

## Alfalfa Weevil Study 2008

One multi-county research project USU Extension has been involved with this summer had to do with developing a dynamic economic threshold for alfalfa weevil. In general, economic thresholds for insects are not intended to be static, but are highly dependent on production costs and crop values. As one of the project leaders, I have been interested in data results that are quite different from what we expected.

Many alfalfa producers in Utah have incorporated the practice of applying an insecticide as an early treatment for alfalfa weevil control. This preventative application is often made in combination with a herbicide, and before an alfalfa weevil infestation has been identified. Some growers actually sample for alfalfa weevil larvae and adults and make an insecticide application only when they can justify the treatment.

Three years of Utah data (2004-2006) show that weevil numbers, collected per 180 degree sweep with a 15-inch net, are often below the generally accepted economic threshold of 20 larvae per sweep. Crop consultants and entomologists have used the 20 larvae threshold as the minimum alfalfa weevil population to economically justify an insecticide treatment. Hay growers and crop consultants are questioning the validity of this threshold, given the increased value of alfalfa hay.

Anecdotal evidence suggests that non-treated fields, especially after the harvest of first crop, are extremely slow to recover. As such, yields and net returns appear to be lower than what is observed in treated alfalfa fields. The demand for quality alfalfa hay for dairy cows, horses and other specialty niches has been increasing regionally and worldwide. Additionally, new insecticidal chemistries are becoming more expensive and frequently the only registered products available.

In an effort to better understand economic thresholds and to safeguard environmental quality, USU Agents established 2008 trials in Box Elder, Beaver, Weber and Cache counties. Fields were selected for sampling and monitoring that had an alfalfa stand that had been established for a minimum of two years and a maximum of five years. Portions of each field received an insecticidal application to control alfalfa weevil (i.e., Treated). The remaining portion of the field did not receive an insecticidal treatment regardless of alfalfa weevil populations (i.e., Untreated Control). Replications were repeated four times.

The selected fields were sampled for weevil at least twice before the first cutting and twice again before the second cutting. The first crop sampling took place approximately 3 weeks before anticipated harvest and again just days before the hay was actually swathed. Second crop sampling was done approximately 10-14 days after the first crop was harvested and again just days before the hay was swathed for second crop. Each monitoring session consisted of counting alfalfa weevil larvae found in three sub-samples from each field replication. The sub-samples were collected by taking ten 180° sweeps with a 15 inch sweep net through the top of the foliage (similar to the data collected from 2004-2006). We also did larvae counts on individual stems. In addition to weevil larvae

counts, each field was assessed for dry matter tonnage per acre using Electronic Rising Plate Meters ([www.jenquip.co.nz/pasturem.htm](http://www.jenquip.co.nz/pasturem.htm)) and by taking replicated quadrant clippings from the control and treated plots that were oven dried to determine forage mass.

Researchers anticipated significant differences between the treated and control plots, especially during the initial re-growth of second crop hay. Blended data from all four counties, however, showed no significant difference in forage yield between the treated and control plots. We did find an increase of alfalfa weevil larvae in the control plots, but saw no statistically significant differences in forage mass yields between the control and treated sites. Insect numbers were not high enough in any of the four Utah counties to warrant an insecticidal treatment.

Our final assessment was that growers who did not spray insecticides in 2008 usually had yields comparable to those who did spray. 2008 may have been an unusual year because of cooler temperatures during the early growing season. Data from the Utah Climate Center, however, does not show much difference in temperatures from April 15 to July 15, the time period when alfalfa weevil are usually most active. Regardless of the reason for lower weevil numbers this season, regular insect monitoring with a 15 inch sweep net proves again to make economic and environmental sense for producers of alfalfa hay.