Utah Extension IPM and Sustainable Agriculture Mini - Grant Proposal 2010

Title

Comparison of cultural and chemical treatments to deter infestations of flat headed borers in young peach trees—continuation (Year 2)

Project Personnel

Project leader(s): Ron Patterson, USU Extension, Carbon County
Diane Alston, USU Extension Entomology Specialist

Collaborator(s): Caitlin Patterson, Producer, 4-H member

Situation Statement

This is a continuation of a grant by the same name from 2009. The only requested funds are for two trips for an Extension Specialist from Logan to Price to evaluate tree health and infestation by flat headed borer in the spring and late summer. There is enough remaining paint and chemical for a repeat of tree treatments this coming year. Because tree establishment requires 1-2 years, the USU Extension Entomologist did not come down this first year. It is anticipated that it will take from 2-3 years to determine effectiveness of the treatments.

Recent observations of apple and peach trees in Carbon County have revealed that a majority of the trees have suffered secondary infestations of flat headed borer (fhb). A peach orchard located in western Carbon County has had to gradually remove trees that have declined and died. All the peach trees in the orchard exhibit the classical signs of damage that is explained below. The death loss in the orchard started at the southwest corner. Each year a few more dead trees occur along the south and west border of the orchard. The incidence of fhb damage in most other fruit tree species in the county, such as cherry, apricot and pear seems to be minimal.

The damage is, in almost all cases, confined to the southwestern exposure of the main trunk and scaffold branches. Observation indicates that the trees are damaged by southwest sun scald at a young age. Lack of cloud cover for most of the winter and the bright, clear days contribute to sun scald damage. Some evidence suggests that cytospora canker has further weakened some trees prior to fhb infestation. While there are not many peach or apple orchards in Carbon County, many county residents have fruit trees in their yards and gardens. The infested trees are weakened structurally as well as physiologically, and in some cases, killed outright. It is frustrating to homeowners and orchardists alike to invest money and time into peach trees only to have them succumb to environmental and pest pressures.

Research indicates that painting a diluted latex-based paint on the trunks and scaffold branches will help protect young trees from winter-time sun scald damage (add a reference – it can be an online or printed reference). While this approach addresses the question of sun scald, it is not clear if the incidence of fhb infestation will also be reduced. In addition, homeowners who prefer to avoid white paint on the trunk of their fruit trees for aesthetic appearances, may accept other trunk protective procedures if they prove effective.

Objectives

The objectives of this proposal are as follows:

1. Compare the effectiveness of six treatments (five treatments and a control) on deterring flat headed borer infestations in young peach trees.
2. Establish a demonstration orchard, and provide tours to fruit growers, agency personnel, homeowners and the general public.
3. Share the knowledge gained with other extension personnel and fruit growers by making presentations at state and national association meetings.

Procedures

Study procedures and timetable are listed below.

1. April – May 2010 – examine the trees as they break dormancy – to be done by Ron Patterson and Caitlin Patterson
2. Summer 2010 – apply trunk treatments for the second year - to be done by Ron Patterson and Caitlin Patterson
   Treatments:
   1. Untreated Control
   2. Insecticide – apply a registered insecticide to the trunk and lower portion of scaffolding limbs in early to mid June to target the time when adult fhb emerge from trees and seek new trunks for egg-laying
   3. Tree wrap – wrap a white-colored vinyl or cotton tree wrap around the trunk up to the lower scaffolding limbs in October
   4. Paint – paint the trunk and lower portion of scaffolding limbs with diluted white latex exterior paint in August
   5. Insecticide/Tree wrap – combine Treatments 2 and 3
   6. Insecticide/Paint – combine Treatments 2 and 4

3. Summer 2010 – evaluation of trees by Extension Entomologist, Diane Alston, and Ron Patterson
4. October 2010 – evaluate trees going into dormancy – to be done by Ron Patterson
5. Once project is complete and data are analyzed – tours and demonstration will be given to master gardeners, growers, and other interested patrons. An article will published in the local newspaper and PowerPoint presentations will be developed for state and national association scholastic activities, which attendees can carry the information back to their respective counties and clientele. This will be done by Ron Patterson and Diane Alston

This is the second year of this project. It is expected that a minimum of three years will be required to determine the effectiveness of treatments. The grant request for this year of the project is to pay for the travel expenses of the Extension Specialist to travel from Logan to Price. Trial costs for subsequent years will dealt with in the future.

Data Analyses & Presentation of Results

Data on tree health (trunk diameter, bark color and number of bark fractures, number and diameter of new limb growth, and tree death) will be collected in the spring and in October (and at subsequent dates as part of a third-year grant application). Tree health data will be compared among treatments with analysis of variance (quantitative data) or chi-square analysis

(qualitative data).Observations on ease of treatment applications and pitfalls will be recorded. Photographs will be taken of each tree during data collection.

Evaluation

a. The evaluation instrument included at the end of the Request for Proposals will be used as is or modified to fit the specific project to help determine changes in knowledge of presentation and tour participants.
b. The evaluation instrument will also be used to help the presenters determine if the knowledge gained from this study will be incorporated into the educational programs of other counties.
c. Information gathered from this study will help direct the county agriculture agent with information to include in newspaper articles and presentations to Master Gardener participants and pesticide applicator training programs.

Educational Products

The educational materials resulting from this trial will include, but not be limited to, PowerPoint presentations that can be given various small acreage workshops, and association meetings and the state, regional and national levels. It is expected that a fact sheet detailing appropriate methods to protect trees from the indicated problems, and hopefully a published article will result from this project.

Educational Outreach

Educational materials will be distributed via:

1. Personal presentations
2. Utah State University Extension online publications

Professional meetings where information will be presented

1. Utah Association of County Agriculture Agents
2. Western Region County Agriculture Agents Forum
3. National Association of County Agriculture Agents

Budget

The majority of the costs were incurred in the establishment year of the project. Grant requests for subsequent years are for travel expenses for the Extension Specialist from Logan to Price in the spring and late summer.

Travel expenditures for specialist from Logan twice to assist with evaluation and data collection:
$256.00
Total:
$256.00