

# Herbicides for Annual Weed Control in Wheat in Eastern Oregon

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More than 40 different kinds of broadleaf weeds and grasses can be found in most eastern Oregon cereal fields. Many of these weeds are resistant to one or more of the commonly used herbicides. The continued use of the same herbicide year after year will select for resistant species present in the field. The best way to avoid build-up of herbicide-resistant species is to rotate the use of a herbicide at least once every third season. The wide selection of herbicides and herbicide combinations now available would make a chemical rotation feasible.

Eleven registered herbicides and five combinations with state registrations, for a total of sixteen, are available for broadleaf weed control. Trifluralin (Treflan) is registered as a downy brome (cheatgrass) herbicide for winter wheat, and is also effective on bulbous bluegrass (*Poa bulbosa*) and occasionally effective on goatgrass (*Aegilops cylindrica*). Trifluralin is only effective as a preplant soil-incorporated material. *Wheat must be seeded below the trifluralin-treated zone to prevent severe injury or stand loss.*

Soil-active herbicides such as chlorbromuron (Maloran), diuron (Karmex), linuron (Lorox), metribuzin (Sencor or Lexone), and terbutryn (Igran) normally are used in the fall after the grain has emerged and when sufficient rain has occurred to firm the soil surface. Do not apply before the crown root system is well developed or damage may result.

Bromoxynil-dicamba, bromoxynil-diuron, bromoxynil-linuron, bromoxynil-metribuzin, and bromoxynil-MCPA combinations are used after weeds have emerged in late winter or early spring. The combinations generally are applied after the wheat has emerged but before the weeds have established a deep root system. Applications made after March 1 are less effective.

All 2,4-D and 2,4-D-dicamba materials are commonly applied in the spring after the wheat is well established, preferably in the four- to six-tiller stage. MCPA can be applied any time after the wheat has three to four tillers. Applications of most phenoxy materials must be delayed until the wheat is tillered; the weeds are often too large for effective control at this time, thus limiting the potential yield.

Bromoxynil (Buctril or Brominal) and dinoseb (salt formulations) can be used any time in the fall or early winter after the broadleaves have emerged but before they are beyond the seedling stage (2- to 6-leaf).

Metribuzin is a postemergence herbicide registered for the selective control of downy brome in winter wheat and winter barley but is partially effective on rigput brome (*Bromus rigidis*), and bulbous bluegrass (*Poa bulbosa*). Metribuzin is effective as a postemergence treatment after wheat or barley have three tillers and well developed crown roots. Downy brome is sensitive to metribuzin in the seedling stage (3- to 4-leaf) but becomes resistant when growth exceeds 4 tillers.

Some unregistered herbicides show promise of aiding the weed control program and new mixtures are being developed. Some are promising for the control of hard-to-kill broadleaf weeds and downy brome. In addition, mixtures are being developed that will reduce chemical residues in crops and soil and provide the grower with a larger economic advantage.

Good weed control requires selection of the proper herbicide and uniform application. Selection is based on the weed species present and their stage of growth, age of the grain, and soil type. Application uniformity partially determines the effectiveness of the selected herbicide. Spray nozzles on both aircraft and ground rigs should be adjusted carefully to prevent a distortion of the spray pattern within the swath. This is necessary to prevent high and low deposit zones which show up as streaks or skips in the field. Check the label on the container or get additional information from qualified weed control authorities.

The following table shows the relative performance of several herbicides and mixtures under eastern Oregon conditions. In some situations, weed control may be more or less effective than recorded. Since this is only a guide, additional information should be obtained from qualified agents, dealers, or research investigators.

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**HERBICIDE EFFECTIVENESS ON ANNUAL WEEDS IN EASTERN OREGON**

**Rating Scale: E = excellent (95-100%), G = good (80-94%), F = fair (60-79%), P = poor (less than 59%),  
... = resistant species, — = limited information**

WEED GROUP	Foliar and Soil Active								Translocated		Con-tact	Combinations						
	Chlorbromuron (Matoran)	Diclofop (Hoelon)	Diuron (Karmex)	Linuron (Lorox)	Metribuzin (Sencor or Lexone)	Terbutryn (Igran)	Trifluralin (Treflan)	2,4-D	Dicamba + 2,4-D	MCPA	Bromoxynil	Dinoseb (salt formulations)	Bromoxynil + dicamba	Bromoxynil + MCPA	Bromoxynil + MCPA + dicamba	Diuron + bromoxynil	Linuron + bromoxynil	Metribuzin + bromoxynil
<b>Borage</b>																		
Fiddleneck ( <i>Amsinckia intermedia</i> )	E	P	E	E	F	E	P	F	G	F	G	P	E	E	E	E	E	F
Common bugloss (Alkanet) ( <i>Anchusa officinalis</i> )	E	P	E	E	G	E	G	P	F	P	G	P	E	G	E	E	E	E
Corn gromwell ( <i>Lithospermum arvense</i> )	E	P	E	E	P	G	F	P	F	P	G	P	E	E	E	E	E	P
Madwort (Catchweed) ( <i>Asperugo procumbens</i> )	P	P	P	P	F	F	F	F	F	P	P	F	G	G	G	G	G	G
<b>Buckwheat</b>																		
Prostrate knotweed ( <i>Polygonum aviculare</i> )	P	P	P	P	G	P	G	P	G	P	P	F	E	G	E	F	G	G
Wild buckwheat ( <i>Polygonum convolvulus</i> )	P	P	P	P	P	P	P	P	F	P	P	P	F	P	F	P	P	P
<b>Buttercup</b>																		
Testiculate buttercup (Horned-head) ( <i>Ranunculus testiculatus</i> )	G	P	G	G	PF	P	G	P	F	P	P	F	G		F	G	G	G
<b>Carrot</b>																		
Bur beakchervil ( <i>Anthriscus scandicina</i> )	F	P	P	F	P	F	—	P	F	E	P	F	E	G	E	P	F	P
Poison hemlock ( <i>Conium maculatum</i> )	F	P	F	G	P	F	P	F	G	P	P	P	F	F	F	P	P	P
<b>Figwort</b>																		
Ivyleaf speedwell ( <i>Veronica hederifolia</i> )	F	P	P	F	E	F	G	P	F	P	P	E	F	P	F	P	P	E
<b>Geranium</b>																		
Redstem filaree ( <i>Erodium cicutarium</i> )	F	P	F	F	F	G	G	F	F	F	P	G	G	F	G	G	G	F
<b>Goosefoot</b>																		
Russian thistle ( <i>Salsola kali</i> )	P	P	P	P	F	P	F	G	G	P	P	P	F	F	G	P	F	F
Common lambsquarters ( <i>Chenopodium album</i> )	G	P	G	G	E	G	E	E	E	G	F	G	E	E	E	G	G	E
Kochia ( <i>Kochia scoparia</i> )	G	P	G	G	E	E	E	G	E	G	F	G	E	E	E	G	G	E
<b>Mustard</b>																		
Smallseed Falseflax ( <i>Camelina microcarpa</i> )	G	P	G	G	G	G	P	G	G	F	G	G	E	E	E	G	E	E
Shepherdspurse ( <i>Capsella bursa-pastoris</i> )	G	P	G	G	G	F	P	G	E	F	F	G	E	G	E	G	G	G
Blue mustard (Purple) ( <i>Chorispora tenella</i> )	E	P	E	E	G	G	P	F	G	P	G	P	F	G	G	E	E	G
Tansymustard ( <i>Descurainia pinnata</i> )	G	P	G	G	G	P	P	G	G	F	G	F	G	G	G	G	G	G
Bushy wallflower ( <i>Erysimum repandum</i> )	E	P	G	E	F	F	P	F	G	P	G	G	E	E	E	G	G	F
Yellowflower pepperweed ( <i>Lepidium perfoliatum</i> )	E	P	E	E	G	G	P	E	E	F	G	G	G	E	E	G	G	G
Tumble mustard (Jim Hill) ( <i>Sisymbrium altissimum</i> )	F	P	F	F	F	P	P	E	E	G	F	F	E	E	E	E	E	F
Field pennycress (Fanweed) ( <i>Thlaspi arvense</i> )	E	P	F	G	G	G	P	E	E	G	F	F	E	E	E	E	E	E
Wild mustard ( <i>Brassica</i> spp.)	G	P	G	G	G	G	P	E	E	G	P	P	F	G	E	F	G	F

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<b>Madder</b>																		
Catchweed bedstraw (cleavers) <i>(Galium aparine)</i>	G	P	G	G	F	E	G	P	P	P	F	F	G	F	F	G	G	F
<b>Mint</b>																		
Henbit (dead nettle) <i>(Lamium amplexicaule)</i>	G	P	G	G	E	E	G	P	F	F	F	E	G	F	G	G	G	E
<b>Purslane</b>																		
Minerslettuce <i>(Montia perfoliata)</i>	G	P	G	G	F	G	F	P	F	P	F	F	F	F	F	G	G	F
<b>Pea</b>																		
Hairy vetch <i>(Vicia villosa)</i>	P	P	P	P	P	P	P	E	E	F	P	P	P	F	F	P	P	P
<b>Pink</b>																		
Corn cockle <i>(Agrostemma githago)</i>	F	P	F	F	G	F	F	P	E	P	F	P	G	G	E	E	E	G
Cow cockle <i>(Vaccaria segetalis)</i>	F	P	F	F	F	F	F	P	G	F	F	P	G	G	G	G	G	F
Jagged chickweed (Umbel chickweed) <i>(Holosteum umbellatum)</i>	F	P	F	F	F	F	E	P	G	P	P	F	F	F	F	F	F	G
Knawel <i>(Scleranthus annuus)</i>	F	P	G	G	P	P	G	P	G	F	F	F	F	F	G	G	G	F
<b>Polemonium</b>																		
Annual polemonium (Jacobs ladder) <i>(Polemonium micranthum)</i>	G	P	G	G	G	G	G	G	G	G	P	F	G	F	E	G	G	G
<b>Sunflower</b>																		
Annual sowthistle <i>(Sonchus oleraceus)</i>	F	P	F	F	G	G	P	E	E	F	F	F	G	G	G	F	F	F
Prickly lettuce <i>(Lactuca scariola)</i>	F	P	P	F	G	G	F	E	E	G	F	G	G	G	E	G	G	G
Mayweed (Dog fennel) <i>(Anthemis cotula)</i>	G	P	E	G	F	G	G	P	G	P	P	F	F	F	G	F	F	G
Pineappleweed <i>(Matricaria matricarioides)</i>	F	P	G	G	P	G	G	P	F	P	G	P	F	G	F	F	F	P
Cornflower (Bachelor button) <i>(Centaurea cyanus)</i>	G	P	G	G	F	F	F	F	F	P	F	P	F	G	G	G	G	F
<b>Grasses</b>																		
Downy brome (Cheatgrass) <i>(Bromus tectorum)</i>	P	E**	P	P	E	*	G	...	...	...	...	P	...	...	...	P	P	E
Ripgut brome <i>(Bromus rigidus)</i>	P	G**	P	P	G	P	G	...	...	...	...	P	...	...	...	P	P	G
Wild barley (foxtail) <i>(Hordeum leporinum)</i>	P	F	P	P	E	P	G	...	...	...	...	P	...	...	...	P	P	E
Barnyardgrass (watergrass) <i>(Echinochloa crus-galli)</i>	G	G	F	G	E	F	E	...	...	...	...	P	...	...	...	P	P	E
Bulbous bluegrass <i>(Poa bulbosa)</i>	P	G**	P	P	G	P	F	...	...	...	...	P	...	...	...	P	P	G
Jointed goatgrass <i>(Aegilops cylindrica)</i>	P	P	P	P	P	P	F	...	...	...	...	P	...	...	...	P	P	P
Wild oat <i>(Avena fatua)</i>	P	E	P	P	P	P	F	...	...	...	...	P	...	...	...	P	P	P
Witchgrass <i>(Panicum capillare)</i>	P	E	P	P	G	F	G	...	...	...	...	P	...	...	...	P	P	G
Italian ryegrass <i>(Lolium multiflorum)</i>	P	E	P	P	F	P	G	...	...	...	...	P	...	...	...	P	P	F

\* Erratic

\*\* Must be soil-incorporated

