

WHAT IS NEW IN THE CONTROL OF THE EGYPTIAN ALFALFA WEEVIL?

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In one sense of the word, some of the newest happenings in control of the Egyptian alfalfa weevil seems to be an old story. By this, I mean that some of the old problems with new faces seem to be reoccurring

I believe that alfalfa hay is an outstanding example of a crop on which a practical pest management approach has been developed several times over, and we are still working on it. Going back to the early 1950's, our major problems were the pea aphid and the alfalfa caterpillar. In some areas of the state, namely, the Tracy area and the northern mountain valleys, the alfalfa weevil was a potential problem during this period. Economic damage thresholds had been established for all three pest species and we were able to live with these problems through a combination of proper field inspection techniques and the application of cultural, chemical, and biological control methods.

During the mid 1950's, the spotted alfalfa aphid invaded the Central Valley. This pest successfully destroyed our pest management approach to insect control in alfalfa hay for several years because we were forced to rely solely upon insecticides for suppression of the spotted alfalfa aphid. The establishment of introduced parasites, the use of selective insecticide dosage rates, and ultimately the development and use of alfalfa varieties resistant to the spotted alfalfa aphid enabled us once again to employ practical pest management principles in the production of alfalfa hay.

For a short period of time, with the exception of an occasional flareup of the pea aphid, insect pest problems in alfalfa hay production were simple to deal with and presented only minor challenges. Then in the late 1960's the Central Valley was successfully invaded by the Egyptian alfalfa weevil. Once again, established pest management techniques were upset due to extensive reliance upon insecticides, and again we experienced an increase in secondary pest problems. Most notable was an increase in populations of the western yellow striped armyworm which became almost an annual problem in some areas of the Central Valley. Research, Cooperative Extension, and industry personnel worked cooperatively in developing economic damage thresholds for the Egyptian alfalfa weevil and insecticide recommendations. Biological control investigations were initiated and resistant alfalfa varieties were being evaluated. In typical fashion, populations of the Egyptian alfalfa weevil seemed to taper off during recent years. This is a common phenomenon with an introduced pest. It first presents an almost insurmountable problem and with time the populations level off to less damaging levels.

Unfortunately, our experience with the Egyptian alfalfa weevil has not been as successful as our experiences with earlier pest problems. We have not been as successful to date in establishing introduced parasite populations. Several of the thoroughly researched insecticides that were registered for use against populations of the Egyptian alfalfa weevil suddenly resulted in excessive insecticide residues after they had been in use for several years. These unfortunate developments took place in 1972 with Guthion and 1974 with Supracide. In 1976, excessive residue problems occurred in some areas following the use of the combination of Imidan and Diazinon; however, I am not certain that residue studies were as extensively pursued with this combination as in the case of Guthion and Supracide. Certainly such studies were not pursued in University of California investigations.

Most recently and before we had completely worked out a solution for the Egyptian alfalfa weevil problem, the blue alfalfa aphid put in an appearance as a new insect pest in the Central Valley. This insect pest further complicates early season problems because it overlaps the critical period for Egyptian alfalfa weevil infestations in many production areas. There is little doubt that the blue alfalfa aphid can be a devastating pest. On the other hand, I am sure that we have all seen fields where insecticide applications have been used against blue alfalfa aphid unnecessarily.

What is our position at the present time? How do we live with the complex of pests that we presently have on alfalfa hay? Field research programs are providing us with answers that can be practically applied. As you will hear this morning, insecticides are available for use against all of the pests that have been mentioned. We are getting closer to establishment of an economic damaging threshold for blue alfalfa aphid populations. The economic damaging threshold for Egyptian alfalfa larvae (20 larvae per sweep) is workable through all areas of the Central Valley if it is applied properly. Insecticide residues are being reevaluated annually on the first hay cutting on a statewide basis. At the 1972 alfalfa symposium, Dr. Mull in discussing the Guthion problems of that year said, "The most plausible explanation for the excessive residues seems to be the result of a slowing of degradation caused by the unusual cool and often cloudy weather which prevailed during the time and the lack of growth dilution after treatment caused by the fact that the pesticide was applied quite late in the growth of the alfalfa."

Dr. Mull implied that we did not really know the cause of the excessive residue problem, and I think that is still the situation. Some observations that Dr. Marble will report upon later today seem to indicate that a combination of cutting practices, varieties, pesticide application and timing may hold the key to the residue problems that we have encountered during recent years. Dr. Summers, Dr. Marble, and I will be investigating this complex approach to the residue problems during the coming year.

I would be remiss in overlooking the biological control and resistant variety investigations that are continuing on our most recent problems. Dr. Gonzalez is working toward the establishment of parasites that are effective against the blue alfalfa aphid. Dr. van den Bosch is continuing release and recovery studies with parasites of the Egyptian alfalfa weevil. Several investigators are involved in the evaluation of resistant varieties. This includes the continuation of the Egyptian alfalfa weevil projects and a vigorous program for plant material, resistant or tolerant, to the blue alfalfa aphid.

The history of pest problems on alfalfa in the Central Valley has shown that we do not have a practical approach to the problems until we have established economic damage thresholds for the major pest species and until a variety of control methods including cultural, biological and chemical controls have been developed. Up to the last three to four years, our track record has been exceptional; however, I believe that present research activities will reestablish a position of being able to conduct a practical control program on alfalfa hay.