1960

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DOWNY BROME——

A PROBLEM WEED

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AND U. S. DEPARTMENT OF AGRICULTURE
COOPERATING
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DOWNY BROME . . .

a problem weed

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John D. Furrer

Downy brome is one of the most serious weeds in western Nebraska. It is especially troublesome in summer fallow, winter wheat, and on range land. Downy brome (Bromus tectorum L.) is known by a variety of names. Common names in addition to downy brome are cheatgrass, cheatgrass brome, downy bromegrass, military grass, wild oats, and downy chess.

This weedy annual brome is a constant threat to the wheat farmer and rancher. Under certain climatic and field conditions, it can seriously curtail the production of winter wheat. At the Box Butte Experiment Station a moderate infestation of downy brome reduced wheat yields 30 percent and a heavy infestation, 80 percent. Overgrazed grassland lends itself to invasion by downy brome, which greatly reduces the economic returns of the grassland.

Downy brome is primarily a winter annual which reproduces by seed. It germinates in the fall of the year, lives over winter, and produces a seed crop during the first part of June. However, it will also function as a spring annual by germinating in early spring and setting seed the same year. It is a prolific seed producer. The seed is light and fluffy and readily

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Heavy infestation of downy brome in winter wheat at the Box Butte Experiment Station. Yield was reduced 80 percent.

spread over large areas by wind. There are approximately 208,000 downy brome seeds per pound. Germination of the seed is usually high; however, seed will infest fields for several years because of natural seed dormancy or the lack of desirable germinating conditions.

Plant height varies from a few inches up to two feet, the height being dependent on available moisture, fertility and plant competition. The root system is fibrous and relatively shallow. Downy brome depends largely on surface moisture for growth. The seed germinates under conditions of cool temperatures and ample moisture. If soil moisture is adequate it normally begins growth in the fall of the year.

The plants may tiller profusely in the fall or early spring, forming a dense sod. They usually have a reddish-bronze cast in the early stages of growth,
but as they reach maturity the color changes to a purplish cast. Before seed heads emerge downy brome is a palatable grass; however, as it matures it becomes very unpalatable. Mature plants are a fire hazard. They burn rapidly and create intense heat.

Downy brome is most commonly found along road-sides, in overgrazed pastures and ranges, fence rows, windbreaks, old alfalfa fields, and abandoned areas.

CONTROL OF DOWNY BROME

Eliminate Sources of Seed

1. Do away with weedy waste places. Roadside ditches should be tilled and cropped when possible.

2. Seed perennial, cool-season grasses such as crested wheatgrass or Russian wild rye in waste areas. Good, vigorous stands of grasses or legumes or combinations of grasses and legumes are highly competitive with downy brome and other weeds. Crested wheatgrass and Russian wild rye are among the best.

3. Use good rangeland management practices. Harvest half the forage and leave half. Practice rotational grazing.

4. On cultivated fields destroy the weeds before they produce seed.

5. Plant clean seed. Downy brome seed is often found in small grain and grass seed.

Control With Tillage

1. Destroy the weeds during the first tillage operation. If weeds are not killed at this time, they are likely to develop an extensive root system, which makes them even more difficult to kill.

2. When using a disc-type implement, operate it at a shallow depth (1 1/2 to 2 1/2 inches). A greater angle of the disc must be used to obtain full tillage between discs.
Roadside ditch full of weeds, including downy brome. Provides an excellent source of weed seed for infestation of fields.

Roadside ditch worked down and cropped.
3. It is often necessary to follow the first tillage operation with another in two to three weeks to control the weeds that were missed on the first time. This practice is also needed when land is plowed.

4. Be sure the soil is dry enough for good weed kill. Weeds should wilt down within 30 minutes after tillage.

5. Perform timely tillage operations. Downy brome is a short-season plant; it must be controlled before the middle of May.

Crop Rotations Help

Downy brome is most troublesome in crops that make most of their growth during our cool seasons -- fall and early spring. The seed germinates along with fall seeded wheat and then continues a life cycle similar to wheat until its maturity in early summer.

Planting crops that make most of their growth during seasons different from winter wheat and downy brome will help reduce downy brome populations. Sorghums, corn, safflower and millet make most of their growth during the warmer months. Including these crops in the cropping sequence will help control downy brome infestations.

Don't overlook a three-year rotation such as wheat-sorghum-fallow. This has proved to be as profitable as a wheat-fallow rotation for southwestern Nebraska and it gives a high degree of downy brome control.

Chemicals Are Effective On Non-Crop Land

Chemicals which have been most effective and may be used on non-crop land are as follows:

1. **Amitrole** -- Use 2 pounds per acre (4 pounds per acre of 50% Amino Triazole or Weedazol). Apply in the spring before April 10. Amitrole is taken in through the leaves. It gives little pre-emergence control since it breaks down rapidly in the soil.
Picture taken in June 1960. Farmer kneeling in an untreated area. Weeds are primarily downy brome. Remainder of the area was sprayed with 2 pounds of Atrazine in October of 1959.

2. Atrazine -- Apply 2 pounds per acre (2 1/2 pounds 80% wettable powder) in enough water to give good coverage. Pre-emergence or early post-emergence applications may be made in the fall or early spring. Spring applications should be made before April 10 or before the plants are two inches high. Excellent pre-emergence control generally results when at least one-half inch of rain falls soon after application.

Caution: Atrazine at 2 pounds per acre has carried over in the soil for periods in excess of one year.

3. Dalapon -- Apply 4 pounds per acre (5 1/2 pounds Dowpon) before April 10 in enough water to give good coverage. The most satisfactory results have been obtained from fall applications. Excellent pre-emergence control is usually obtained when moisture is favorable.
Combinations Of Chemicals For Non-Crop Land

The following combinations of chemicals have all given good to excellent control of downy brome on non-crop land:

1/2 lb. Atrazine + 1/2 lb. Amitrole (5/8 lb. 80% Atrazine + 1 lb. 50% Amitrole)

1 lb. Diuron + 1/2 lb. Amitrole (1 1/4 lb. Karmex + 1 lb. 50% Amitrole)

1 lb. Monuron + 1/2 lb. Amitrole (1 1/4 lb. Telvar + 1 lb. 50% Amitrole)

1 lb. Dalapon + 1/2 lb. Amitrole (1 1/3 lb. Dowpon + 1 lb. 50% Amitrole)

1 lb. Simazine + 1/2 lb. Amitrole (1 1/4 lb. 80% Simazine + 1 lb. 50% Amitrole)

Applications should be made before April 10. Use sufficient water to give good coverage.

Caution -- No crop should be grown on land for 8 months after receiving Amitrole treatments.

Chemicals for Windbreaks

See Extension Circular 60-1733 for the use of chemicals and tree species tolerance. Contact your county agent or local SCS representative for more information.

Herbicides Are Not To Be Used On Crop Land

Herbicide residues in the soil, plant selectivity, herbicide costs, and Federal Food and Drug regulations must all be considered before a chemical is acceptable for any weed control operation. At present there are no herbicides acceptable for selective control of downy brome in small grains or for residual control on fallow land.