

Reprinted with permission from: 1989 Leafy Spurge Symposium. Bozeman, MT. July 12-13, 1989. pp. 72-74.

Sponsored by: Montana Agricultural Experiment Station, Montana State University, Bozeman, MT.

Burning as a tool in the management of leafy spurge

RONALD R. MCOWEN

Western Conservation Services, Inc., Bozeman, Montana 59715.

In the Fall of 1988, Western Conservation Services, Inc. (WCS) began to implement controlled burning of leafy spurge prior to the application of Tordon 22K. Tordon 22K was applied to the soil surface after a burn and prior to rain.

Our burning objectives were to remove the living and dead vegetative material (shadow effect) which prevents the Tordon 22K from getting to the soil surface. Additional benefits are:

- 1) allows for a consistent “blanket” of herbicide to be applied and eliminates “shadow effect”;
- 2) the application equipment can move across a field much easier after a burn;
- 3) the burned area is a very visible announcement that a leafy spurge control project is underway; and
- 4) follow-up management is made easier by the removal of non-target vegetation, i.e., brush, shrubs, etc.

In the last five years, WCS has successfully used prescribed burning to enhance our control efforts on spotted knapweed, common tansy, cheat grass and other undesirable types of vegetation. “Cowboy” analysis of our control efforts lead us to believe that the burning enhanced our overall control objectives.

In September and October of 1988, WCS implemented three leafy spurge prescribed burns in three different areas of Gallatin County. These leafy spurge infestations were from less than one acre to over 50 acres in size. Project areas were chosen to represent various conditions, such as slope, aspect, spurge density, native grass cover, etc.

Prescribed burning of leafy spurge requires a great deal of control work prior to the main burn. Leafy spurge is the hottest burning of any plant material that we have worked with in this area. Two factors affect the intensity of the burn: the sheer amount of dead plant material found in these spurge patches, and the plant latex sap. The intensity of the burn is a benefit, in that, there is very little vegetation left on the site to interfere with the equipment applying the herbicides.

After burning, Tordon 22K was applied to the soil surface at approximately 112 lb/acre, prior to or during rain, to wash the Tordon 22K into the soil profile. Our intention was, that by locking the Tordon 22K into the soil, a “cap” would be created that would prevent the leafy spurge from growing through. The results have shown that any spurge that does get through the “cap”, does so where the herbicide concentration is weak due to misapplication.

This fall (1989), WCS will continue to implement prescribed burning on approximately 140 acres of leafy spurge-infested ground. We feel that controlled prescribed burning is an enhancement tool in the management of leafy spurge. Burning alone will do little good; herbicides alone have less than a perfect track record. The combination of the two steps gives us better initial suppression, and longer term control of this, the most difficult to control noxious weed.

We recommend extreme caution when using prescribed burning. If control of a fire is lost, you will probably do more harm to your leafy spurge control efforts than you gain in the long run. Additional information about the use of prescribed burning can be obtained from WCS.

Update, Fall 1989 (Grandview Subdivision):

The overall control of the leafy spurge in areas that were burned in the fall of 1988 and treated with Tordon 22K at 1 qt/acre was significant (60-90%). Areas that did not receive Tordon 22K treatment after burning showed no significant setback of the spurge. The spurge plants that did manage to emerge through the Tordon 22K “cap”, were small, spindly and did not produce seeds. A large percentage of these plants dried up earlier in the fall than untreated plants. The grass has responded well to the reduced competition and has begun to fill in the base spots.

Fall management included burning those areas that had heavy plant regrowth. The entire project area was then treated with Tordon 22K at 1 qt/acre on October 14-18, 1989. In the future, 2,4-D will be used to manage any regrowth.

Update, Fall 1989 (Brass Lantern Estates):

WCS completed the burning of an additional 100 acres of leafy spurge infestation, northeast of Bozeman. This area is just below the “M” at the south end of the Bridger Mountains.

Prior to the initiation of this burn, no management steps had been taken to control the spurge on this land since it was first established in the 1940's. Consequently, the spurge was very thick, and we were concerned that no amount of water would carry the Tordon 22K to the soil surface. The actual burning took place September 18 and 19. Again, the heat intensity of the fire was very hot and gave us a clean burn with very little vegetation left standing. Within two weeks of the burn, “greenup” of the desirable grasses had begun, with most regrowth occurring in the timothy, brome and Kentucky blue grasses. Orchard grass seems to be set back more by burning than these other grasses. Idaho fescue

was found to be the only grass that survived in the heaviest spurge infestations. This grass also seems to respond to the elimination of the spurge competition.

In addition to the usual afterburning application of Tordon 22K at 1 qt/acre, this year we will utilize new information out of the University of Wyoming. Dr. Tom Whitson, Extension Weed Specialist with the University of Wyoming, Laramie, has been using Roundup to control spurge followed by reseeding with a variety of perennial grasses. We are setting aside approximately 20 acres of the burned-off ground and will let the spurge regrow next spring. In the spring of 1990, we will implement the Roundup/reseeding technique to see if it offers an alternative to the use of Tordon in the areas where the spurge competition has eliminated most of the desirable grasses.

In conclusion, I believe that burning of leafy spurge prior to the application of Tordon 22K is beneficial to the long-term control of this plant. Burning is beneficial because it:

- 1) removes plant material that interferes with a consistent amount of the herbicide getting to the ground;
- 2) releases nutrients that are utilized by desirable grasses;
- 3) allows equipment to work more efficiently;
- 4) makes follow-up work easier; and
- 5) is a very visible announcement that something is being done.

From the standpoint of community support, this alone may be doing more to help with our overall control efforts than anything else.

Western Conservation Services, Inc. would like to thank the property owners of the Grandview Subdivision for their individual support, advice and criticism; the Gallatin County Weed Board for their encouragement; Mr. Gene Surber, Gallatin County Extension Agent, for his guidance; the Montana Noxious Weed Trust Fund for their 1989 financial support; and Mr. Reeves Petroff, Gallatin County Weed Supervisor, for his patience, his willingness to try something new and his determination to "never give up."