

# WHITETOP

*Cardaria draba*



## CONTROL

### Hand Pulling

The tremendously deep and rhizomatous root system of whitetop makes hand pulling an ineffective management tool in all situations except infestations that are very small and new.

### Mowing

While mowing may reduce seed production and biomass, it is not considered a viable management tool for whitetop.

### Tilling

Cultivation six inches deep and repeated within 10 days of regrowth is a very effective.

### Biological control

N/A

### Grazing

Cattle, sheep and goats will all utilize whitetop; however, this species contains toxic levels of glucosinolates which cause anti-thyroid symptoms in livestock. Recommended

### Ideal Timing for Treatment Options

| Spring       | Summer  | Fall         |
|--------------|---------|--------------|
|              | Tilling |              |
| Grazing      |         |              |
| Foliar Spray |         | Foliar Spray |

time for grazing is from the rosette to bloom stage when levels of glucosinolates are lowest. Avoid when seed pods are present (before fall). As with mowing, grazing will reduce biomass and seed production, but will not effectively manage whitetop infestations.

### Herbicide

Whitetop can be controlled with a number of herbicides, but it is difficult and usually requires a number of reapplications. The herbicide chart on the back lists labeled controls for whitetop. Always consult product labels and read them carefully to ensure correct species/land management usage and chemical application.



## Whitetop Life Cycle

| Life Cycle | Root     | Leaves                                                                                                                                                     | Stems              | Flower                                                                                                               | Seed/Fruit | Toxic  |
|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------|------------|--------|
| Perennial  | Rhizomes | Blue-green to gray-green, alternate on stem, covered with soft white hairs, and lance- to arrowhead-shaped. Lower leaves stalked; upper leaves clasp stem. | Up to 2 feet tall. | Numerous white flowers with 4 petals borne on 1/2 inch long stalk. Dense clusters create white, flat-top appearance. |            | Cattle |

## Herbicides for Whitetop, *Cardaria draba*

| Active Ingredient  | Rate                   | Efficacy                                                                                                            | Comments                                                                                                                           |
|--------------------|------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Imazethapyr        | 4-6 oz/acre            | Apply as early as post emergence treatment when weeds are actively growing but before they reach 3 inches in height | Do not use near wells, surface water, or shallow ground water.                                                                     |
| Chlorsulfuron      | 0.5-1 oz/acre          | Apply when weeds are in the bud to early bloom stage. Can suppress whitetop regrowth for 1-2 years                  | Premature treatment may result in top kill of desirable grasses: be sure to allow native desirable species to be well established. |
| Metsulfuron methyl | 1-2 oz/acre            | Apply when weeds are in the bud to early bloom stage in non-crop areas with established grasses                     | Do not use near wells, surface water, or shallow ground water.                                                                     |
| Imazapic           | 8-12 oz/acre           | Apply after weeds reach full bloom or fall re-growth                                                                | See label for different grass species.                                                                                             |
| 2-4, D             | 2 quarts/acre          | Does not kill root crowns resulting in resprouting                                                                  | Non effective herbicide                                                                                                            |
| Glyphosate         | Per label instructions | Does not kill root crowns resulting in resprouting                                                                  | Non effective herbicide                                                                                                            |

Information on diagnostic identifying characteristics adapted from "Montana's Noxious Weeds" by Pokorny and Mangold, Montana State University Extension Bulletin EB0159.