

Whitetop (*Cardaria draba*) Control with Aminopyralid Tank Mixes

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Abstract

The aggressive nature of Whitetop (*Cardaria draba*) allows it to outcompete and displace native species. Chemical control of this perennial weed depends on the type of herbicide used and the plant's growth stage at the time of application. Often, one herbicide application is not enough to completely control its spread. This central Oregon study evaluates the efficacy of using aminopyralid tank mixes for control of Whitetop. Whitetop control observed 60 days after treatment (DAT) were satisfactory, Whitetop control with Opensight[®] + Escort[®] and Perspective[®] was above 90 percent. A year after the applications Whitetop control had declined with all treatments. Whitetop control was 92 percent with Perspective at 3.3 oz/acre, while the lowest control was with Milestone at 7 oz/acre + Telar at 1 oz/acre. Dry conditions extended during the duration of the study affecting the soil activity of some of the herbicides and limiting the long term control of Whitetop.

Introduction

Whitetop is a perennial weed member of the mustard family. Plants have an aggressive growth pattern and reproduce by seed or spread by rhizomes. It is found growing in open, moist, sunny areas, in pastures, rangeland, ditch banks, roadsides and waste areas. The aggressive nature of this plant allows it to outcompete and displace native species. Chemical control of Whitetop depends on the type of herbicide used and the plant's growth stage at the time of application. Since it is a perennial weed, often one herbicide application will not completely control Whitetop. Aminopyralid is a growth regulator herbicide developed by Dow AgroSciences[®] for control of broadleaf weeds on grassland. Aminopyralid is effective in controlling numerous invasive species particularly among the asteracea (sunflower) family. The objective of this study was to evaluate the efficacy of aminopyralid tank mixes for Whitetop control.

Materials and Methods

A field study was initiated 14 miles northeast of Madras, Oregon during 2012 in rangeland infested with Whitetop. The study design was a randomized complete block with 4 replications. Plot size was 10 ft wide by 30 ft long. Herbicides were applied at bloom stage, using a backpack sprayer calibrated to deliver 20 gallons of spray solution per acre at 40 psi pressure using XR 8002 Teejet[®] nozzles. Application date, environmental conditions and weed growth stage are detailed in Table 1. Herbicides included in the study included aminopyralid + metsulfuron (Opensight[®]), metsulfuron (Escort[®]), chlorsulfuron (Telar[®]), aminopyralid (Milestone[®]), and aminocyclopyrachlor + chlorsulfuron (Perspective[®]). Herbicide rates and spray adjuvants are detailed in Table 2. Herbicide efficacy was evaluated 60, 180 and 365 days after treatment (DAT).

Results and Discussion

Levels of Whitetop control observed 60 DAT should be considered satisfactory, taking into consideration the limited amount of precipitation recorded after the application. Under these conditions, Whitetop control 60 DAT with Opensight[®] + Escort[®] and Perspective[®] was above 90 percent (Table 2). Control with the rest of the treatments ranged between 84 and 89 percent. Whitetop control recorded 180 DAT was similar or slightly higher than at 60 DAT for all treatments, with the exception of Telar at 1 oz/acre and Telar with Milestone at 0.7 and 5 oz/acre where control was lower, 80 and 69 percent respectively. A year after the applications, Whitetop control had declined with all treatments. The highest control recorded during this evaluation was with Perspective at 3.3 oz/acre (92 percent), while the lowest control was with Milestone at 7 oz/acre + Telar at 1 oz/acre. Dry conditions extended during the duration of the study possibly affecting the soil activity of some of the herbicides and limiting the long term control of Whitetop. Results suggest that under these conditions a second application may be necessary to achieve a higher level of control.

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Table 1. Application dates, environmental conditions, and Whitetop growth stage at time of application.

Application Date	5/10/2012
Time of Day	3:00 pm
Air Temperature (F)	57
Relative Humidity (%)	15
Wind Speed (MPH)	6
Wind Direction	NNE
Weed Growth Stage	Bloom

Table 2. Whitetop percent control compared to the untreated check, 60, 180 and 365 days after treatment.

Treatment ¹²	Rate	60 DAT	180 DAT	365 DAT
1 Opensight [®] NIS	3.3 oz./acre 0.25 % v/v	89 a	89 a	80 ab
2 Opensight [®] SYL-TAC [®]	3.3 oz./acre 4 fl oz/a	89 a	91 a	79 ab
3 Escort [®] NIS	1 oz./acre 0.25 % v/v	85 a	96 a	81 ab
4 Opensight [®] Escort [®] NIS	3.3 oz./acre 0.5 oz/a 0.25 % v/v	91 a	98 a	81 ab
5 Telar [®] NIS	1 oz./acre 0.25 % v/v	85 a	80 b	76 b
6 Milestone [®] Telar [®] NIS	5 fl oz./acre 0.7 oz./acre 0.25 % v/v	86 a	69 c	79 ab
7 Milestone [®] Telar [®] NIS	7 fl oz./acre 1 oz./acre 0.25 % v/v	84 a	92 a	74 b
8 Perspective [®] NIS	3.3 oz/acre 0.25 % v/v	94 a	98 a	92 a
9 Untreated Check		0 b	0 d	0 d

¹Some treatments included in the study were used for experimental purposes and are NOT currently labeled for public use. Before using an herbicide, make sure is properly labeled for the intended use.

²Abbreviations: DAT - Days After Treatment - NIS, Non Ionic Surfactant.