 6 | 1692 | 95.2 | 0.0 | 2.8 | 0.0 | 0.0 | 1.2 | 0.8 |
| Five Points | 7 | 1737 | 94.4 | 0.1 | 3.5 | 0.1 | 0.0 | 0.6 | 1.3 |
| ------Average------ | | 1678.2 | 91.6 | 0.1 | 6.2 | 0.1 | 0.0 | 0.9 | 1.1 |
| San Joaquin | 1 | 1397 | 96.5 | 0.0 | 2.3 | 0.1 | 0.0 | 0.2 | 0.9 |
| San Joaquin | 2 | 1483 | 92.9 | 0.0 | 6.1 | 0.2 | 0.0 | 0.3 | 0.5 |
| San Joaquin | 13 | 1618 | 92.4 | 0.3 | 5.5 | 0.1 | 0.0 | 0.9 | 0.8 |
| San Joaquin | 14 | 1684 | 94.4 | 0.4 | 3.9 | 0.0 | 0.1 | 0.5 | 0.7 |
| San Joaquin | 15 | 1450 | 92.0 | 0.2 | 4.2 | 0.2 | 0.3 | 1.2 | 1.9 |
| ------Average------ | | 1526.4 | 93.6 | 0.2 | 4.4 | 0.1 | 0.1 | 0.6 | 1.0 |
| 3 Area Average | | 1527.4 | 92.5 | 0.2 | 4.6 | 0.1 | 0.1 | 0.8 | 1.7 |

[1] Four 2-quart samples of pods were hand stripped from plants prior to commercial harvest. Samples were hand threshed and lightly cleaned in a clipper seed cleaner. Counts are based on two subsamples from each of the threshed 2-quart samples.

OLR

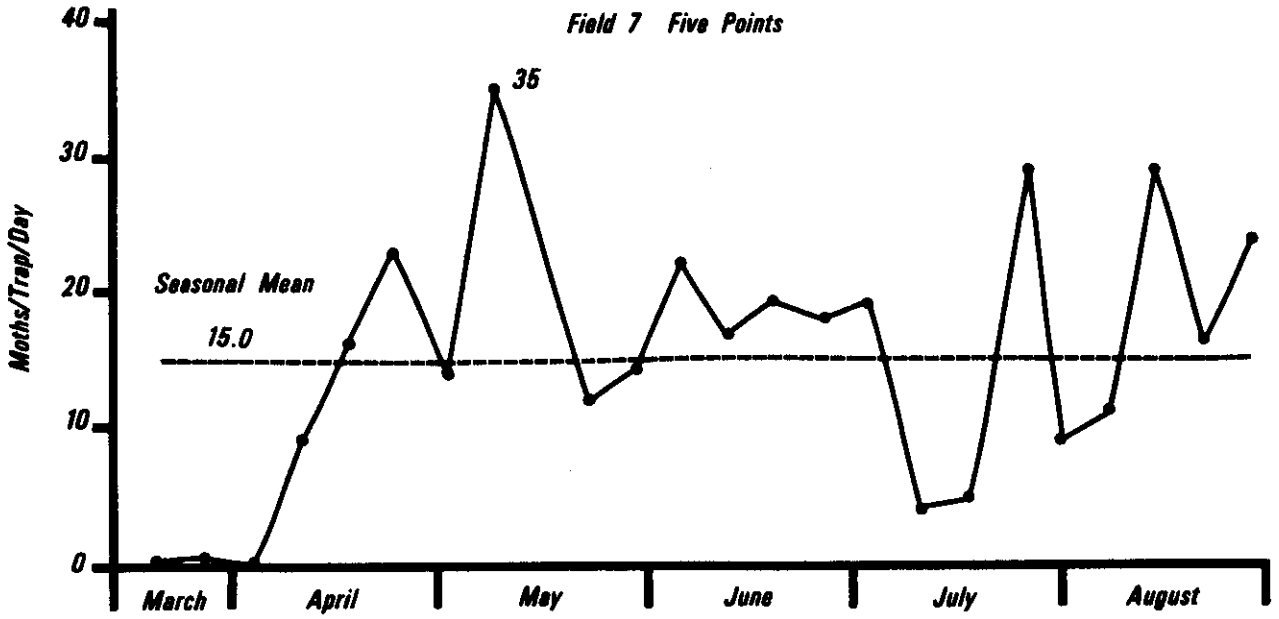
Table 28 - Populations of male Omnivorous Leafroller moths trapped in 11 commercial seed alfalfa fields. Fresno County, California, 1979.[1]

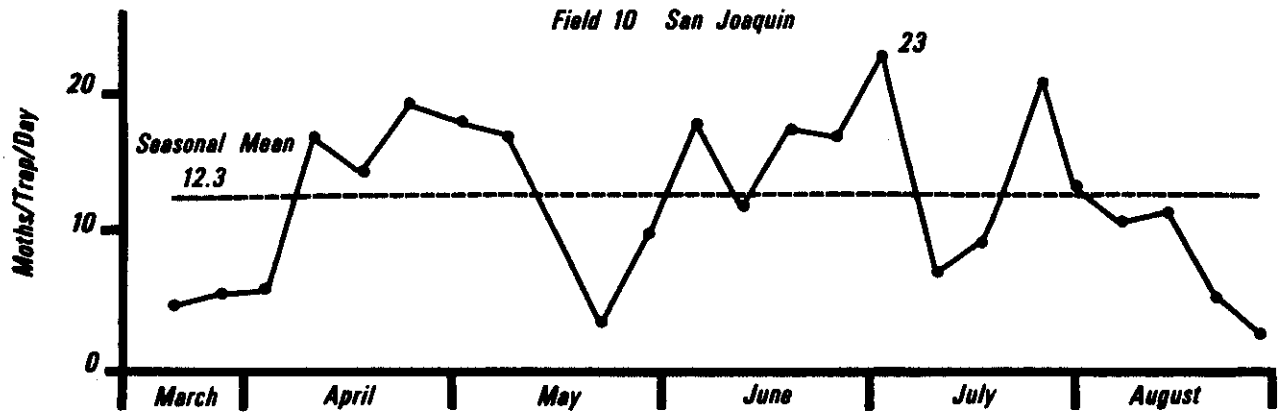
| Collection Date[2] | | Moths per trap per day | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Field Numbers[3] | | | | | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| March | 20 | 0.4 | 0.0 | 0.3 | 0.0 | 0.1 | 0.1 | 0.1 | 0.7 | 0.4 | 4.4 | - |
| | 27 | 0.6 | 0.3 | 0.0 | 0.0 | 0.5 | 0.8 | 0.4 | 3.7 | 2.4 | 5.1 | 0.7 |
| April | 3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 1.6 | 2.3 | 5.5 | 0.3 |
| | 10 | 1.6 | 2.0 | 1.0 | 0.3 | 3.0 | 3.3 | 8.7 | 18.0 | 24.1 | 17.1 | 1.7 |
| | 17 | 7.3 | 7.4 | 3.4 | 0.3 | 13.0 | 12.4 | 16.1 | 19.2 | 26.4 | 14.6 | 2.0 |
| | 24 | 1.8 | 1.0 | 0.7 | 0.0 | 3.6 | 5.8 | 22.7 | 24.6 | 31.8 | 19.3 | 3.4 |
| May | 1 | 4.6 | 4.0 | 1.3 | 1.3 | 7.7 | 14.7 | 14.1 | 30.7 | 41.4 | 17.8 | 1.7 |
| | 8 | 2.1 | 4.5 | 0.1 | 0.0 | 2.3 | 4.8 | 34.7 | 28.8 | 42.4 | 17.1 | 0.0 |
| | 22 | 2.0 | 7.6 | 0.2 | 0.7 | 3.0 | 3.3 | 12.4 | 27.0 | 40.7 | 3.6 | 0.7 |
| | 29 | 0.0 | 4.4 | 0.0 | 0.3 | 0.1 | 0.8 | 13.7 | 4.3 | 4.7 | 9.6 | 0.0 |
| June | 5 | 1.6 | 1.4 | 1.8 | 1.3 | 4.4 | 6.1 | 22.0 | 17.4 | 8.5 | 18.4 | 0.8 |
| | 12 | 3.0 | 3.4 | 1.6 | 1.7 | 1.8 | 3.8 | 16.8 | - | 9.6 | 11.8 | 1.6 |
| | 19 | 1.8 | 4.0 | 1.0 | 6.7 | 1.3 | 4.6 | 18.8 | 12.7 | 22.6 | 18.0 | 0.1 |
| | 26 | 0.0 | 3.8 | 0.0 | 1.6 | 0.8 | 7.4 | 18.1 | - | 11.1 | 17.3 | 0.3 |
| July | 2 | 2.3 | 2.2 | 0.6 | - | - | - | 18.6 | 13.8 | 2.3 | 22.8 | 0.6 |
| | 10 | 2.2 | 1.2 | 0.2 | - | - | - | 4.0 | - | 2.2 | 7.3 | 0.2 |
| | 17 | 0.3 | 2.1 | 0.0 | - | - | - | 4.4 | 2.3 | 3.1 | 8.9 | 0.0 |
| | 26 | 0.3 | 4.0 | 4.2 | - | - | - | 28.8 | 14.5 | 22.4 | 20.8 | 0.1 |
| | 31 | 1.2 | 2.6 | 0.1 | - | - | - | 9.7 | 21.6 | 11.1 | 13.6 | 0.8 |
| August | 7 | 1.3 | 8.0 | 0.7 | - | - | - | 10.8 | 27.7 | 15.7 | 10.7 | 0.0 |
| | 14 | 0.3 | 7.3 | 0.4 | - | - | - | 29.1 | 20.7 | 20.0 | 11.6 | 0.1 |
| | 21 | 0.0 | 13.4 | 1.7 | - | - | - | 16.6 | 22.8 | 15.1 | 5.1 | 0.1 |
| | 28 | 0.3 | 23.8 | 3.1 | - | - | - | 24.0 | 31.4 | 23.4 | 2.6 | 0.8 |
| Total | | 35.1 | 108.4 | 22.4 | 14.2 | 41.5 | 68.5 | 344.6 | 343.5 | 381.3 | 283 | 16 |
| Seasonal mean | | 1.5 | 4.7 | 0.9 | 1.0 | 2.9 | 4.9 | 15.0 | 17.2 | 16.6 | 12.3 | 0.7 |

1 Pherocon® OLR caps were used and changed every 5 weeks throughout the trapping season.

2 Traps were started March 13, the collection periods are 6 to 8 days prior to the collection dates.

3 UCD water pan trap was used in field 1 while the remaining 10 fields used Pherocon® 1C sticky traps. Fields 1-5 Firebaugh area; fields 6-8 Five Points area; fields 9-11 San Joaquin area.



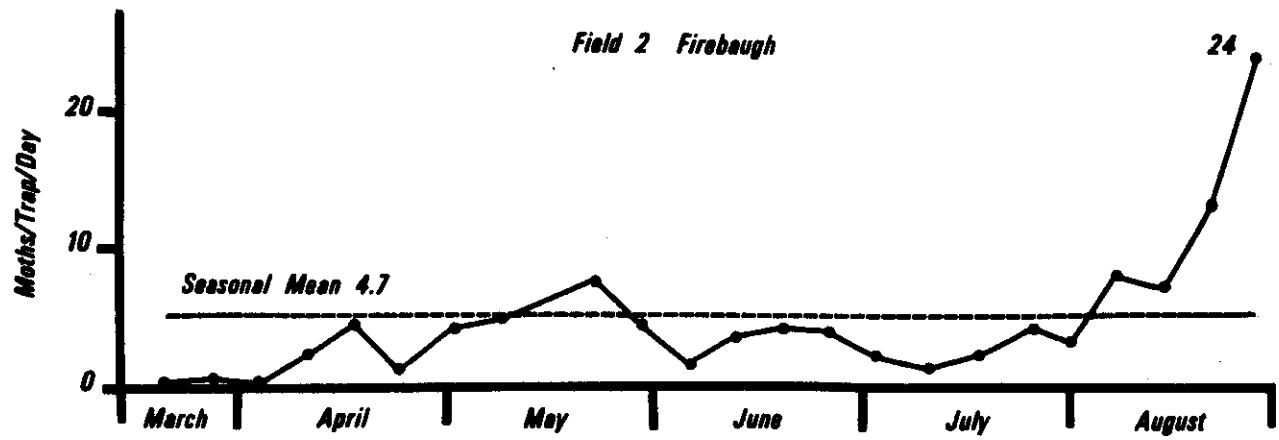




Fig. 2 - *Populations Of Male Omnivorous Leafroller Moths Caught In Pherocon 1C Sticky Traps In Commercial Seed Alfalfa Fields . Fresno County. 1979.*

The contents of this report should not be interpreted as recommendations of the University of California. Insect control recommendations are published by the University of California and can be obtained free of charge from any Cooperative Extension Office.

Common and/or manufacturer's names of insecticides are used in this report instead of the less familiar chemical terms, but no endorsement of products mentioned is intended. The rates of insecticides applied per acre are all expressed as active material per treated acre. Some of the chemicals included in the experiments reported are not registered for commercial use on seed alfalfa at this time.

The common and/or manufactorer's names of insecticides mentioned in this report are as follows:

| | |
|---|---|
| Amaze® | Plictran® |
| Ambush® | Pydrin® |
| Carzol® | Systox® |
| Comite® | Thiodan® |
| Lorsban® | UC55248 |
| Monitor® | Vendex® |
| Orthene® | Vydate® |
| Phosdrin® | |

These experiments were conducted in the San Joaquin Valley where the honeybee is the principal pollinator. We have no information concerning the effects of these insecticides and programs on leafcutting or alkali bees.