RESEARCH
Oregon Department of Transportation

Research Notes

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Putting the Heat on Weeds

Maintaining roadsides preserves the pavement and increases safety by providing drainage, reducing breakup caused by plants, lessening fire hazards and improving visibility and shoulder condition. Mowing, herbicide application, blading and special plantings are some common shoulder maintenance techniques.

Environmental concerns have changed the way Oregon Department of Transportation (ODOT) controls roadside vegetation. Additionally, rules to control noxious weeds and promote natural vegetation have prompted many agencies to adopt an Integrated Vegetation Management (IVM) Program.

The IVM program coordinates decision-making using the most appropriate vegetation control strategies in a cost effective and environmentally sound manner. While herbicides are the most cost effective method of vegetation control, herbicides can no longer be used in many environmentally sensitive areas.

The infrared radiating unit is mounted on a hydraulic boom to maintain the proper elevation and match the slope angle.

One alternative, using infrared radiant heat, was studied by ODOT over a three year period.

Using Infrared Technology

A prototype roadside infrared vegetation control unit, manufactured in Eugene, Oregon, applies intense heat (approximately 1500ºF / 800ºC) to unwanted growth. It uses liquid propane fuel to heat a radiating unit made of steel. The bottom of the deck travels 2 to 4 inches above the ground, allowing the heat to radiate without the equipment touching the vegetation.

The research compared the effectiveness of the infrared treatments to herbicides, mowing, blading or other treatments. Infrared treatments repeated 4 to 6 times annually provided acceptable roadside vegetation control. The timing of treatments and the equipment speed were important variables.

Infrared treatment could be a useful tool in the IVM program, especially where other forms of treatment are restricted or controversial. Some potential areas for use include sites near waterways, on Federal or other lands that prohibit herbicides, and around culverts and ditches. Special training in the safe use of the equipment and in proper fire suppression techniques is recommended. A fire permit may be required near forest protection districts.

The table below summarizes the potential environmental concerns for each type of vegetation control.

Environmental Concerns with Vegetation Control Methods

Treatment Type	Effectiveness	Cost/mile	Environmental Concerns
Infrared	Good-Excellent	High	Smoke emissions and fire risk
Herbicide	Excellent	Low	Some chemical may be toxic to wildlife and people.
Mowing	Low	Moderate	Vegetation debris indirectly harmful to aqua ecosystems – lowering dissolved oxygen levels.
Blading	Excellent	Moderate-High	Sediment could be harmful to aqua ecosystems. Disturbed soil is vulnerable to noxious weed invasion.
Hand Labor	Moderate-Low	High	None
Native Vegetation	Moderate	Moderate	None

Call the Research Group at the number below to get a copy of the report "Evaluation of Infrared Treatments for Managing Roadside Vegetation"
or
For more information, contact Rob Edgar at 503-986-2846, or via e-mail at mailto:robert.a.edgar@odot.state.or.us

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For more information on ODOT's Research Program and Projects, check the website at

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