

# Evaluation of Preventative Alfalfa Weevil Control 2005

## IPM Mini-Grant Proposal

**Project Title:** Evaluation of Preventative Alfalfa Weevil Control

**Project Leaders:**

James Barnhill, Michael Pace, Clark Israelsen, Mark Nelson, and Craig Poulson in cooperation with Diane Alston and Edward Evans.

**Situation:**

Adult alfalfa weevil in Utah are known to overwinter in leaf litter near field margins and in some cases near by canyons were they migrate to nearby alfalfa fields in early spring to lay their eggs. They appear in fields and commence feeding soon after the alfalfa breaks dormancy. The alfalfa weevil has only one generation each year in Utah (Evans, 1989).

A number of Utah alfalfa growers have recently incorporated the practice of including an alfalfa weevil insecticide with their dormant period herbicide application. This application takes place in late February or March when producers do not know if weevil are present in the field or will reach recommended economic threshold levels for spraying. The insecticide currently being used for this treatment is Furadan (*carbofuran*).

Trials conducted by Michael Pace and James Barnhill in 2004 showed that early applications of Furadan were effective in reducing weevil numbers, however the initial population numbers were below recommended spraying levels and thus no conclusion, as to economic effectiveness, can be made at this time.

**Objective:**

- 1) Determine whether preventative alfalfa weevil treatments provide an economic advantage over conventional methods of scouting for weevil and treating on an as needed basis.

**Procedures:**

This will be the second year of the study. One of the recommendations from last year was to increase the number of sites and therefore increase the number of treated and control plots for the second year of the project. Trials this year will be established in Weber, Box Elder, Millard, Beaver and Cache counties. Each agent will select fields for sampling that have an alfalfa stand that is two to five years old. Six fields (greater than 5 acres) will be monitored in each county with close proximity to each other. Half of the fields will receive the early season application of Furadan (done by the producer or a commercial applicator), the other half will not be treated early. However, they may receive an in season treatment with an insecticide if alfalfa weevil populations are over the 20 larvae per sweep threshold. This would be done by the individual producer if they choose to apply the pesticide or not.

#### \* Treatments

- 1) Preventative Treatment (application of Furadan in early spring approximately 60 days prior to first harvest)
- 2) Conventional/Control Treatment (application of Malathion or other insecticide labeled for weevil control if/when needed as shown in sweep net counts.)

#### \* Sampling

Alfalfa fields will be sampled by the Agent for alfalfa weevil at least twice before the first cutting and twice before the second cutting. (Starting May 1 and ending July 1, unless we are still finding a significant number of weevils after the first of July.) These times will be adjusted based on Extension Agents knowledge of harvesting schedules for their county and the variation in growing conditions at each site.

Each monitoring session will consist of counting the adult weevil and weevil larvae found in five sub-samples from each field replication (see Diagram #1). Each sub-sample site in the field will be marked with GPS coordinates to allow the researchers to sample in the same spots in the field each sampling period. The sub-samples will be collected by taking ten 180° sweeps with a 15 inch sweep net thru the top of the foliage (like last years procedure). We will meet at Annual Conference to make sure each agent will be collecting the samples the same way.

#### \* Yield Evaluation in Weber County

Yield data was collected last year in Weber County comparing the treated to the control plots. This data showed very little yield difference between the treated and the control plots. Research by Verl Matthews and Edward Evans in Panguitch, Utah showed that the insecticide treatments resulted in modest gains where treated with an insecticides during the growing season (USU Extension Bulletin, #78).

We would like to continue with this part of the evaluation in Weber County where we have data from last year (the other counties will not be collecting this data). A field will be divided into six, one acre replications. Three of these will receive the early season Furadan treatment and three will remain untreated. Weevil populations will be monitored through the second cutting. Yield data will be collected by clipping five, one square meter areas from each plot prior to the producer harvesting the field. Forage samples will be weighed before air drying with the fresh and air dried weights used to calculate the forage yield difference.

#### **Training and Educational Materials to be Produced**

A bulletin highlighting the results and conclusions of the trial will be published and distributed to each County Extension Office in Utah. The bulletin will also include such items as dollars saved, increased profits, reduced pesticide applications and other findings from the research. Results of the study may be presented at Utah Hay and Forage Symposium, Ag Agent Annual and Regional Meetings along with county crop schools

and grower meetings that request it. This information can also be shared with local chemical dealers. The PowerPoint presentations will also be made available on the IPM website.

**Budget for 2005:**

Travel

Project leaders- 4 agents\* @ 600 miles each = 2,400 miles @ .30/mile = \$720  
\*Craig has a county vehicle he will use for travel

Equipment

Hedge shearers for harvesting yield data \$ 35

Electronic scale for weighing yield data \$180

GPS units for Box Elder and Cache County offices \$400

Misc. (counting tubs, flags, hand lens, baggies etc.) \$100

Contract Labor (assist with sampling, stats, Secretary's help for publications and PowerPoint presentations, etc) \$200

**Total Expense \$1,635**

**Diagram #1**

