Utah IPM/SA Mini-Grant Report Format for 2010

Project Title: Using IPM techniques to Improve Cooperator Effectiveness to Mitigate Damage Caused by Townsend's Ground Squirrels (*Spermophilius townsendii*) in Irrigated Alfalfa

Location of Project (Counties in Utah): Beaver County

Total Grant Award: $1200.00

Principal Investigator: Mark Nelson

Co- Principal Investigator(s): Terry Messmer

Cooperators: Billy Dalton, Beaver County Commissioner; Arlan Mayer, SCD Chairman; Tim Marshall, grower.

Objectives of Project:

1. To train Beaver County cooperators impacted by ground squirrels about integrated pest management approaches to mitigate damage in irrigated alfalfa fields.
2. To assess landowner application of integrated pest application approaches, levels of success, and satisfaction in response to training.
3. To compare the effectiveness of pre-baiting in field trials using rodenticides registered in Utah to control ground squirrels.

Summary of Project:

We held a ground squirrel control workshop at the Beaver County Fairgrounds in Minersville on February 2, 2010, to discuss with producers the results of last year's ground squirrel trial and encourage land owners to use our new control program. The workshop was attended by 29 producers. The instructors were Mark Nelson, USU Extension Beaver County Agent and Nicki Frey, USU Extension Wildlife Specialist.

During the meeting Nicki Frey explained the biology and habits of the Townsend Ground Squirrel and Mark Nelson taught participants were how to prebait with a crimped oat and then following up several days later with grain bait containing zinc phosphide. This control program has several advantages over other treatments producers were currently using. These advantages included: 1) squirrels are much more likely to eat and develop a taste for the grain bait if they were provided a untreated grain pre-bait shortly after they emerge from hibernation and prior to vegetation green-up, 2) both prebait and bait can be applied quickly using a spreader on a four wheeler compared to other methods where you have to treat each individual hole, and 3) by applying the bait when adults emerge from hibernation, you can target the breeding population thus preventing reproduction.

Because zinc phosphide is a restricted-use bait, Mark Nelson reviewed the legal requirements for using the bait and the process for producers to follow to obtain licenses to purchases and use the

bait. Producers attending the workshop who currently had restricted licenses were able to earn two pesticide credits toward keeping their licenses. IFA provided refreshments for those in attendance.

Working with the Utah Department of Ag and Food we held a Private Pesticide Licensing Workshop on February 17, 2010 and 60 farmers attended with 41 receiving new private pesticide licenses. This made it possible for many more farmers to buy the restricted zinc phosphide and bait the ground squirrels.

Throughout the rest of the year, Mark Nelson followed up with producers to assist them in implementing the new control program. We continued our trial a second year to compare the effects of no baiting, baiting and prebaiting. As we did last year Mark Nelson worked with four different cooperators to set up plots within their fields. We selected 12 plots, 3 in each cooperators field. Each plot was 150 X 150 feet and at least 1000 feet from each other. Each treatment consisted of a plot that was pre-baited and then baited with zinc phosphide, 1 plot baited with zinc phosphide without baiting and 1 plot that received no treatments. Each plot was observed for at least 3 days before treatment and 3 days after treatment to determine if the number of squirrels decreased. The plots were prebaited with crimped oats using a hand spreader. The bait was spread using the same spreader.

Results of Project:

Educational Impacts and Outreach

Follow-up surveys were sent to 45 workshop participants who were identified as the primary landowners. We asked the participants specific questions regarding damage control techniques implemented and their effectiveness. 80% of those that responded to the survey said that they had tried our new baiting program and found that it worked well. They plan on continuing this program in the future.

Baiting Field Trials

In summary, fewer ground squirrels were observed on the treatment sites than the untreated sites. The treatment sites that were pre-baited exhibited the greatest reduction in ground squirrel numbers after baiting. These observations support the premise that the use of pre-baiting as part of an integrated ground squirrel damage control program using zinc phosphide resulted in a greater reduction of the population than bating alone (Figure 1).

1. What potential changes are foreseen in your county extension programs as a result of this project?

We have been able to make a signification reduction in the number of squirrels in the county which in turn has saved the farmers over $280,000.

11. Educational Outreach:

1. What was done to assure distribution of educational products and related project materials to other agricultural professionals and stakeholders in the state.

We are in the process of putting together a factsheet on the best ways to control the ground squirrels. This information will come from the farmers that have been surveyed in the county.

2. What professional/producer meeting(s) did you give presentations at?

I presented the results of our research at the 2010 Private Pesticide Licensing Workshop in Minersville. I also present this research at the National Ag. Agent Association meetings in Tulsa, Ok in July of 2010 and at the Western Region Ag Agent Meetings in Helena, Montana in October of this year. I was invited to discussed ground squirrel control and how to control other pests at the 2010 Southern Utah Green Conference in St. George, Utah in November and the Private Applicator Training in Richfield in December.

12. Educational Products Produced – list the educational products produced from this project (PowerPoint, fact sheet, poster, published article, etc.) (electronic versions required). I made a power point presentation that I presented at the meetings listed above. I will also make a fact sheet and try to get the information published in a professional journal.

13. What impact did the project have (number of acres, people, or other appropriate units)?

We had 29 farmers attend our ground squirrel control meeting that we held in January when we started the project. We also had 60 farmers attend the Private Pesticide Licensing Workshop which made it possible for them to by the restricted bait. We had 28 farmers participate in the survey that followed up on the control programs of farmers in the county. All of the participants said that they had less squirrel problems this year than they did in 2008 because of our control program.

14. E-Attachments: All materials produced by this grant need to be in an electronic format (handouts, power points, posters, news articles, journal manuscripts, etc). Digital pictures of events and other project related items are welcome.

15. Required SARE survey questionnaire results or original paper copies