

"Seasonal Variation in Alfalfa Insect Populations  
W. D. McClellan and Gary Weinberger  
Tulare County Farm Advisor  
University of California Cooperative Extension and  
Field Assistant, Tulare County

During the 1977 season, eight alfalfa fields in Tulare County were evaluated on a weekly basis for the presence of insect pests. Very little information has been published with respect to the seasonal population dynamics of insect pests in grower fields. The purpose of this survey was to gather such data that could be used by growers, pest control advisors and researchers.

Researchers have developed economic levels which are used as guidelines in making insect control decisions for certain alfalfa insect pests. These levels, together with other characteristics such as plant vigor, proximity of harvest and variety are all involved in treatment decisions. The major insect pests that growers confronted this last season were the Blue Alfalfa Aphid (BAA - Acyrtosiphon kondoi), Egyptian Alfalfa Weevil (EAW - Hypera brunneipennis), Alfalfa caterpillar (Colias eurytheme) and Beet army worm (Spodoptera exiqua).

Figures 1 and 2 show the seasonal variation of these insects in one of the survey fields. Although insect population varied from field to field, the trends found in these figures are representative of the insect infestations observed. The following is a summary of observations resulting from this survey.

(1) The BAA built up very rapidly early in the year when the spring growth of alfalfa was just beginning. The early BAA population buildup caught many growers and pest control advisors unprepared and most treatments for the BAA were applied when the population was on the decline and after much initial damage had occurred. The populations of BAA ranged from less than 10 per stem to greater than 80 per stem. Aphid predators such as the lady bug (Hippodamia convergens) and insect pathogens (primarily fungi) were not effective as biological control agents in the early BAA population buildup. Later populations were reduced by both these biological agents and/or by chemical control.

(2) The Egyptian Alfalfa Weevil buildup came in early March. Only one of the fields in this survey needed to be treated for EAW. The field represented in Fig. 1 had greater than 20 larvae per sweep, however, the buildup was suppressed by early harvest. Our observations indicated that many fields in Tulare County were treated for the EAW before the insect populations reached treatable levels.

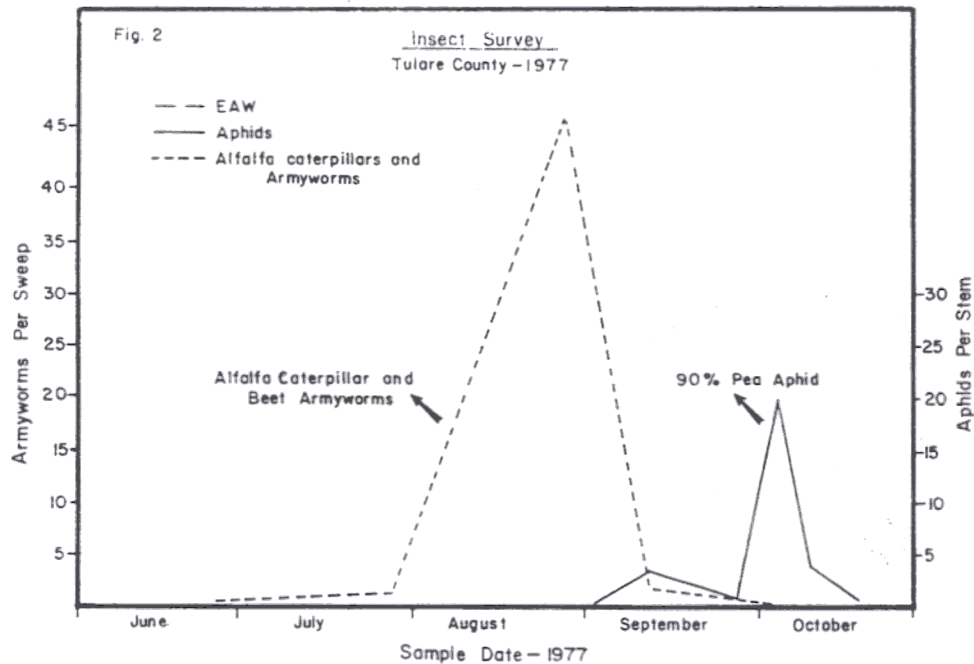
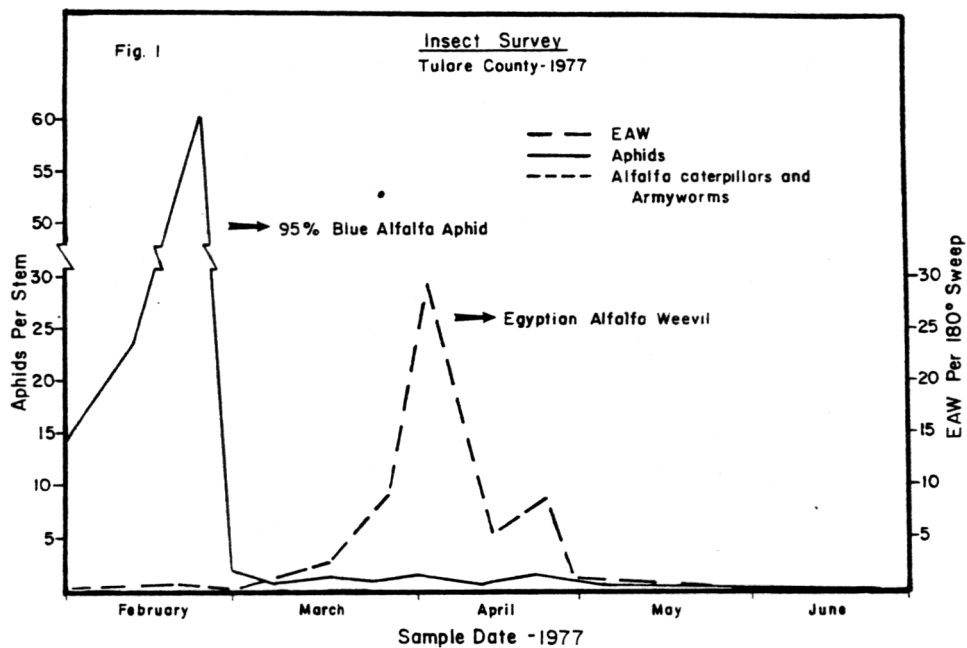
(3) From late April to late July, insect pests were of minor importance in alfalfa. Spider mites and thrips were found in many alfalfa fields. The mite infestations were primarily on stressed plants found on the borders and in other dry areas of the fields.

(4) Alfalfa caterpillar and beet army worm populations increased rapidly in late June and early August. Growers utilized both early harvests and/or insecticides to control these pests. By late August, their numbers declined rapidly.

(5) Late in the season there was some minor pea aphid (Acyrtosiphon pisum) activity, but with few exceptions, growers chose not to treat. Their decision was partially based on the fact that hay prices had dropped drastically. Early harvests and the buildup of lady bug predators and diseased aphids kept most of the populations below treatment levels. Some fields did reach high levels and were treated for late season infestations of pea aphid.

Summary - This survey demonstrates the need for growers and pest control advisors to begin surveying their fields in late January. The BAA has replaced the EAW as the initial insect pest of the season. Early harvests, biological control agents and chemical control were all factors important in the management of insect pests in the surveyed alfalfa fields. The key to insect management in alfalfa is having a good knowledge of what is happening in the field. Treatment decisions should not be based solely on insect populations, but should include knowledge of field conditions including plant vigor and maturity, varietal resistance, and the potential for biological control.

Figures 1 and 2. Seasonal Variation of Alfalfa Insect Populations in Tulare County  
1977



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