

Mountain Pine Beetle Tree Protection Study

At the USDA High Plains Grasslands Research Station

Cheyenne, Wyoming (2011-2014)

THE MOUNTAIN PINE BEETLE

Many trees in the forest and urban environments across the western United States have succumbed to infestation by the mountain pine beetle. Ponderosa pine is one of the tree species most commonly affected. The mountain pine beetle lives under the bark of the tree killing the tree. The insect has a one-year lifecycle, usually attacking trees during July and August. Attacks result in lumps of resin on the bark surface and sawdust like frass at the base of the tree and bark crevices. The foliage of successfully colonized trees will turn reddish-orange the year following attack, indicating mortality. Few options are available to the homeowner or land manager to prevent or control the insect and save valuable trees from dying.

STUDY GOALS

To explore options for protecting trees in an urban/suburban setting from mortality caused by the mountain pine beetle, researchers used various insecticides and application methods to treat 330 ponderosa pine trees at the USDA-ARS High Plains Grassland Research Station in Cheyenne, Wyoming during the spring and summer in 2011 with additional applications planned for 2012.

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COLLABORATIVE APPROACH

The project is a multi-agency partnership among the USDA Forest Service Rocky Mountain Research Station, USDA Agricultural Research Service, Davey Tree (including the Davey Institute and Davey Resource Group), Valent Professional Products, and Rainbow Treecare. The treatments employed and methods of application are listed below:

- 1) Control (No treatment)
- 2) TREE-age Injection (Emamectin benzoate)
- 3) Safari basal trunk spray (Dinotefuran)
- 4) Safari soil injection
- 5) Xytect soil injection (Imidacloprid)
- 6) Xytect (Imidacloprid) with Safari
- 7) Arena soil injection (Clothianidin)
- 8) Arena trunk spray (Clothianidin)
- 9) Experimental Treatment #1
- 10) Experimental Treatment #2
- 11) Permethrin spray

NEXT STEPS

Over the next two years (2013-2014), trees will be monitored for mountain pine beetle attacks to determine the effectiveness of the various treatments applied.

