

JANUARY 2006

STEVE'S Weed of the Month

DOWNY BROME

Also Known As: cheatgrass, cheatgrass brome, downy brome, military grass, wild oats, downy chess, and cheat.

Downy brome (*Bromus tectorum* L.) was introduced into North America from the Mediterranean area of Europe. In 1861 it was identified in New York and Pennsylvania, and by 1914 it had spread throughout North America. It's now the dominant plant on over 100 million acres in the western United States, making it the most common plant on the continent. Downy brome is a winter annual that usually begins growing in the fall or early spring. Reproduction is by seed and seedling plants must be vernalized to produce seed. It is a frequent problem in alfalfa, winter wheat-fallow rotation, continuous winter wheat, rangeland, waste areas, roadsides, shelterbelts, fence rows, and railroad rights-of-way. It invades overgrazed pastures and rangelands and is spread when the long awns on seeds attach to cattle. Seeds are also spread by hay, combines, grain trucks, and in contaminated winter wheat seed.



Downy brome thrives in all soils. This weed has an extensive shallow root system and roots with many hairs which enable the plant to extract much of the soil water. The plant tillers profusely depending on time of germination. In early spring, the plant continues to tiller, joints, and sets seed. A heavy infestation can produce as much as 400 lbs or 80,000,000 seeds per acre. Some seeds will remain viable more than two years when placed near the soil surface because of natural dormancy or unfavorable conditions for germination.



Photos by: Tom Heutte

In medium-textured soils, the optimum seed depth for downy brome emergence is less than 1 inch; however, seedlings can emerge from a 4-inch depth. A downy brome density of 50 plants per square foot can remove soil water to the permanent wilting point to a depth of about 2.5 feet.

Downy brome is thus very competitive with winter wheat for soil water and nutrients. Under stress the plants can produce seed when they are only 1 to 2 inches tall. Plants under stress from tillage or harsh environments divert more of their photosynthetic capabilities to seed production than undisturbed plants or plants growing in more productive environments.

As a winter annual, downy brome is a constant threat to winter wheat, alfalfa, and rangeland. Heavy infestations of downy brome can reduce wheat yields 30 to 80 percent. Both yield and quality of alfalfa in infested fields often will be lowered. Overgrazed rangelands are more easily invaded by downy brome which reduces economic returns of the grassland.

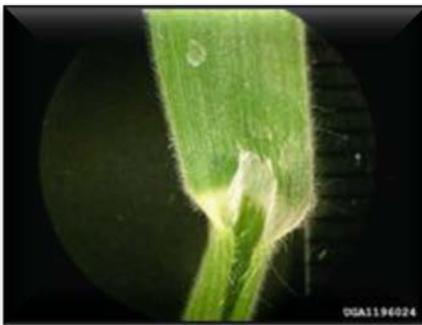


Photo by: Fred Fishel



Photo by: Tom Huette



Downy Brome In Grain

Downy brome is a palatable grass before the seed heads emerge but becomes unpalatable with maturity. Mature downy brome can cause injury to livestock (lump jaw in cattle) by causing infection in the eyes or mouth. Mature plants are also a serious fire hazard.

Downy Brome Control

Eliminate Seed Sources:

1. Till and crop roadside ditches when possible or seed to a perennial grass.
2. Seed perennial, cool-season grasses such as crested wheatgrass or smooth brome in waste areas and field borders. Vigorous stands of grasses or grass-legume combinations are highly competitive with downy brome and other annual weeds.
3. Sometimes mowing can be effective in reducing seed production, but it will not eliminate downy brome. Mowing must be timely and close to the ground. More than one mowing may be necessary to prevent tillers from producing seed. Mowing is useful for small infestations in pastures, roadsides, and waste areas where cultivation or herbicides are not feasible. Mowing also may reduce competition so that desirable perennial grass may reestablish.
4. On cultivated fields, destroy weeds before they produce seed.
5. Plant clean seed. Downy brome seeds are often found in small grain and grass seed.
6. Use herbicides that do not kill established perennial grasses.

Rotate Crops:

Crop rotation is the most effective control method. Crops planted in late spring such as corn, grain sorghum, proso millet, and sunflower are much more effective than crops planted earlier in the spring such as pea, oat, spring barley, and spring wheat. Crops that must be planted early for optimum yield will allow some downy brome enough time to germinate and produce seed. The key to control is having fall rains to germinate downy brome seeds and then killing these plants before seeding early spring crops.

If soil erosion and conservation compliance are not problems, then the moldboard plow may be used on a small percentage of your acreage each year to control downy brome. Using the moldboard plow to bury seeds at least 4 inches deep can provide 95 percent downy brome control. Subsequent plowing should be avoided for at least four years to prevent viable seed from returning to the soil surface.

Mechanical Control

Hand Pulling: This is effective for small infestations, if it's done prior to seed set.

Mowing: Mowing can be used at the bloom stage for control, but short plants are often missed with the mower. This allows them to produce seed.

Burning: If used in the spring when plants are at the dough stage, burning can be effective for removing both living plants and the litter that may contain seed. Burning in the spring also means the fire hazard is lower. Disadvantages include a loss in diversity, increased germination, erosion, or invasion of other weed species.

Grazing: This can be used on a repeated basis if it's done early in the season. Grazing is most effective when its use is combined with another treatment option.

Biological Control: Crown and root rot fungi--only effective under high stress conditions.

Chemical Control: Many herbicides can be used for the control of downy brome in cropping and non-cropping systems. Downy brome has developed resistance to some herbicides.

**More information can be found in the
[PNW Weed Management Handbook](#)**

Use pesticides with care. Apply them only to plants, animals, or sites listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

Questions: contact [Steve Van Vleet](#) or phone (509) 397 - 6290