

1976

OREGON WEED CONTROL  
RECOMMENDATIONS  
FOR GRASS AND LEGUME  
SEED CROPS

Oregon State University  
Extension Service, Corvallis

Extension Circular 902

July 1976

**Prepared by W. O. Lee, research agronomist,  
U.S. Department of Agriculture, and Homer M. Hepworth,  
Extension Agronomist, Oregon State University**

**Reprinted from the 1976 Oregon  
Weed Control Handbook**

**Note:** Weed control in established perennial grass seed fields is dependent on effective removal of crop residues. If grass seed fields cannot be burned after harvest, the recommended herbicide treatment may be less effective in controlling weeds. In unburned fields, crop residues should be removed as completely as possible by mechanical means. The fields should then be harrowed to scatter remaining residues. Unburned grasses with considerable topgrowth may be damaged by diuron (Karmex), atrazine, or simazine if treatments are made before October 15.

# 1976 Oregon Weed Control Recommendations for Grass and Legume Seed Crops

## STATE-WIDE

● **Problem:** *The Control of Weedy Annual Broadleaves and Certain Broadleaf Perennial Weeds in New and Established Stands of Grass Seed Crops Under Both Eastern and Western Oregon Conditions*

**Chemical:** 2,4-D; MCPA; plus dicamba (Banvel); or bromoxynil (Brominal, Buctril)

**Spray Mixture:** Use ½ to ¾ pound of 2,4-D amine, oil soluble amine, acid or ester, or diamine or use ½ to 1 pound MCPA amine, ester, or sodium salt in 10 or more gallons of water per acre by ground application, or at least 2 gallons per acre by airplane. For dicamba-2,4-D combinations, use ¼ pound of dicamba (Banvel) and ½ pound of 2,4-D per acre. For bromoxynil use ¾ to 1 pound (1½ to 2 pints) in 20 gallons of water per acre.

**Time of Application:** New seedings in the spring should not be sprayed with 2,4-D, MCPA, or dicamba-2,4-D before the grass has 5 leaves (usually 4-5 weeks after emergence). When irrigation is used, the grass can be sprayed after the 2-leaf stage. Bromoxynil can be sprayed after the grass has emerged but before the broadleaf weeds are past the 4-leaf stage of growth. Use the ½ pound rate of bromoxynil if the weeds are larger than the 4-leaf stage, but less than 6 inches in height and before flower formation.

Dicamba-2,4-D combinations are now registered for tank mixes.

Do not graze dairy animals or animals being finished for slaughter in field treated with 2,4-D or dicamba within 7 days of application. Do not graze fields treated with MCPA within 14 days after application.

Do not graze fields sprayed with bromoxynil.

When application is made to fall seeded stands in western Oregon, ½ pound 2,4-D or MCPA per acre or ¼ pound dicamba per acre may be used any time after the 2-leaf stage.

For weed control in established stands, applications may be made either in the fall or early spring. Application should be made prior to the time seed heads appear in the boot.

**Cautions:** The same precautions suggested under the heading *Winter Cereals* should be used in making applications.

Under some growing conditions, 2,4-D or MCPA may injure bentgrass at the higher rates of application. Since bentgrass is more sensitive than other grasses, application to new stands should be delayed until the bentgrass seedlings are well established.

2,4-D, MCPA and dicamba slow up root development of seedling grasses. If it is necessary to spray new stands of grasses when they are quite small, it is very important to give frequent irrigations until the root injury has been outgrown.

Mention of a trademark name of a proprietary product does not constitute a guarantee or warranty of the product by the U.S. Department of Agriculture or Oregon State University and does not imply their approval to the exclusion of other products that also may be suitable.

● **Problem:** *Control of Sheep Sorrel, Dog Fennel, and Some Other 2,4-D Resistant Weeds in Established Grass Seed Fields*

**Chemical:** dicamba (Banvel)

**Spray Mixture:** Use ¼ to ½ pound (½ to 1 pint) in 10 to 20 gallons of water per acre for sheep sorrel control.

**Time of Application:** Apply on sheep sorrel after there is considerable foliage growth, usually between late November and March 15. Spring application controls seedling sheep sorrel plants better than fall application. On dog fennel and other annual weeds, spray while weeds are small and use ½ pound of active chemical per acre.

**Cautions:** Use the same drift precautions as for 2,4-D.

This treatment may not kill all established sheep sorrel, but will prevent any seed set and kill most plants. Use the lower rate for sheep sorrel or in spring treatment. Spring treatment must be made early or seed yield may be reduced.

Do not graze dairy animals in field treated with dicamba within 7 days of application.

On established grass seed fields which have been burned, it is not advisable to apply dicamba in the fall with simazine, atrazine, diuron, IPC or CIPC. Usually sheep sorrel is not making fall growth when these herbicides are applied. On new seedings of perennial grasses which have not been burned, dicamba can be applied with simazine, atrazine, diuron, etc.

● **Problem:** *The Use of Activated Carbon to Protect Grasses Planted for Seed Production From Diuron Applied Pre-emergence (western Oregon only)*

**Chemical:** Activated carbon,\* diuron (Karmex).

**Spray Mixture:** Activated carbon: Mix activated carbon with water at a ratio of ½ pound per gallon. Apply the resulting slurry at the rate of 300 pounds carbon per acre in a band 1 inch wide directly over the seeded row. (Where the grass is seeded in rows spaced 12 inches apart, only 1/12 of the field surface is treated with carbon. Thus, the above rate is equivalent to 25 pounds carbon per acre seeded.)

**Diuron:** Apply as a broadcast application with a fixed boom sprayer at the rate of 2.5 to 3.0 pounds per acre. Use the lower rate for light soils (sandy loams, loams) and the higher rate for heavy soils (clay loams, clays).

**Time of Application:** Activated carbon: Apply at planting time.

**Diuron:** Apply after planting and before rains or sprinkler irrigation.

**Remarks:** Prepare a smooth, firm, trash-free seedbed before planting. At least 1 inch of overhead moisture, rainfall or sprinkle irrigation is required within 2 weeks after the diuron is applied to activate the herbicide. Special seeding, spraying

\* Aqua Nuchar and Gro-Safe are the brand names of the carbon products which have been most satisfactory in research trials.

and carbon-mixing equipment is available through spray material dealers.

Cautions: Do not treat grass seed fields which will be replanted to any crop within 2 years as crop injury may result. This treatment will not control volunteer winter cereals, wild oats or downy brome.

See page 8 for use when treating areas damaged with misuses of herbicides.

## WESTERN OREGON

### PERENNIAL RYEGRASS

● Problem: *The Control of Weedy Annual Grasses Such As Annual Ryegrass, Rattail Fescue, and Similar Species in Established Stands of Perennial Ryegrass in Western Oregon*

Chemical: propham-IPC (Chem-Hoe) or chlorpropham-CIPC (Chloro IPC)

Spray Mixture: Use 3 pounds of IPC per acre in 10 to 20 gallons of water by ground application, or in at least 3 gallons of carrier by air application. Chloro IPC should not be used at more than 2 pounds per acre in the same volume of carrier as IPC.

Time of Application: Application should be made after fall rains have started the germination of annual grass weed seed. Application should be made prior to November 1. Use IPC only during rainy weather when soil is moist and temperatures cool.

Cautions: Only fields which have been planted 18 months or more should be sprayed. New stands may be seriously injured by these treatments. Chloro IPC is generally preferred because it gives control over a longer period of time. IPC is more effective on rigput brome and wild oats. It is effective preemergence on annual bluegrass, but short residual life will often cause failure to control late germinating plants. On other species, the two materials at the rates suggested are approximately equal. This treatment is not effective on many broadleaf weeds and perennials such as wild garlic.

Chemical: atrazine (AAtrex)

Spray Mixture: Use 1½ pounds of 80% commercial atrazine (1.2 pounds active) per acre in 15 or more gallons of water in a sprayer with mechanical agitation.

Time of Application: As soon as fall rains start. Treatment before weed germination or while weed seedlings are still small, gives the best control. Fall planted ryegrass should not be treated the following fall until after October 15.

Cautions: Do not graze for 10 days following treatment. Allow 60 days before cutting hay. This treatment may cause damage on first-year stands. Do not use more than 2 consecutive years on the same seed field. Atrazine at selective rates does not control wild garlic. Garlic infested fields should receive 2,4-D sprays. (See Garlic spraying in *Control of Common Weeds* section.)

● Problem: *Control of Wild Oats in New or Established Stands of Perennial Ryegrass.*

Chemical: MSMA (Ansar 529 H. C.) Oregon only

Spray Mixture: Apply 4.5 to 6.0 pounds per acre MSMA with a suitable surfactant (Ansar 529 H. C. is a combination of MSMA and a surfactant).

Time of Application: Applications can be made anytime after the wild oats have emerged and before the grass reaches the boot stage. MSMA enters the wild oat plants through the foliage. It is not effective through the soil or on ungerminated seeds. Thus, treatment should be delayed in new plantings until maximum wild oat emergence has occurred.

Cautions: MSMA is not effective in controlling wild oats unless a suitable surfactant is included. Cool temperatures (below 65°) reduce the effectiveness of MSMA. Applications should be made when it is anticipated that several days with clear skies and temperatures 65° or above will follow the applications. Do not use more than one application per year. Do not apply after the grass reaches the boot stage. Do not graze fields or feed hay or seed residue from treated fields.

### HIGHLAND OR ASTORIA BENTGRASSES

● Problem: *The Control of Weedy Annual Grasses in Established Stands of Bentgrasses in Western Oregon*

Chemical: propham-IPC (Chem-Hoe) or chlorpropham-CIPC (Chloro IPC)

Spray Mixture: Use 3 pounds of chloro IPC or 4 pounds of IPC in 10 or more gallons of water per acre by ground application.

Time of Application: Application should be made after the first fall rains start germination of weed seeds. Application should be made before November 1. Use IPC only during rainy periods when soil is moist and temperatures cool.

Cautions: Spray only fields that have been planted 18 months or more. These treatments may seriously injure new stands.

Chemical: diuron (Karmex)

Spray Mixture: Use 2 to 3 pounds of 80% commercial Karmex (1.6 to 2.4 pounds active diuron) in 20 or more gallons of water in a sprayer with good mechanical agitation.

Time of Application: Application should be made after the first fall rains start germination of weed seeds. Treatment should be made before the weeds are well established. Spraying normally should be done between October 1 and the middle of November. If straw residues have been burned on the field, the higher rate of application is necessary. Under these conditions, if Karmex is used, rates as high as 4 pounds per acre may be necessary to give good weed control. For best results, spread unburned chaff or straw by harrowing, or going over the field with a rotary chopper.

Cautions: Since Karmex at high rates is a soil sterilant, care should be exercised while making applications to avoid overdoses when stopping, starting, or turning. Good mechanical agitation is necessary to keep this material in suspension. Do not use this treatment on sandy soils as injury may result. Karmex may cause temporary kill of top growth.

Chemical: simazine (Princep)

Spray Mixture: Use 2½ pounds of 80% commercial simazine (2 pounds active ingredient) per acre in 15 or more gallons of water in a sprayer with good mechanical agitation.

Time of Application: Application should be made as soon as fall rains start. Early spraying before weeds germinate is important. Spread unburned straw and chaff with harrow or chopper before spraying.

Cautions: Use a sprayer with mechanical agitation. Will control most annual grasses and broadleaf type weeds. Do not graze for 30 days after spraying or cut hay for 60 days following spraying.

### PENNCROSS BENTGRASS

● Problem: *The Control of Annual Bluegrass in Established Stands of Penncross Bentgrass in Western Oregon*

Chemical: Bensulide (Prefar 4E)

**Spray Mixture:** Use 8 to 10 pounds (2 to 2½ gallons) per acre in 10 to 50 gallons of water per acre.

**Time of Application:** Apply after straw removal, before the first postharvest irrigation and before weed germination.

**Cautions:** Do not feed straw to livestock. Do not graze livestock in treated fields.

## VARIETIES OF KENTUCKY BLUEGRASS

● **Problem:** *The Control of Weedy Annual Grasses and Broad-leaf Weeds in New or Established Stands of the Above Grasses Grown in Western Oregon*

**Chemical:** diuron (Karmex)

**Spray Mixture:** Use 2 to 4 pounds of 80% Karmex (1.8 to 3.2 pounds active diuron) in 20 or more gallons of water per acre in a sprayer with good mechanical agitation.

A split application of diuron is usually more effective in controlling annual bluegrass (*Poa annua*) than a single application in the fall. In a split application apply 3 pounds of 80% Karmex (2.4 pounds active diuron) during the last two weeks of October, followed by 1½ to 2 pounds of 80% Karmex (1.2 to 1.6 pounds active diuron) between January 1 and February 1.

**Time of Application:** Application should be made in the fall as soon as fall rains start the germination of weed seeds. Spray before the weeds are well established, usually mid-November. Do not spray spring planted stands before October 15. Spray only well established stands planted before April 1. Spread unburned chaff and straw with a harrow before application.

The control of annual bluegrass may require harrowing with a pasture-type harrow after field burning to scatter unburned chaff. Such fields may require a second burning with a field burner before applying the fall herbicides.

**Cautions:** New stands of bluegrass should be well established from spring seedings if Karmex is going to be used in the fall. No more than 2 pounds per acre should be used on new stands.

Where crop residues have been burned leaving considerable ash, at least 3 pounds of Karmex will be necessary for weed control. Rates as high as 4 pounds may be required for adequate weed control. If 3 or 4 pounds of diuron are applied for 2 or more consecutive years, or if split applications are used, the bluegrass may be severely injured or eliminated from low areas of the field where water stands for long periods of time during the winter or early spring months. It is important to use a sprayer with good mechanical agitation to prevent settling of the Karmex. Since Karmex is a soil sterilant at high rates, care should be exercised not to get overdoses when starting, stopping, and turning. Precision spraying by using markers at the end of the boom or flagmen, and care to avoid plugged nozzles is important to prevent skips that will give contamination with annual bluegrass, etc. To avoid weeds in spray skip areas, spray each field twice with half rate, using a marker so the middle of the sprayer centers on the area covered by the end of the boom in the first application.

**Chemical:** propham-IPC (Chem-Hoe) or chlorpropham-CIPC (Chloro IPC)

**Spray Mixture:** Use 3 pounds of chloro IPC or IPC in 10 to 20 gallons of water per acre.

**Time of Application:** Make application after the first fall rains and prior to November 1. Use IPC only during rainy weather when soil is moist and temperature cool.

**Cautions:** CIPC and IPC are usually injurious to new stands and should not be used unless the stand has been planted 18 months or more.

IPC and CIPC are more effective on ripgut brome and wild oats than Karmex diuron and should be used where these weeds are the primary problem. IPC and CIPC may not give satisfactory control of late germinating annual bluegrass in perennial bluegrass fields because of a short residual life.

● **Problem:** *Control of Wild Oats in New or Established Stands of Kentucky bluegrass.*

**Chemical:** MSMA (Ansar 529 H. C.) Oregon only

**Spray Mixture:** Use same recommendation indicated for perennial ryegrass.

**Time of Application:** Use same recommendation indicated for perennial ryegrass.

## TALL FESCUE AND ORCHARDGRASS

● **Problem:** *The Control of Weedy Annual Grasses and Broad-leaf Weeds in Established Stands in Western Oregon*

**Chemical:** simazine (Princep)

**Spray Mixture:** Use 2½ pounds of 80% (2 pounds active) simazine in 15 or more gallons of water. Especially effective for control of wild oats, ripgut brome and seedling chess. Will not control established clumps of chess.

**Time of Application:** As soon as the first fall rains start. Early application is important.

**Cautions:** Do not spray new stands. Use only sprayers with mechanical agitation. Allow 30 days between application and grazing to livestock.

**Chemical:** propham-IPC (Chem-Hoe) or chlorpropham-CIPC (Chloro IPC)

**Spray Mixture:** Use same recommendation indicated for bluegrasses.

**Time of Application:** Use same recommendation indicated for bluegrasses.

**Chemical:** diuron (Karmex)

**Spray Mixture:** Use same recommendation indicated for bluegrasses.

**Time of Application:** Use same recommendation indicated for bluegrasses.

## FINE FESCUES (Illahee, Rainier, Pennlawn, Chewings, and Related Varieties)

● **Problem:** *The Control of Weedy Annual Grasses Such as Ryegrass, Rattail Fescue, and Silver Hairgrass in Established Stands in Western Oregon*

**Chemical:** propham-IPC (Chem-Hoe) or chlorpropham-CIPC (Chloro IPC)

**Spray Mixture:** Use 3 pounds of IPC or 2 pounds of CIPC per acre in 10 or more gallons of water.

**Time of Application:** The time of application with IPC and CIPC on fine fescues is extremely critical. The seed crop may be seriously injured if proper timing is not followed. Application of these two materials should not be made later than October 20. Where fall rains do not occur in sufficient quantities to allow treatment prior to October 20, the use of IPC or CIPC will usually cause severe damage to the seed crop. To minimize

damage to the seed crop, good fall fertility should be available. Use regular IPC only during rainy periods when the soil is moist and temperature cool.

**Cautions:** The fine fescues are more sensitive to IPC and CIPC than other common grass seed crops. Special care should be taken to keep from applying more chemical than the amount recommended.

Good agitation is important to be sure of uniform application.

Stands should be 18 months old before they are sprayed. The spray damage resulting from late applications can exceed the damage from the presence of weeds. The seriousness of the weed problem may be used as the deciding factor.

**Chemical:** simazine (Princep)

**Spray Mixture:** Use 2½ pounds of 80% commercial product (2 pounds active) per acre in 15 or more gallons of water. Especially useful for control of wild oats, ripgut brome and seedling chess.

**Time of Application:** As soon as the first fall rains start. Early application is important.

**Cautions:** Do not spray new stands. Use only sprayers with mechanical agitation. Allow 30 days between application and grazing livestock.

Spread unburned chaff and straw with a harrow for better control.

● **Problem:** *Control of Wild Oats in Fine Fescues*

**Chemical:** MSMA (Ansar 529 H. C.)

**Spray Mixture:** Use same recommendation indicated for perennial ryegrass.

**Time of Application:** Use same recommendation indicated for perennial ryegrass.

## EASTERN OREGON

● **Problem:** *Control of Downy Brome (Cheatgrass), Rattail Fescue, and Other Weedy Annual Grasses and Broadleaf Weeds in Eastern Oregon Perennial Grass Seed Fields (Bluegrasses, Fescues, and Other Lawn and Pasture Grasses)*

**Chemical:** dicamba (Banvel)

**Spray Mixture:** Use 3 pounds (3 quarts) in 10 or more gallons of water per acre.

**Time of Application:** Spray within 10 days after the first fall irrigation, or fall rain sufficient to start germination of weeds. Spraying while soil is still moist has given best results.

**Cautions:** Spray only well established stands of grass. Best control will be obtained only if the fields have been burned, and unburned chaff and straw spread by going over the field with a pasture harrow or similar implement.

Do not graze dairy animals within 90 days of application.

Do not graze meat animals within 30 days of slaughter.

## WESTERN OREGON

● **Problem:** *Chemical Seedbed Preparation to Aid in the Establishment of Small Seeded Grass Seed Crops in Western Oregon on Fields with Adequate Drainage to Permit Early Seeding*

**Chemical:** paraquat or a mixture of IPC + 2,4-D

**Spray Mixture:** Use ½ pound paraquat or 4 pounds of IPC plus 1 pound of 2,4-D. Where paraquat is used, add spreader recommended on the paraquat label at 1 pint per 100 gallons of spray solution.

**Time of Application:** Applications should be made during late November or December. If weather prevents treatment, paraquat can be used during January. If weeds are large before the January application is made, two applications of paraquat at ¼ pound per acre about 10 days apart will be more effective in killing the weeds than a single application at ½ pound per acre. IPC + 2,4-D should not be applied after January 1. Seed grasses between February 15 and March 15. If irrigation is available, seeding can be delayed. If additional germination occurs after the December treatments, paraquat can be applied just before seeding or up to the time of emergence, if the crop seed is well covered.

**Cautions:** These treatments will control only weeds coming from seed. Crops or weeds coming from vegetative portions of perennial plants will not be controlled. Fields should be prepared and cultivated as late in the fall as possible (at least October 15) to destroy early germinating plants. When paraquat is applied, use sprayer with rear mounted boom. Do not disturb soil after treatment, as more weed seeds will be brought to the soil surface and germinate. Some formulations of IPC and 2,4-D are not physically compatible. Mix small quantities to test compatibility before mixing in sprayer. Do not graze treated areas. Do not use seed from treated areas for livestock feed. Do not use straw from treated areas for animal bedding or feed. Follow summer weed control practices using 2,4-D, dicamba, or bromoxynil. Also use fall herbicides for late growing fall and winter weeds. Check previous recommendations.

● **Problem:** *Killing Perennial Grass Sodds with Herbicides and Summer Fallow to Clean Up Field for Winter Planting*

**Chemical:** dalapon (Dowpon)

**Spray Mixture:** Use 10 pounds of the 85% sodium salt formulation of dalapon plus added wetting agent in 10 to 40 gallons of water per acre.

**Time of Application:** Apply 2 to 4 weeks prior to plowing and when perennial grasses such as bentgrass, creeping velvetgrass, quackgrass, tall fescue, and similar species are growing vigorously. Best results will usually occur from late May application followed by plowing and spring-tooth harrowing to dry out the soil and pull rhizomes and sod clumps to the surface where drying by the sun and air will finish killing the plants.

**Cautions:** Heavily infested fields may not be adequately killed from a single year of fallow to prevent contamination of subsequent seed crops. This is particularly true in rainy seasons which prevent complete drying of the soil.

## BIRDSFOOT TREFOIL FOR SEED PRODUCTION STATE-WIDE

● **Problem:** *The Control of Certain Weedy Annual Broadleaves in New Stands of Birdfoot Trefoil*

**Chemical:** 2,4-DB amine

**Spray Mixture:** Use ½ pound of the amine form per acre in 10 to 20 gallons of water.

**Time of Application:** Application should be made after the trefoil has at least 2 true leaves. The weeds should be small at the time application is made.

**Cautions:** The same precautions relative to drift hazards should be observed with this material as for regular 2,4-D.

Birdsfoot trefoil is somewhat sensitive to this chemical and will be retarded with some distortion of leaves and stems for a period of several weeks following treatment. Apply only where weed problems are serious to the extent that 2 or 3 weeks retarded growth from the chemical will be less serious than damage caused as a result of the weed problem.

This treatment is damaging to established stands of trefoil and should be used only on young seedlings.

Do not graze or feed treated forage until 30 days after treatment.

● **Problem:** *The Preemergence Control of Weedy Annual Grasses in New Plantings of Birdsfoot Trefoil*

**Chemical:** EPTC (Eptam)

**Spray Mixture:** Use 3 pounds per acre of EPTC in 20 or more gallons of water.

**Time of Application:** Application should be made on the seedbed prior to the final discing and harrowing. Application should be made on seedbeds dry enough to permit thorough mixing through discing two directions to a depth of 2 to 3 inches immediately after spraying.

Seeding of the birdsfoot trefoil may be done any time after the treatments have been worked into the soil.

**Cautions:** There are no particular precautions in the use of this material, other than to avoid contact with clothing, since the material has a very disagreeable odor which cannot be easily washed from clothing.

---

**Chemical:** benefin (Balan) (seed or forage)

**Spray Mixture:** Light (sandy) soils, apply 2 quarts of the 1½ pound per gallon formulation (¾ pound active) in 20 to 40 gallons of water per acre. Medium (sandy loam) soils, apply 3 quarts of the 1½ pound per gallon formulation (1.1 pounds active) in 20 to 40 gallons of water per acre. Heavy (silt or clay) soils, apply 4 quarts of the 1½ pound per gallon formulation (1½ pounds active) in 20 to 40 gallons of water per acre.

**Time of Application:** From 10 weeks prior to immediately prior to planting. Work the spray thoroughly into the soil by cross discing or using a rotary tiller simultaneously with or immediately after application.

**Cautions:** Spray only once and avoid overlapping. Do not plant wheat, barley, rye, domestic grasses, or onions for 10 months following benefin applications. Corn, oats, red beets, other root crops, and spinach should not be planted within 12 months of spraying with benefin.

● **Problem:** *The Control of Annual Grasses and Broadleaf Weeds in Established Stands of Birdsfoot Trefoil*

**Chemical:** diuron (Karmex)

**Spray Mixture:** Use 2 pounds of 80% Karmex (1.6 pounds active diuron) in 20 to 30 gallons of water per acre in a sprayer with good mechanical agitation.

**Time of Application:** Application should be made in the fall after the trefoil starts into winter dormancy. The normal time of application in western Oregon will be in late October or early November.

**Cautions:** Application should be made only on stands that are at least 1 year old. Since Karmex at high rates is a soil sterilant, care should be used not to get overdosage in starting, stopping, and turning.

It is important to have good mechanical agitation to keep this material in uniform suspension.

## RED CLOVER, LADINO AND OTHER WHITE CLOVERS

● **Problem:** *The Control of Grass Type Annual Weeds and Certain Broadleaf Species in the Establishment of Red, Ladino, and White Clovers*

**Preplant**

**Chemical:** EPTC (Eptam)

**Spray Mixture:** Use 2 to 4 pounds of EPTC per acre in 20 or more gallons of water.

**Time of Application:** Application should be made on the seedbed prior to the final discing and harrowing. Application should be made on soil dry enough to permit thorough mixing by discing two directions to a depth of 2 to 3 inches immediately after spraying. Seeding of the clovers may be done any time after treatments have been worked into the soil.

**Cautions:** There are no particular precautions in the use of this material other than to avoid contact with clothing, since the material has a very disagreeable odor which cannot be easily washed from clothing. This treatment may cause some stunting and leaf malformation of the clover during the first few weeks after emergence. This injury is temporary and rapidly outgrown.

---

**Chemical:** benefin (Balan)

**Spray Mixture:** Light and medium soils, 3 quarts per acre (1.12 pounds active); heavy soils, 4 quarts per acre (1.5 pounds active). Formulation is a 1.5 pound per gallon formulation. Apply chemical in 5 to 40 gallons of water per acre.

**Time of Application:** Apply and incorporate any time within 10 weeks before planting. Do not apply after planting. Balan must be incorporated into the soil simultaneously with or immediately after application. Spray can be worked thoroughly into soil by cross discing or using a PTO rotary tiller.

**Cautions:** Spray only once and avoid overlapping. Do not plant wheat, barley, rye, other domestic grasses and onions for 10 months following Balan application. Milo (grain sorghum), corn, oats, red beets, sugar beets, other root crops and spinach should not be planted for 12 months following Balan application.

● **Problem:** *The Control of Weedy Annual Grasses or Grains in New or Established Stands*

**New or Established**

**Chemical:** propham-IPC (Chem-Hoe) or chlorpropham-CIPC (Chloro IPC)

**Spray Mixture:** Use 3 pounds of CIPC or 4 pounds of regular IPC in 20 to 60 gallons of water.

**Time of Application:** IPC or CIPC may be used in the late fall (November) after the weedy grasses have germinated. When sprays have not been applied before February 1, CIPC should be used. Early applications are best. Clover seedlings may be treated any time after they have 2 or more true leaves. Established stands should be treated as soon as weedy annual grasses start to germinate.

**Remarks:** CIPC or IPC can make seedling clover more susceptible to winter injury.

**Cautions:** The use of IPC and CIPC does not require any special precautions, other than to be sure the solution is thoroughly mixed in the spray tank before starting to spray.

---

**Chemical:** Pronamide (Kerb 50 W)

**Spray Mixture:** Use .75 to 1.5 pounds active ingredient (1.5 to 3.0 pounds of 50% wettable powder) in 20 to 50 gallons of water per acre. Use the higher rate for well established grasses or volunteer grains.

**Time of Application:** Apply during the fall or winter to clovers which are in the trifoliate leaf stage or beyond. Apply before freeze-up in the colder areas.

**Cautions:** Do not graze treated fields or harvest for forage within 120 days of treatment.

Kerb does not control winter annual broadleaf weeds such as groundsel, hawksbeard, dogfennel, etc. (Composite family) which are usually a problem in western Oregon.

● **Problem:** *The Control of Certain Weedy Broadleaf Annual and Certain Perennial Species in Either New or Established Stands of Red and White Clovers*

**New or Established**

**Chemical:** 2,4-DB amine, MCPA or dinoseb amine

**Spray Mixture:** Use  $\frac{3}{4}$  to  $1\frac{1}{2}$  pounds per acre of 2,4-DB amine or  $\frac{1}{4}$  pound per acre of MCPA amine or sodium salt in 10 to 20 gallons of water. Apply dinoseb amine at the rate of  $1\frac{1}{2}$  pounds (2 quarts) in 30 gallons of water per acre.

**Time of Application:** Seedling stands may be sprayed with 2,4-DB or MCPA after they have 2 or more true leaves. On established stands, application should be made in the late fall or early spring when the weeds are small. Dinoseb is effective only on small weeds before they have more than 2 or 3 true leaves. It should be applied on clover that has at least 3 true leaves.

**Cautions:** The precautions used to avoid drift injury to susceptible crops when using 2,4-D and MCPA should be followed. Clovers will show some stem twisting as a result of application of 2,4-DB and MCPA. This may cause retarded growth for at least 2 weeks. Dinoseb amine may cause some leaf injury to the clover. There is no residue grazing clearance on MCPA, so treated fields should not be grazed. 2,4-DB sprayed fields should not be grazed for 30 days after spraying. Fields treated with dinoseb should not be grazed within 6 weeks after application.

● **Problem:** *The Control of Winter Annual Grasses and Broadleaf Weeds in Established Red and White Clover*

**Chemical:** Paraquat + X-77 (Oregon and Washington)

**Spray Mixture:** Apply  $\frac{1}{4}$  to  $\frac{1}{2}$  pound per acre (1 to 2 pints) in 20 to 100 gallons of water per acre. Add 8 oz. of X-77 spreader per 100 gallons of water.

**Time of Application:** Apply to well established stands between November 15 and January 15, when the crop is dormant and before spring growth starts.

**Remarks:** When a heavy winter annual grass population exists, split applications of IPC, CIPC, or Kerb, which have residual activity, and paraquat may give better grass weed control than paraquat alone. Paraquat will control many annual broadleaf weeds not controlled by IPC, CIPC, or Kerb.

**Cautions:** Do not graze, cut or harvest within 90 days of application. Do not apply more than once per season.

● **Problem:** *The Control of Annual Grasses and Broadleaf Weeds in Established Red Clover*

**Chemical:** diuron (Karmex)

**Spray Mixture:** Use 2 pounds of the 80% commercial product in 20 to 30 gallons of water per acre.

**Time of Application:** Apply between October 15 and December 15.

**Cautions:** Apply only on stands at least 9 months old and in vigorous condition. Use only a sprayer with mechanical agitation.

## ALFALFA

● **Problem:** *The Control of Grass-type Annual Weeds and Certain Broadleaf Species in Establishment or on New Stands of Alfalfa*

**Chemical:** EPTC (Eptam)

**Spray Mixture:** Use 2 to 4 pounds per acre of Eptam in 20 or more gallons of water. Use 2 pounds on light sandy soil. Use 4 pounds on heavy soil when nutgrass or quackgrass is to be controlled. On other sites use 3 pounds.

**Time of Application:** Application should be made on the seedbed prior to final discing and harrowing. Application should be made on soil dry enough to permit thorough mixing by discing in two directions to a depth of 2 to 3 inches immediately after spraying. The alfalfa may be seeded any time after the treatment has been worked into the soil.

**Cautions:** There are no particular precautions in the use of Eptam, other than to avoid contact with clothing since the material has a very disagreeable odor which cannot be easily washed from clothing.

Temporary stunting and leaf distortion on the alfalfa may occur, but is quickly outgrown.

**Chemical:** Benefin (Balan)

**Spray Mixture:** Light and medium soils, 3 quarts per acre (1.12 pounds active); heavy soils, 4 quarts per acre (1.5 pounds active). Formulation is a 1.5 pound per gallon formulation. Apply chemical in 10 to 40 gallons of water per acre.

**Time of Application:** Apply and incorporate any time within 10 weeks before planting. Do not apply after planting. Balan must be incorporated into the soil simultaneously with or immediately after application. Spray can be worked thoroughly into soil by cross discing or using a PTO rotary tiller.

**Cautions:** Spray only once and avoid overlapping. Consult the label for restrictions on planting sensitive crops.

**Chemical:** profluralin (Tolban).

**Spray Mixture:** Fine soils—2.0 pts. (1.0 lb. a.i. per acre); medium soils—1.5 to 2.0 pts. (0.75 to 1.0 lb. a.i./acre); coarse soils—1.0 to 1.5 pts. (0.5 to 0.75 lb. a.i./acre). Formulated as a 4 lb. per gallon EC. Apply in 10 to 40 gallons per acre.

**Time of Application:** Apply at the recommended rate and incorporate within four hours. Do not apply after planting. Good incorporation with a PTO tiller or a disc harrow, rolling cultivator, or mulch treader operated in two directions is essential for optimum results.

**Cautions:** Spray only once and avoid overlapping. Do not use if a nurse crop such as oats is to be planted or if an alfalfa-grass mixture is to be seeded. Consult the label for restrictions on planting sensitive crops.

**Chemical:** propham-IPC (Chem-Hoe) or chlorpropham-CIPC (Chloro IPC)

**Spray Mixture:** Use 4 pounds of regular IPC or chloro IPC in 10 to 20 gallons of water per acre.

**Time of Application:** Apply as the newly established alfalfa is starting dormancy in November or December. Alfalfa should have at least 3 true leaves. Use regular IPC only during cool rainy weather.

**Cautions:** No special precautions are necessary.



**Remarks:** Combinations of either herbicide with dinitro will improve broadleaf weed control. See the subsequent section dealing with dinitro application.

● **Problem:** *The Control of Volunteer Grains or Grains Planted for Soil Stabilization in Sandy Soils of Eastern Oregon.*

**Chemical:** propham (IPC).

**Spray Mixture:** Use 3 to 4 pounds per acre (3 to 4 quarts of the 4 pound per gallon formulation). It should be watered in by rain-fall or sprinkler irrigation, immediately after application if the weather is warm or within 2 days in cool weather.

**Time of Application:** Postemergence applications should be made after the alfalfa has at least 3 true leaves. Alfalfa need not be dormant. IPC is much more effective in cool weather.

**Cautions:** Weather conditions are important in the use of IPC. Cool weather and proper water management are critical for best results.

● **Problem:** *The Control of Certain Weedy Annual Broadleaf Weeds in Established or New Stands of Alfalfa*

**Chemical:** 2,4-DB or dinoseb amine or ammonium salt

**Spray Mixture:** Use 1 pound of the 2,4-DB amine or ½ pound of 2,4-DB ester in 10 to 20 gallons of water per acre, or 1½ pounds (2 quarts) of dinoseb amine or ammonium salt in 30 gallons of water per acre.

**Time of Application:** Apply as soon as the alfalfa has 2 to 3 true leaves. It is important that application be made before the weedy annuals have more than 2 to 3 true leaves.

**Cautions:** The same precautions as for 2,4-D should be followed with the use of 2,4-DB. Do not feed forage treated with 2,4-DB within 30 days of treating time, or dinoseb treated within 60 days.

● **Problem:** *Control of Perennial Grasses in Established Alfalfa*

**Chemical:** pronamide (Kerb)

**Spray Mixture:** Use 1.0 to 2.0 pounds active ingredient (2.0 to 4.0 pounds of the 50% product) in 20 to 50 gallons of water per acre. The higher rates should be used in areas with heavier soil types.

**Time of Application:** Apply during the fall or winter when good soil moisture is present and further precipitation is expected. Apply before freeze-up in the colder areas. Applications made between November 15 and December 15 generally have given best results.

**Cautions:** Do not graze treated fields or harvest for forage within 120 days of treatment.

Kerb does not control some winter annual broadleaf weeds such as groundsel, hawksbeard, dogfennel, etc. (Composite family).

● **Problem:** *The Control of Both Grass and Broadleaf Type Annuals in Established Alfalfa*

**Note:** Combinations of paraquat and the residual herbicides diuron (Karmex), simazine (Princep), propham (Chem-Hoe), or pronamide (Kerb) have provided excellent control of annual weeds, particularly in heavily infested fields and when weeds are large. These treatments should be applied in the fall or early winter or as indicated on the label for the residual herbicides.

**Chemical:** diuron (Karmex) (seed or forage)

**Spray Mixture:** Use 2 to 3 pounds of 80% Karmex (1.6 to 2.4 pounds active) in 20 to 30 gallons of water in a sprayer that has mechanical agitation.

**Time of Application:** Application should be made when the alfalfa starts into winter dormancy in late October through early December. It is important for this material to be applied only on established stands that have had one year's hay production.

**Cautions:** Since Karmex does not go into solution, a sprayer with good mechanical agitation which delivers at least 20 gallons of water per acre should be used. Care should be taken not to slow up or allow Karmex to run out at excessive rates when stopping and starting. This material is a soil sterilant at high rates of application.

**Chemical:** simazine (Princep) (seed or forage)

**Spray Mixture:** Use 1 to 2 pounds of 80% commercial (.8 to 1.6 pounds active) simazine in 20 or more gallons of water in a sprayer that has mechanical agitation. Do not exceed 1 pound per acre on sandy or gravel-type soils, such as Ephrata or Ritzville.

**Time of Application:** Application should be made when the alfalfa starts into winter dormancy in late October through early December. It is important for this material to be applied only on established alfalfa that has had at least one year's growth. Weeds are often too large after Jan. 1 for consistent results.

**Cautions:** This treatment will sometimes cause a slight amount of yellow leaf symptoms on sandy soils during early spring growth. This does not appear to damage the alfalfa. Applications should be made only with a sprayer with good mechanical agitation which delivers at least 20 gallons of water per acre. Care should be taken not to slow up or allow simazine to run out at excessive rates when stopping and starting. This material is a soil sterilant at higher rates of application. Allow 30 days between last application and grazing to dairy, beef cattle, and sheep; and 60 days between application and cutting for hay.

**Chemical:** Paraquat + X-77 (Oregon and Washington only)

**Spray Mixture:** Apply ¾ to ¾ pound per acre (1.5 to 3 pints) in 20 to 60 gallons of water per acre. Add 8 oz. of X-77 spreader per 100 gallons of water.

**Time of Application:** Apply to established stands after the last fall cutting when the crop is dormant and before spring growth starts, November 15-January 15.

**Remarks:** Under conditions of heavy weed infestations or when weeds are too large to be effectively controlled with paraquat, combinations with a soil residual herbicide have been effective. Propham, chlorpropham, and pronamide can be used to control additional grasses. Diuron and simazine will extend control of many annual grass and broadleaf weeds.

**Cautions:** Do not graze, cut or harvest treated areas within 90 days of treatment. Do not apply if regrowth is more than 2" tall. Observe application date restrictions when applying combinations of paraquat and soil residual herbicides.

**Chemical:** dinoseb (General)

**Spray Mixture:** Use 1½ to 3 quarts in 5 to 20 gallons of diesel oil for aerial applications or 10 to 60 gallons of diesel oil in water to make 100 gallons per acre for ground applications.

**Time of Application:** Apply to established stand during the winter dormant season to control winter annual weeds or immediately after cutting during the growing season before regrowth starts for summer annual weeds.

**Cautions:** Do not graze or feed forage from treated areas within 6 weeks after application.

**Chemical:** pronamide (Kerb 50W)

**Spray Mixture:** Use 0.75 to 1.5 pounds active ingredient (1.5 to 3.0 pounds of 50% wettable powder) in 20 to 50 gallons of water per acre. Use the higher rate for well established grasses or volunteer grains.

**Time of Application:** Apply during the fall or winter when good soil moisture is present and further precipitation is expected. Apply before freeze-up in the colder areas.

**Cautions:** Do not graze treated fields or harvest for forage within 120 days of treatment.

Kerb does not control some winter annual broadleaf weeds such as groundsel, hawksbeard, dogfennel, etc. (Composite family).

---

**Chemical:** protham-IPC (Chem-Hoe) or chlorprotham-CIPC (Chloro IPC)

**Spray Mixture:** Use 3 to 4 pounds in 10 or more gallons of water per acre.

**Time of Application:** During the dormancy period of the alfalfa.

**Cautions:** Be sure mechanical agitation is used with non-emulsifiable formulations. These compounds generally are more effective on annual grasses.

**Remarks:** Combinations of either herbicide with dinitro will improve broadleaf weed control. See the preceding section concerning dinitro application.

● **Problem: *The Control of Barnyardgrass and Similar Summer Grasses in Established Alfalfa***

**Chemical:** trifluralin (Treflan) (seed or forage)

**Spray Mixture:** Light soil, 1½ pints of 4 pound per gallon formulation (¾ pound active) in 5 to 40 gallons of water per acre. Medium soils, 2 pints of 4 pound per gallon formulation (1 pound active) in 5 to 40 gallons of water per acre. Heavy soils, 2 pints (1 quart) of 4 pound per gallon formulation (1 pound active) in 5 to 40 gallons of water per acre.

**Time of Application:** Apply over top of established plantings during dormant period or after removal of foliar growth and incorporate simultaneously or immediately after application with equipment that will insure a minimum of damage to the established crop.

**Cautions:** Spray only once and avoid overlapping. Do not plant sugar beets, red beets, or spinach for 12 months after Treflan spring application or 14 months after Treflan fall application. Do not plant sorghum (milo), corn or oats for 14 months after Treflan spring application or 16 months after Treflan fall application. Do not plant any of these crops for 18 months after Treflan spring application or 20 months after Treflan fall application to land that has not been irrigated. Cool wet weather conditions during the early stages of growth may increase the possibility of injury to sorghum.

● **Problem: *Dodder Control in Alfalfa Seed***

(See dodder control in *Common Weed Control* section)

## **CRIMSON AND SUBTERRANEAN CLOVERS**

● **Problem: *The Control of Weedy Annual Grasses and Volunteer Cereals in Western Oregon***

**Chemical:** protham-IPC (Chem-Hoe)

**Spray Mixture:** Use 4 pounds per acre in 10 to 20 gallons of water.

**Time of Application:** Application should be made in the fall after the clover has at least 3 to 4 true leaves. December applications are preferred over earlier applications.

---

**Chemical:** pronamide (Kerb 50W)

**Spray mixture:** Use 0.75 to 1.5 pound active ingredient (1.5 to 3.0 pounds of 50% wettable powder) in 20 to 50 gallons of water per acre. Use the higher rates for well established grasses or small grains.

**Time of Application:** Applications should be made after the clover has 3 to 4 trifoliate leaves. December applications are preferred over earlier applications.

**Cautions:** Do not graze treated field or harvest for forage within 120 days of treatment. After the legume crop is treated with Kerb, is winter killed or otherwise destroyed, do not plant the field in the spring to small grain or grass crop since these crops may be injured from residual Kerb in the soil.

Kerb does not control winter annual broadleaf weeds such as groundsel, hawksbeard, dogfennel, etc. (composite family).

● **Problem: *The Control of Perennial Grasses, Such As Quackgrass, Creeping Velvetgrass, Bentgrass, in Field Cleaning***

**Chemical:** EPTC (Eptam)

**Spray Mixture:** Use 3 pounds per acre of EPTC in 20 or more gallons of water.

**Time of Application:** Field should be thoroughly cultivated prior to treatment to chop up and incorporate plant residues, roots, rhizomes, etc. Application should be made on the seedbed prior to the final discing and harrowing. Application should be made to soil dry enough to permit thorough mixing by discing two directions to a depth of 2 to 3 inches immediately after spraying. Seeding of the clovers may be done any time after treatments have been worked into the soil.

**Remarks:** Eptam is of special value in controlling perennial grasses.

**Cautions:** There are no particular precautions in the use of this material other than to avoid contact with clothing since the material has a very disagreeable odor which cannot easily be washed from clothing. Eptam treatment may cause some stunting and leaf malformation of the clover during the first few weeks after emergence. This injury is temporary and rapidly outgrown.

● **Problem: *The Control of Vetch, Mustard, and Other Weedy Annual Broadleaf Species***

**Chemical:** MCPA amine or sodium salt

**Spray Mixture:** Use ½ pound in 10 to 20 gallons of water per acre.

**Time of Application:** Radish and mustard should be sprayed in the rosette stage of growth, usually December. Vetch should be sprayed in February or the first week of March, before crimson clover starts rapid spring growth. Do not spray early weeds in December and vetch in February. When both early weeds and vetch are in the field, spray before the early weeds develop the flower stalks.

**Cautions:** The same precautions as suggested for the use of 2,4-D should be used when spraying MCPA to avoid injury to susceptible crops from drift. Do not graze or use forage from treated areas. Do not use seed for food or feed purposes.

**SAFETY CODE FOR HANDLING PESTICIDES**  
(published by the National Agricultural Chemicals Association)

1. Always read the label before using sprays or dusts. Note warnings and cautions each time before opening the container.
2. Keep sprays and dusts out of the reach of children, pets, and irresponsible people. They should be stored outside of the home and away from food and feed.
3. Always store sprays and dusts in original containers and keep them tightly closed. Never keep them in anything but the original container.
4. Never smoke while spraying or dusting.
5. Avoid inhaling sprays or dusts. When directed on label, wear protective clothing and masks.
6. Do not spill sprays or dusts on the skin or clothing. If they are spilled, remove contaminated clothing immediately and wash thoroughly.
7. Wash hands and face and change to clean clothing after spraying or dusting. Also wash clothing each day before reuse.
8. Cover food and water containers when treating around livestock or pet areas. Do not contaminate fishponds.
9. Use separate equipment for applying hormone-type herbicides in order to avoid accidental injury to susceptible plants.
10. Always dispose of empty containers so that they cannot harm humans, animals or valuable plants.
11. Observe label directions and cautions to keep residues on edible portions of plants within the limits permitted by law.
12. If symptoms of illness occur during or shortly after spraying or dusting, call a physician or get the patient to a hospital immediately.

**IN CASE OF EMERGENCY**

See your doctor at once. Your doctor may call the Physicians Consultation Center, Emergency Center Building, University of Oregon Health Science Center, Portland, Oregon for information. Phone 225-8311. Ask for Poison Consultation or the Bay Area Hospital, Coos Bay, Oregon, phone 269-8169 and ask for Poison Control. These services are available twenty-four hours a day for professional persons only. This service maintains up-to-date files on all agricultural chemicals and other poisons.



OREGON STATE UNIVERSITY  
**EXTENSION  
SERVICE**

---

Extension Service, Oregon State University, Corvallis, Joseph R. Cox, director. This publication was produced and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Extension work is a cooperative program of Oregon State University, the U. S. Department of Agriculture, and Oregon counties.

---