

# WEED MANAGEMENT

## *in Grass Seed Production*

EM 8788 • October 2001  
\$4.50



**OREGON STATE UNIVERSITY**  

---

**EXTENSION SERVICE**

---

## Contents

How to Use This Publication .....	1
Section 1: Herbicide–Weed Charts .....	2
Perennial ryegrass: broadleaf weeds .....	2
Perennial ryegrass: grass weeds .....	3
Annual ryegrass: broadleaf weeds .....	4
Annual ryegrass: grass weeds .....	5
Tall fescue: broadleaf weeds .....	6
Tall fescue: grass weeds .....	7
Fine fescue: broadleaf weeds .....	8
Fine fescue: grass weeds .....	9
Bentgrass: broadleaf weeds .....	10
Bentgrass: grass weeds .....	11
Orchardgrass: broadleaf weeds .....	12
Orchardgrass: grass weeds .....	13
Kentucky bluegrass: broadleaf weeds .....	14
Kentucky bluegrass: grass weeds .....	15
Section 2: Herbicide Notes .....	16
Preemergence .....	16
Preemergence/Early Postemergence:	
Foliar and Soil Uptake .....	17
Early Postemergence: Primarily Soil Uptake .....	17
Postemergence .....	18
Section 3: Weed Identification and Management ...	21
Weed Terms .....	Inside back cover
Ordering Information .....	Back cover

*By Jed Colquhoun, Extension weed specialist; Bill Brewster, senior instructor; Carol Mallory-Smith, associate professor; Oregon State University; and Ron Burr, Ag Research Inc.*



# Weed Management in Grass Seed Production

## How to Use This Publication

There are three ways to use this publication as a decision aid for managing weeds in grass seed production.

1) *For the weeds I have, which herbicides are best for my situation?* To answer this question, begin with the herbicide-weed diagrams in **Section 1** (pages 2–15). Then check sections 2 and 3 for more details. Herbicide activity ratings are based on the following scale:

P = poor control

F = fair control

G = good control

(s) = rating based on seedling growth stage

2) *What is the best timing and rate for a specific herbicide?* **Section 2** (pages 16–20) includes details on application timings, rates, and combinations that provide broad-spectrum weed management.

3) *What weeds do I have, and what is the best management strategy for those species?* **Section 3** (pages 21–40) includes photographs, a brief description, and management strategies for the weeds most commonly found in grass seed fields.

### Use Herbicides Safely!

- Wear protective clothing and safety devices as recommended on the label. Bathe or shower after each use.
- Read the herbicide label—even if you've used the herbicide before. Follow closely the instructions on the label (and any other directions you have).
- Be cautious when you apply herbicides. Know your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from herbicide use.

### Herbicide Mode of Action

Group name	Mode of action
1 ACCase inhibitors	Inhibition of ACCase enzyme
2 ALS inhibitors	Inhibition of ALS enzyme
3 Dinitroanilines and others	Microtubule assembly inhibition
4 Synthetic auxins	Synthetic auxin
5 Triazines and others	Inhibition of photosystem II
6 Nitriles and others	Inhibition of photosystem II
7 Ureas and amides	Inhibition of photosystem II
8 Pyrazoliums	Unknown
9 Glycines	Inhibition of amino acid synthesis
10 Glutamine synthase inhibitors	Inhibition of glutamine synthesis
14 PPO inhibitors	Inhibition of protoporphyrinogen oxidase
15 Chloracetamides and others	Inhibition of cell division
16 Thiocarbamates and others	Inhibition of lipid synthesis
22 Bipyridyliums	Inhibition of photosystem I

# SECTION 1: HERBICIDE-WEED CHARTS

## Perennial ryegrass: broadleaf weeds

	Prowl (pendimethalin)	Goal/Galigan (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Gramoxone Extra (paraquat)	glyphosate	2,4-D	MCPA	Banvel/Clarity (dicamba)	Stinger/Curtail/Curtail M (clopyralid)	Express (tribenuron-methyl)	Buctril/Bronate (bromoxynil)	Starane (fluroxypyr)	Paramount (quinclorac)	Aim (carfentrazone)
Mode of action	3	14	7	5	22	9	4	4	4	4	2	6	4	4	14
Bedstraw ( <i>Galium aparine</i> )		G	P	P	F-G	G	P-F	P-F	F	P-F		P-F	F-G	F-G	G
Bittercress ( <i>Cardamine</i> spp.)		G	G	G	G	G	G	G	F-G	P-G	G	F-G			G
Broadleaf plantain ( <i>Plantago major</i> )			P			G	G	G	F						
Buckhorn plantain ( <i>Plantago lanceolata</i> )			P			G	G	G	F						
Bull thistle ( <i>Cirsium vulgare</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G			
Canada thistle ( <i>Cirsium arvense</i> )	P	P	P	P	P	F-G	F-G	F	F-G	G	F-G	P	P-F		
Common chickweed ( <i>Stellaria media</i> )	G	P	G	G	G	G	P-F	P-F	F-G	F-G	G	P-F	G		
Common dandelion ( <i>Taraxacum officinale</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	G		G(s)			
Common groundsel ( <i>Senecio vulgaris</i> )	P	G	F	F	G(s)	G	F-G	F-G	F-G	G	G	P-G			
Common lambsquarters ( <i>Chenopodium album</i> )					G	G	G	G	G	P-G	G	G			G
Field bindweed ( <i>Convolvulus arvensis</i> )						F-G	F-G	F-G	F-G	P-F		P-F		G	
Filaree ( <i>Erodium</i> spp.)		G	F	G	G(s)	G	G	G	G	P-F		G			F-G
Geranium ( <i>Geranium</i> spp.)			G	G	G(s)	G	F-G	F-G	F-G		F				
Hawksbeard ( <i>Crepis</i> spp.)		G(s)	G(s)	G(s)	G(s)	G	P-F	P-F	G	G		G			
Hedge mustard ( <i>Sisymbrium officinale</i> )			G	G	G(s)	G	G	G	P-F	P-G	G	F-G	F		
Henbit ( <i>Lamium amplexicaule</i> )	F-G		G	G	G	G	F	F	G		F	P-F			F-G
Mayweed chamomile ( <i>Anthemis cotula</i> )	G	G	G	G	F-G	G	P-F	P-F	F	F-G	G	F-G			P
Mustard ( <i>Brassica</i> spp.)	F		G	G	G(s)	G	G	G	F-G	P-G	G	F-G	P-F		F-G
Pineappleweed ( <i>Matricaria matricarioides</i> )			F		F-G	G	F		F	G	G	G			
Prickly lettuce ( <i>Lactuca serriola</i> )	G	G	G(s)	G(s)	G(s)	G	G	G	G	G	P-G	F-G	G		
Prostrate knotweed ( <i>Polygonum aviculare</i> )	F-G	F-G	F	F	G(s)	G	P-F	P-F	G		F	F-G	F		
Redroot pigweed ( <i>Amaranthus retroflexus</i> )					G	G	G	G	G	P-G	F	F-G			G
Red sorrel ( <i>Rumex acetosella</i> )		P	P				F(s)	F(s)	F-G	F-G	F(s)	F(s)			
Sharppoint fluellin ( <i>Kickxia elatine</i> )		G(s)	P		G	G	P	P	P		G(s)	P-F			P
Shepherdspurse ( <i>Capsella bursa-pastoris</i> )	F-G	G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G			G
Smartweed ( <i>Polygonum</i> spp.)	F	F-G	F		G	G	F-G	F	G	F	F	G			
Sowthistle ( <i>Sonchus</i> spp.)	G	G	G	G	G	G	G	G	G	G	F	G			
Speedwell ( <i>Veronica</i> spp.)		G	P	F-G	G	G	P	P	P-F	P-F	F	F	F		G
Spotted catsear ( <i>Hypochaeris radicata</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G(s)			
Sticky chickweed ( <i>Cerastium viscosum</i> )	G	P	G	G	G	G	P-F	P-F	F			P-F	G		
Toad rush ( <i>Juncus bufonius</i> )			G		G	G	G	G							
Vetch ( <i>Vicia</i> spp.)			P	P	G	G	G	G	G	G	F-G	F-G			
Wild carrot ( <i>Daucus carota</i> )		P	P	P	G(s)	F-G	P-F	P-F	P-F	F(s)	F-G	F(s)	P	P-F	P
Wild radish ( <i>Raphanus raphanistrum</i> )			G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G		F-G	
Label type	24c	24c	3/24c	24c	3	3	3	3	3	3	3	3	24c	3	24c
Geographic use															
W = West of Cascades															
S = Statewide	S	S	S	W*	S	S	S	S	S	S	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.



## SECTION 1: HERBICIDE-WEED CHARTS

### Perennial ryegrass: grass weeds

	Prowl (pendimethalin)	Dual Magnum (s-metolachlor)	Outlook (s-dimethenamid)	Axiom (flufenacet + metribuzin)	Goal/Galigan (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Kerb (pronamide)	Nortron (ethofumesate)	Rely (glufosinate)	Gramoxone Extra (paraquat)	glyphosate
Mode of action	3	15	15	15+5	14	7	5	3	16	10	22	9
Annual bluegrass — resistant ( <i>Poa annua</i> )	G	F	F	G	P-F	P-F	F	G	P-F	F	G	G
Annual bluegrass — susceptible ( <i>Poa annua</i> )	G	F-G	F-G	G	P-F	G	F	G	G	F	G	G
Annual bromes ( <i>Bromus</i> spp.)	P-F	P-G	P-G	P-G	P-F	P	F	F-G	F-G	P-G	G	G
Annual ryegrass — resistant ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F	P-F	F-G	F	P	P-F	G	G
Annual ryegrass — susceptible ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F	F-G	F-G	F	P	P-F	G	G
Barneyardgrass ( <i>Echinochloa crus-galli</i> )											G	G
Bentgrass ( <i>Agrostis</i> spp.)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	F(s)	G(s)	G
California brome ( <i>Bromus carinatus</i> )	F(s)	F(s)	F(s)	F(s)	F(s)	P	F(s)	G(S)	G(s)	F(s)	G(s)	G
Common velvetgrass ( <i>Holcus lanatus</i> )												G
Crabgrass ( <i>Digitaria</i> spp.)											G	G
Foxtail ( <i>Setaria</i> spp.)											G	G
German velvetgrass ( <i>Holcus mollis</i> )	P	P	P	P	P	P	P					G
Mannagrass ( <i>Glyceria occidentalis</i> )									P-F	F	G	G
Quackgrass ( <i>Elytrigia repens</i> )	P	P	P	P	P	P	P	P-F			F(s)	G
Rattail fescue ( <i>Vulpia myuros</i> )	G	G	G	G	F-G	G	F	G	F-G	P-F	G	G
Roughstalk bluegrass ( <i>Poa trivialis</i> )	G(s)	F(s)	F(s)	G(s)	F(s)	F(s)	F(s)		F(s)	F-G	G(s)	G
Volunteer crop seedlings	F-G	F-G	F-G	F-G	P-F	P-G	P-G	P-F	P		G	G
Wild oat ( <i>Avena fatua</i> )	P-F	P-F	F	F-G	P-F	P	P-F	P-F	F-G		G	G
Witchgrass ( <i>Panicum capillare</i> )											G	G
Label type	24c	24c	3	24c	24c	3/24c	24c	24c	3	24c	3	3
Geographic use W = West of Cascades S = Statewide	S	S	S	W	S	S	W*	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.

## SECTION 1: HERBICIDE-WEED CHARTS

### Annual ryegrass: broadleaf weeds

	Gramoxone Extra (paraquat)	glyphosate	2,4-D	MCPA	Banvel/Clarity (dicamba)	Stinger/Curtail/Curtail M (clopyralid)	Express (tribenuron-methyl)	Buctril/Bronate (bromoxynil)	Starane (fluroxypyr)	Paramount (quinclorac)	Aim (carfentrazone)
Mode of action	22	9	4	4	4	4	2	6	4	4	14
Bedstraw ( <i>Galium aparine</i> )	F-G	G	P-F	P-F	F	P-F		P-F	F-G	G	G
Bittercress ( <i>Cardamine</i> spp.)	G	G	G	G	F-G	P-G	G	F-G			G
Broadleaf plantain ( <i>Plantago major</i> )		G	G	G	F						
Buckhorn plantain ( <i>Plantago lanceolata</i> )		G	G	G	F						
Bull thistle ( <i>Cirsium vulgare</i> )	G(s)	G	G	G	G	G		G			
Canada thistle ( <i>Cirsium arvense</i> )	P	F-G	F-G	F	F-G	G	F-G	P	P-F		P
Common chickweed ( <i>Stellaria media</i> )	G	G	P-F	P-F	F-G	F-G	G	P-F	G		
Common dandelion ( <i>Taraxacum officinale</i> )	G(s)	G	G	G	F-G	G		G(s)			
Common groundsel ( <i>Senecio vulgaris</i> )	G(s)	G	F-G	F-G	F-G	G	G	P-G			
Common lambsquarters ( <i>Chenopodium album</i> )	G	G	G	G	G	P-G	G	G			G
Field bindweed ( <i>Convolvulus arvensis</i> )	P	F-G	F-G	F-G	F-G	P-F	P	P-F		G	
Filaree ( <i>Erodium</i> spp.)	G	G	G	G	G	P-F		G			F-G
Geranium ( <i>Geranium</i> spp.)	G	G	F-G	F-G	F-G		F-G				
Hawksbeard ( <i>Crepis</i> spp.)	G(s)	G	P-F	P-F	G	G		G			
Hedge mustard ( <i>Sisymbrium officinale</i> )	G(s)	G	G	G	F-G	P-G	G	F-G	F		
Henbit ( <i>Lamium amplexicaule</i> )	G	G	F	F	G		F	P-F			F-G
Mayweed chamomile ( <i>Anthemis cotula</i> )	F-G	G	P-F	P-F	F	F-G	G	F-G			P
Mustard ( <i>Brassica</i> spp.)	G(s)	G	G	G	F-G	P-G	G	F-G	P-F		F-G
Pineappleweed ( <i>Matricaria matricarioides</i> )	F-G	G	F		F	G	G	G			
Prickly lettuce ( <i>Lactuca serriola</i> )	G(s)	G	G	G	G	G	P-G	F-G	G		
Prostrate knotweed ( <i>Polygonum aviculare</i> )	G	G	P-F	P-F	G		F	F-G	F		
Redroot pigweed ( <i>Amaranthus retroflexus</i> )	G	G	G	G	G	P-G	F	F-G			G
Red sorrel ( <i>Rumex acetosella</i> )			P-F(s)	P-F(s)	F-G	F-G	P-F(s)				
Sharppoint fluellin ( <i>Kickxia elatine</i> )	G	G	P	P	P		P-F	P-F			
Shepherdspurse ( <i>Capsella bursa-pastoris</i> )	G(s)	G	G	G	F-G	P-G	F	F-G			G
Smartweed ( <i>Polygonum</i> spp.)	G	G	F-G	F	G	F	F	G			
Sowthistle ( <i>Sonchus</i> spp.)	G	G	G	G	G	G	F	G			
Speedwell ( <i>Veronica</i> spp.)	G	G	P	P	P-F	P-F	F	F	F		G
Spotted catsear ( <i>Hypochaeris radicata</i> )	G(s)	G	G	G	G	G		G(s)			
Sticky chickweed ( <i>Cerastium viscosum</i> )	G	G	P-F	P-F	F			P-F	G		
Toad rush ( <i>Juncus bufonius</i> )	G	G	G	G							
Vetch ( <i>Vicia</i> spp.)	G	G	G	G	G	G	F-G	F-G			
Wild carrot ( <i>Daucus carota</i> )	G(s)	F-G	P-F	P-F	P-F	F(s)	F-G	F(s)	P	P-F	P
Wild radish ( <i>Raphanus raphanistrum</i> )	G(s)	G	G	G	F-G	P-G	F	F-G			F-G
Label type	3	3	3	3	3	3	3	3	24c	3	24c
Geographic use W = West of Cascades S = Statewide	S	S	S	S	S	S	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage



## SECTION I: HERBICIDE-WEED CHARTS

### Annual ryegrass: grass weeds

	Nortron (ethofumesate)	Rely (glufosinate)	Gramoxone Extra (paraquat)	glyphosate
Mode of action	16	10	22	9
Annual bluegrass — resistant ( <i>Poa annua</i> )	P-F	F	G	G
Annual bluegrass — susceptible ( <i>Poa annua</i> )	G	F	G	G
Annual bromes ( <i>Bromus</i> spp.)	F-G		G	G
Annual ryegrass — resistant ( <i>Lolium multiflorum</i> )	P	P-F	G	G
Annual ryegrass — susceptible ( <i>Lolium multiflorum</i> )	P	P-F	G	G
Barnyardgrass ( <i>Echinochloa crus-galli</i> )			G	G
Bentgrass ( <i>Agrostis</i> spp.)	G(s)	F(s)	G(s)	G
California brome ( <i>Bromus carinatus</i> )	F-G(s)	P-F	G(s)	G
Common velvetgrass ( <i>Holcus lanatus</i> )				G
Crabgrass ( <i>Digitaria</i> spp.)			G	G
Foxtail ( <i>Setaria</i> spp.)			G	G
German velvetgrass ( <i>Holcus mollis</i> )	P		P	G
Mannagrass ( <i>Glyceria occidentalis</i> )	P-F	F	G	G
Quackgrass ( <i>Elytrigia repens</i> )			F(s)	G
Rattail fescue ( <i>Vulpia myuros</i> )	F-G	P-F	G	G
Roughstalk bluegrass ( <i>Poa trivialis</i> )	F(s)	F-G	G(s)	G
Volunteer crop seedlings	P		G	G
Wild oat ( <i>Avena fatua</i> )	F-G		G	G
Witchgrass ( <i>Panicum capillare</i> )			G	G
Label type	3	24c	3	3
Geographic use W = West of Cascades S = Statewide	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

## SECTION I: HERBICIDE-WEED CHARTS

### Tall fescue: broadleaf weeds

	Prowl (pendimethalin)	Goal/Galigan (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Gramoxone Extra (paraquat)	glyphosate	2,4-D	MCPA	Banvel/Clarity (dicamba)	Stinger/Curtail/Curtail M (clopyralid)	Express (tribenuron-methyl)	Buctril/Bronate (bromoxynil)	Starane (fluroxypyr)	Paramount (quinclorac)	Aim (carfentrazone)
Mode of action	3	14	7	5	22	9	4	4	4	4	2	6	4	4	14
Bedstraw ( <i>Galium aparine</i> )		G	P	P	F-G	G	P-F	P-F	F	P-F		P-F	E	G	G
Bittercress ( <i>Cardamine</i> spp.)		G	G	G	G	G	G	G	F-G	P-G	G	F-G			G
Broadleaf plantain ( <i>Plantago major</i> )			P			G	G	G	F						
Buckhorn plantain ( <i>Plantago lanceolata</i> )			P			G	G	G	F						
Bull thistle ( <i>Cirsium vulgare</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G			
Canada thistle ( <i>Cirsium arvense</i> )	P	P	P	P	P	F-G	F-G	F	F-G	G	F-G	P	P-F		
Common chickweed ( <i>Stellaria media</i> )	G	P	G	G	G	G	P-F	P-F	F-G	F-G	G	P-F	G		
Common dandelion ( <i>Taraxacum officinale</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	G		G(s)			
Common groundsel ( <i>Senecio vulgaris</i> )	P	G	F	F	G(s)	G	F-G	F-G	F-G	G	G	P-G			
Common lambsquarters ( <i>Chenopodium album</i> )					G	G	G	G	G	P-G	G	G			G
Field bindweed ( <i>Convolvulus arvensis</i> )						F-G	F-G	F-G	F-G	P-F		P-F		G	
Filaree ( <i>Erodium</i> spp.)		G	F	G	G	G	G	G	G	P-F		G			F-G
Geranium ( <i>Geranium</i> spp.)			G	G	G	G	F-G	F-G	F-G		F				
Hawksbeard ( <i>Crepis</i> spp.)		G(s)	G(s)	G(s)	G(s)	G	P-F	P-F	G	G		G			
Hedge mustard ( <i>Sisymbrium officinale</i> )			G	G	G(s)	G	G	G	F-G	P-G	G	F-G	F		
Henbit ( <i>Lamium amplexicaule</i> )	F-G		G	G	G	G	F	F	G		F	P-F			F-G
Mayweed chamomile ( <i>Anthemis cotula</i> )	G	G	G	G	F-G	G	P-F	P-F	F	F-G	G	F-G			P
Mustard ( <i>Brassica</i> spp.)	F		G	G	G(s)	G	G	G	F-G	P-G	G	F-G	P-F		F-G
Pineappleweed ( <i>Matricaria matricarioides</i> )			F		F-G	G	F		F	G	G	G			
Prickly lettuce ( <i>Lactuca serriola</i> )	G	G	G(s)	G(s)	G(s)	G	G	G	G	G	P-G	F-G	G		
Prostrate knotweed ( <i>Polygonum aviculare</i> )	F-G	F-G	F	F	G	G	P-F	P-F	G		F	F-G	F		
Redroot pigweed ( <i>Amaranthus retroflexus</i> )					G	G	G	G	G	P-G	F	F-G			G
Red sorrel ( <i>Rumex acetosella</i> )		P	P				F(s)	F(s)	F-G	F-G		F(s)			
Sharppoint fluellin ( <i>Kickxia elatine</i> )		G(s)	P		G	G	P	P	P		G(s)	P-F			P
Shepherdspurse ( <i>Capsella bursa-pastoris</i> )	F-G	G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G			G
Smartweed ( <i>Polygonum</i> spp.)	F	F-G	F		G	G	F-G	F	G	F	F	G			
Sowthistle ( <i>Sonchus</i> spp.)	G	G	G	G	G	G	G	G	G	G	F	G			
Speedwell ( <i>Veronica</i> spp.)		G	P	F-G	G	G	P	P	P-F	P-F	F	F	F		G
Spotted catsear ( <i>Hypochaeris radicata</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G(s)			
Sticky chickweed ( <i>Cerastium viscosum</i> )	G	P	G	G	G	G	P-F	P-F	F			P-F	G		
Toad rush ( <i>Juncus bufonius</i> )			G		G	G	G	G							
Vetch ( <i>Vicia</i> spp.)			P	P	G	G	G	G	G	G	F-G	F-G			
Wild carrot ( <i>Daucus carota</i> )		P	P	P	G(s)	F-G	P-F	P-F	P-F	F(s)	F-G	F(s)	P	P-F	P
Wild radish ( <i>Raphanus raphanistrum</i> )			G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G			F-G
Label type	24c	24c	3/24c	24c	3	3	3	3	3	3	3	3	24c	3	24c
Geographic use															
W = West of Cascades															
S = Statewide	S	S	S	W*	S	S	S	S	S	S	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.



## SECTION I: HERBICIDE-WEED CHARTS

### Tall fescue: grass weeds

	Prowl (pendimethalin)	Dual Magnum (s-metolachlor)	Outlook (s-dimethenamid)	Axiom (flufenacet + metribuzin)	Goal/Galigan (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Sinbar (terbacil)	Kerb (pronamide)	Nortron (ethofumesate)	Rely (glufosinate)	Gramoxone Extra (paraquat)	glyphosate
Mode of action	3	15	15	15+5	14	7	5	5	3	16	10	22	9
Annual bluegrass — resistant ( <i>Poa annua</i> )	G	F	F	G	P-F	P-F	F	P-F	G	P-F	F	G	G
Annual bluegrass — susceptible ( <i>Poa annua</i> )	G	F-G	F-G	G	P-F	G	F	F-G	G	G	F	G	G
Annual bromes ( <i>Bromus</i> spp.)	P-F	P-G	P-G	P-G	P-F	P	F	F-G	F-G	F-G		G	G
Annual ryegrass — resistant ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F	P-F	F-G	F-G	F	P	P-F	G	G
Annual ryegrass — susceptible ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F	F-G	F-G	F-G	F	P	P-F	G	G
Barnyardgrass ( <i>Echinochloa crus-galli</i> )												G	G
Bentgrass ( <i>Agrostis</i> spp.)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)		G(s)	G	F(s)	G(s)	G
California brome ( <i>Bromus carinatus</i> )	F(s)	F(s)	F(s)	F(s)	F(s)	P	F(s)	F(s)	G(s)	F(s)	F(s)	G(s)	G
Common velvetgrass ( <i>Holcus lanatus</i> )													G
Crabgrass ( <i>Digitaria</i> spp.)												G	G
Foxtail ( <i>Setaria</i> spp.)												G	G
German velvetgrass ( <i>Holcus mollis</i> )	P	P	P	P	P	P	P	P					G
Mannagrass ( <i>Glyceria occidentalis</i> )										P-F	F	G	G
Quackgrass ( <i>Elytrigia repens</i> )	P	P	P	P	P	P	P	P	P-F			F(s)	G
Rattail fescue ( <i>Vulpia myuros</i> )	G	G	G	G	F-G	G	F	F-G	G	F-G	P-F	G	G
Roughstalk bluegrass ( <i>Poa trivialis</i> )	G(s)	F(s)	F(s)	G(s)	F(s)	F(s)	F(s)			F(s)	F-G	G(s)	G
Volunteer crop seedlings	F-G	F-G	F-G	F-G	P-F	P-G	P-G	F-G	P-F	P		G	G
Wild oat ( <i>Avena fatua</i> )	P-F	P-F	F	F-G	P-F	P	P-F		P-F	F-G		G	G
Witchgrass ( <i>Panicum capillare</i> )												G	G
Label type	24c	24c	3	24c	24c	3	24c	24c	24c	3	24c	3	3
Geographic use W = West of Cascades S = Statewide	S	S	S	W	S	S	W*	S	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.

## SECTION I: HERBICIDE-WEED CHARTS

### Fine fescue: broadleaf weeds

	Prowl (pendimethalin)	Goal/Galigan (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Gramoxone Extra (paraquat)	glyphosate	2,4-D	MCPA	Banvel/Clarity (dicamba)	Stinger/Curtail/Curtail M (clopyralid)	Express (tribenuron-methyl)	Buctril/Bronate (bromoxynil)	Starane (fluroxypyr)	Aim (carfentrazone)
Mode of action	3	14	7	5	22	9	4	4	4	4	2	6	4	14
Bedstraw ( <i>Galium aparine</i> )		G	P	P	F-G	G	P-F	P-F	F	P-F		P-F	F-G	G
Bittercress ( <i>Cardamine</i> spp.)		G	G	G	G	G	G	G	F-G	P-G	G	F-G		G
Broadleaf plantain ( <i>Plantago major</i> )			P			G	G	G	F					
Buckhorn plantain ( <i>Plantago lanceolata</i> )			P			G	G	G	F					
Bull thistle ( <i>Cirsium vulgare</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G		
Canada thistle ( <i>Cirsium arvense</i> )	P	P	P	P	P	F-G	F-G	F	F-G	G	F-G	P	P-F	
Common chickweed ( <i>Stellaria media</i> )	G	P	G	G	G	G	P-F	P-F	F-G	F-G	G	P-F	G	
Common dandelion ( <i>Taraxacum officinale</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	G		G(s)		
Common groundsel ( <i>Senecio vulgaris</i> )	P		G	F	F	G(s)	G	F-G	F-G	F-G	G	G	P-G	
Common lambsquarters ( <i>Chenopodium album</i> )					G	G	G	G	G	P-G	G	G		G
Field bindweed ( <i>Convolvulus arvensis</i> )						F-G	F-G	F-G	F-G	P-F		P-F		
Filaree ( <i>Erodium</i> spp.)		G	F	G	G	G	G	G	G	P-F		G		F-G
Geranium ( <i>Geranium</i> spp.)			G	G	G	G	F-G	F-G	F-G		F			
Hawksbeard ( <i>Crepis</i> spp.)		G(s)	G(s)	G(s)	G(s)	G	P-F	P-F	G	G		G		
Hedge mustard ( <i>Sisymbrium officinale</i> )				G	G	G(s)	G	G	G	F-G	P-G	G	F-G	F
Henbit ( <i>Lamium amplexicaule</i> )	F-G		G	G	G	G	F	F	G		F	P-F		F-G
Mayweed chamomile ( <i>Anthemis cotula</i> )	G	G	G	G	F-G	G	P-F	P-F	F	F-G	G	F-G		P
Mustard ( <i>Brassica</i> spp.)	F		G	G	G(s)	G	G	G	F-G	P-G	G	F-G	P-F	F-G
Pineappleweed ( <i>Matricaria matricarioides</i> )			F		F-G	G	F		F	G	G	G		
Prickly lettuce ( <i>Lactuca serriola</i> )	G	G	G(s)	G(s)	G(s)	G	G	G	G	G	P-G	F-G	G	
Prostrate knotweed ( <i>Polygonum aviculare</i> )	F-G	F-G	F	F	G	G	P-F	P-F	G		F	F-G	F	
Redroot pigweed ( <i>Amaranthus retroflexus</i> )					G	G	G	G	G	P-G	F	F-G		G
Red sorrel ( <i>Rumex acetosella</i> )		P	P				P-F	P-F	F-G	F-G		P-F		
Sharpshoot fluellin ( <i>Kickxia elatine</i> )		G(s)	P		G	G	P	P	P		G(s)	P-F		P
Shepherdspurse ( <i>Capsella bursa-pastoris</i> )	F-G	G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G		G
Smartweed ( <i>Polygonum</i> spp.)	F	F-G	F		G	G	F-G	F	G	F	F	G		
Sowthistle ( <i>Sonchus</i> spp.)	G	G	G	G	G	G	G	G	G	G	F	G		
Speedwell ( <i>Veronica</i> spp.)		G	P	F-G	G	G	P	P	P-F	P-F	F	F	F	G
Spotted catsear ( <i>Hypochaeris radicata</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G(s)		
Sticky chickweed ( <i>Cerastium viscosum</i> )	G	P	G	G	G	G	P-F	P-F	F			P-F	G	
Toad rush ( <i>Juncus bufonius</i> )			G		G	G	G	G						
Vetch ( <i>Vicia</i> spp.)			P	P	G	G	G	G	G	G	F-G	F-G		
Wild carrot ( <i>Daucus carota</i> )		P	P	P	G(s)	F-G	P-F	P-F	P-F	F(s)	F-G	F(s)	P	P
Wild radish ( <i>Raphanus raphanistrum</i> )			G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G		F-G
Label type	24c	24c	3/24c	24c	3	3	3	3	3	3	3	3	24c	24c
Geographic use														
W = West of Cascades	S	S	S	W*	S	S	S	S	S	S	S	S	S	S
S = Statewide														

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.



## SECTION 1: HERBICIDE-WEED CHARTS

### Fine fescue: grass weeds

	Prowl (pendimethalin)	Dual Magnum (s-metolachlor)	Outlook (s-dimethenamid)	Axiom (flufenacet + metribuzin)	Goal/Galigan (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Sinbar (terbacil)	Rely (glufosinate)	Gramoxone Extra (paraquat)	glyphosate	Poast (sethoxydim)	Fusilade DX (fluazifop-butyl)
Mode of action	3	15	15	15+5	14	7	5	5	10	22	9	1	1
Annual bluegrass — resistant ( <i>Poa annua</i> )	G	F	F	G	P-F	P-F	F	P-F	F	G	G	P	P
Annual bluegrass — susceptible ( <i>Poa annua</i> )	G	F-G	F-G	G	P-F	G	F	F-G	F	G	G	P	P
Annual bromes ( <i>Bromus</i> spp.)	P-F	P-G	P-G	P-G	P-F	P	F	F-G		G	G	P-F	F-G
Annual ryegrass — resistant ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F	P-F	F-G	F-G	P-F	G	G	F-G	F-G
Annual ryegrass — susceptible ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F	F-G	F-G	F-G	P-F	G	G	F-G	F-G
Barnyardgrass ( <i>Echinochloa crus-galli</i> )										G	G	F-G	F-G
Bentgrass ( <i>Agrostis</i> spp.)	G(s)	F(s)	F(s)	G(s)	G(s)	G(s)	G(s)		F(s)	G(s)	G	F-G	F-G
California brome ( <i>Bromus carinatus</i> )	F(s)	F(s)	F(s)	F(s)	F(s)	P	F(s)	F(s)	F(s)	G(s)	G	P-F	F-G
Common velvetgrass ( <i>Holcus lanatus</i> )											G	F-G	F-G
Crabgrass ( <i>Digitaria</i> spp.)										G	G	F-G	F-G
Foxtail ( <i>Setaria</i> spp.)										G	G	F-G	F-G
German velvetgrass ( <i>Holcus mollis</i> )	P	P	P	P	P	P	P	P			G	F-G	F-G
Mannagrass ( <i>Glyceria occidentalis</i> )									F	G	G		
Quackgrass ( <i>Elytrigia repens</i> )	P	P	P	P	P	P	P	P		F(s)	G	P-F	F-G
Rattail fescue ( <i>Vulpia myuros</i> )	G	G	G	G	F-G	G	F	F-G	P-F	G	G	P	P
Roughstalk bluegrass ( <i>Poa trivialis</i> )	G(s)	F(s)	F(s)	G(s)	F(s)	F(s)	F(s)		F-G	G(s)	G	F-G	F-G
Volunteer crop seedlings	F-G	F-G	F-G	F-G	P-F	P-G	P-G	F-G		G	G	P	P
Wild oat ( <i>Avena fatua</i> )	P-F	P-F	F	F-G	P-F	P	P-F			G	G	F-G	F-G
Witchgrass ( <i>Panicum capillare</i> )										G	G	G	F-G
Label type	24c	24c	3	24c	24c	3	24c	24c	24c	3	3	24c	24c
Geographic use W = West of Cascades S = Statewide	S	S	S	W	S	S	W*	S	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.

## SECTION 1: HERBICIDE-WEED CHARTS

### Bentgrass: broadleaf weeds

	Prowl (pendimethalin)	Goal/Galigan (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Gramoxone Extra (paraquat)	glyphosate	2,4-D	MCPA	Banvel/Clarity (dicamba)	Stinger/Curtail/Curtail M (clopuralid)	Express (tribenuron-methyl)	Buctril/Bronate (bromoxynil)	Starane (fluroxypyr)	Aim (carfentrazone)
Mode of action	3	14	7	5	22	9	4	4	4	4	2	6	4	14
Bedstraw ( <i>Galium aparine</i> )		G	P	P	F-G	G	P-F	P-F	F	P-F		P-F	E	G
Bittercress ( <i>Cardamine</i> spp.)		G	G	G	G	G	G	G	F-G	P-G	G	F-G		G
Broadleaf plantain ( <i>Plantago major</i> )			P			G	G	G	F					
Buckhorn plantain ( <i>Plantago lanceolata</i> )			P			G	G	G	F					
Bull thistle ( <i>Cirsium vulgare</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G		
Canada thistle ( <i>Cirsium arvense</i> )	P	P	P	P	P	F-G	F-G	F	F-G	G	F-G	P	P-F	
Common chickweed ( <i>Stellaria media</i> )	G	P	G	G	G	G	P-F	P-F	F-G	F-G	G	P-F	G	
Common dandelion ( <i>Taraxacum officinale</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	G		G(s)		
Common groundsel ( <i>Senecio vulgaris</i> )	P	G	F	F	G(s)	G	F-G	F-G	F-G	G	G	P-G		
Common lambsquarters ( <i>Chenopodium album</i> )					G	G	G	G	G	P-G	G	G		G
Field bindweed ( <i>Convolvulus arvensis</i> )						F-G	F-G	F-G	F-G	P-F		P-F		
Filaree ( <i>Erodium</i> spp.)		G	F	G	G	G	G	G	G	P-F		G		F-G
Geranium ( <i>Geranium</i> spp.)			G	G	G	G	F-G	F-G	F-G		F			
Hawksbeard ( <i>Crepis</i> spp.)		G(s)	G(s)	G(s)	G(s)	G	P-F	P-F	G	G		G		
Hedge mustard ( <i>Sisymbrium officinale</i> )			G	G	G(s)	G	G	G	F-G	P-G	G	F-G	F	
Henbit ( <i>Lamium amplexicaule</i> )	F-G		G	G	G	G	F	F	G		F	P-F		F-G
Mayweed chamomile ( <i>Anthemis cotula</i> )	G	G	G	G	F-G	G	P-F	P-F	F	F-G	G	F-G		P
Mustard ( <i>Brassica</i> spp.)	F		G	G	G(s)	G	G	G	F-G	P-G	G	F-G	P-F	F-G
Pineappleweed ( <i>Matricaria matricarioides</i> )			F		F-G	G	F		F	G	G	G		
Prickly lettuce ( <i>Lactuca serriola</i> )	G	G	G(s)	G(s)	G(s)	G	G	G	G	G	P-G	F-G	G	
Prostrate knotweed ( <i>Polygonum aviculare</i> )	F-G	F-G	F	F	G	G	P-F	P-F	G		F	F-G	F	
Redroot pigweed ( <i>Amaranthus retroflexus</i> )					G	G	G	G	G	P-G	F	F-G		G
Red sorrel ( <i>Rumex acetosella</i> )		P	P				F(s)	F(s)	F-G	F-G		F(s)		
Sharppoint fluvellin ( <i>Kickxia elatine</i> )		G(s)	P		G	G	P	P	P		G(s)	P-F		P
Shepherdspurse ( <i>Capsella bursa-pastoris</i> )	F-G	G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G		G
Smartweed ( <i>Polygonum</i> spp.)	F	F-G	F		G	G	F-G	F	G	F	F	G		
Sowthistle ( <i>Sonchus</i> spp.)	G	G	G	G	G	G	G	G	G	G	F	G		
Speedwell ( <i>Veronica</i> spp.)		G	P	F-G	G	G	P	P	P-F	P-F	F	F	F	G
Spotted catsear ( <i>Hypochaeris radicata</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G(s)		
Sticky chickweed ( <i>Cerastium viscosum</i> )	G	P	G	G	G	G	P-F	P-F	F			P-F	G	
Toad rush ( <i>Juncus bufonius</i> )			G		G	G	G	G						
Vetch ( <i>Vicia</i> spp.)			P	P	G	G	G	G	G	G	F-G	F-G		
Wild carrot ( <i>Daucus carota</i> )		P	P	P	G(s)	F-G	P-F	P-F	P-F	F(s)	F-G	F(s)	P	P
Wild radish ( <i>Raphanus raphanistrum</i> )			G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G		F-G
Label type	24c	24c	3/24c	24c	3	3	3	3	3	3	3	3	24c	24c
Geographic use W = West of Cascades S = Statewide	S	S	S	W*	S	S	S	S	S	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.



## SECTION I: HERBICIDE-WEED CHARTS

### Bentgrass: grass weeds

	Prowl (pendimethalin)	Dual Magnum (s-metolachlor)	Outlook (s-dimethenamid)	Goal (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Nortron (ethofumesate)	Rely (glufosinate)	Gramoxone Extra (paraquat)	glyphosate
Mode of action	3	15	15	3	15	15	16	10	22	9
Annual bluegrass — resistant ( <i>Poa annua</i> )	G	F	F	F	P-F	F	P-F	F	G	G
Annual bluegrass — susceptible ( <i>Poa annua</i> )	G	F-G	F-G	F	G	F	G	F	G	G
Annual bromes ( <i>Bromus</i> spp.)	P-F	P-G	P-G	P-F	P	F	F-G	P-G	G	G
Annual ryegrass — resistant ( <i>Lolium multiflorum</i> )	G	G	G	P-F	P-F	F-G	P	P-F	G	G
Annual ryegrass — susceptible ( <i>Lolium multiflorum</i> )	G	G	G	P-F	F-G	F-G	P	P-F	G	G
Barnyardgrass ( <i>Echinochloa crus-galli</i> )									G	G
Bentgrass ( <i>Agrostis</i> spp.)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	F(s)	G(s)	G
California brome ( <i>Bromus carinatus</i> )	F(s)	F(s)	F(s)	F(s)	P	F(s)	F-G(s)	P-F(s)	G(s)	G
Common velvetgrass ( <i>Holcus lanatus</i> )										G
Crabgrass ( <i>Digitaria</i> spp.)									G	G
Foxtail ( <i>Setaria</i> spp.)									G	G
German velvetgrass ( <i>Holcus mollis</i> )	P	P	P	P	P	P				G
Mannagrass ( <i>Glyceria occidentalis</i> )							P-F	F	G	G
Quackgrass ( <i>Elytrigia repens</i> )	P	P	P	P	P	P			F(s)	G
Rattail fescue ( <i>Vulpia myuros</i> )	G	G	G	F-G	G	F	F-G	P-F	G	G
Roughstalk bluegrass ( <i>Poa trivialis</i> )	G(s)	F(s)	F(s)	F(s)	F(s)	F(s)	F(s)	F-G	G(s)	G
Volunteer crop seedlings	F-G	F-G	F-G	P-F	P-G	P-G	F		G	G
Wild oat ( <i>Avena fatua</i> )	P-F	P-F	F	P-F	P	P-F	F-G		G	G
Witchgrass ( <i>Panicum capillare</i> )									G	G
Label type	24c	24c	3	24c	24c	24c	3	24c	3	3
Geographic use W = West of Cascades S = Statewide	S	S	S	S	S	W*	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.

## SECTION I: HERBICIDE-WEED CHARTS

### Orchardgrass: broadleaf weeds

	Prowl (pendimethalin)	Goal/Galigan (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Gramoxone Extra (paraquat)	glyphosate	2,4-D	MCPA	Banvel/Clarity (dicamba)	Stinger/Curtail/Curtail M (clopyralid)	Express (tribenuron-methyl)	Buctril/Bronate (bromoxynil)	Starane (fluroxypyr)	Aim (carfentrazone)
Mode of action	3	14	7	5	22	9	4	4	4	4	2	6	4	14
Bedstraw ( <i>Galium aparine</i> )		G	P	P	F-G	G	P-F	P-F	F	P-F		P-F	F-G	G
Bittercress ( <i>Cardamine</i> spp.)		G	G	G	G	G	G	G	F-G	P-G	G	F-G		G
Broadleaf plantain ( <i>Plantago major</i> )			P			G	G	G	F					
Buckhorn plantain ( <i>Plantago lanceolata</i> )			P			G	G	G	F					
Bull thistle ( <i>Cirsium vulgare</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G		
Canada thistle ( <i>Cirsium arvense</i> )	P	P	P	P	P	F-G	F-G	F	F-G	G	F-G	P	P-F	
Common chickweed ( <i>Stellaria media</i> )	G	P	G	G	G	G	P-F	P-F	F-G	F-G	G	P-F	G	
Common dandelion ( <i>Taraxacum officinale</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	G		G(s)		
Common groundsel ( <i>Senecio vulgaris</i> )	P	G	F	F	G(s)	G	F-G	F-G	F-G	G	G	P-G		
Common lambsquarters ( <i>Chenopodium album</i> )					G	G	G	G	G	P-G	G	G		G
Field bindweed ( <i>Convolvulus arvensis</i> )						F-G	F-G	F-G	F-G	P-F		P-F		
Filaree ( <i>Erodium</i> spp.)		G	F	G	G	G	G	G	G	P-F		G		F-G
Geranium ( <i>Geranium</i> spp.)			G	G	G	G	F-G	F-G	F-G		F			
Hawksbeard ( <i>Crepis</i> spp.)		G(s)	G(s)	G(s)	G(s)	G	P-F	P-F	G	G		G		
Hedge mustard ( <i>Sisymbrium officinale</i> )			G	G	G(s)	G	G	G	F-G	P-G	G	F-G	F	
Henbit ( <i>Lamium amplexicaule</i> )	F-G		G	G	G	G	F	F	G		F	P-F		F-G
Mayweed chamomile ( <i>Anthemis cotula</i> )	G	G	G	G	F-G	G	P-F	P-F	F	F-G	G	F-G		P
Mustard ( <i>Brassica</i> spp.)	F		G	G	G(s)	G	G	G	F-G	P-G	G	F-G	P-F	F-G
Pineappleweed ( <i>Matricaria matricarioides</i> )			F		F-G	G	F		F	G	G	G		
Prickly lettuce ( <i>Lactuca serriola</i> )	G	G	G(s)	G(s)	G(s)	G	G	G	G	G	P-G	F-G	G	
Prostrate knotweed ( <i>Polygonum aviculare</i> )	F-G	F-G	F	F	G	G	P-F	P-F	G		F	F-G	F	
Redroot pigweed ( <i>Amaranthus retroflexus</i> )					G	G	G	G	G	P-G	F	F-G		G
Red sorrel ( <i>Rumex acetosella</i> )		P	P				P-F	P-F	F-G	F-G		P-F		
Sharppoint fluvellin ( <i>Kickxia elatine</i> )		G(s)	P		G	G	P	P	P		G(s)	P-F		P
Shepherdspurse ( <i>Capsella bursa-pastoris</i> )	F-G	G(s)	G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G		G
Smartweed ( <i>Polygonum</i> spp.)	F	F-G	F		G	G	F-G	F	G	F	F	G		
Sowthistle ( <i>Sonchus</i> spp.)	G	G	G	G	G	G	G	G	G	G	F	G		
Speedwell ( <i>Veronica</i> spp.)		G	P	F-G	G	G	P	P	P-F	P-F	F	F	F	G
Spotted catsear ( <i>Hypochaeris radicata</i> )		G(s)	G(s)	G(s)	G(s)	G	G	G	G	G		G(s)		
Sticky chickweed ( <i>Cerastium viscosum</i> )	G	P	G	G	G	G	P-F	P-F	F			P-F	G	
Toad rush ( <i>Juncus bufonius</i> )			G		G	G	G	G						
Vetch ( <i>Vicia</i> spp.)			P	P	G	G	G	G	G	G	F-G	F-G		
Wild carrot ( <i>Daucus carota</i> )		P	P	P	G(s)	F-G	P-F	P-F	P-F	F(s)	F-G	F(s)	P	P
Wild radish ( <i>Raphanus raphanistrum</i> )			G(s)	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G		F-G
Label type	24c	24c	3/24c	24c	3	3	3	3	3	3	3	3	24c	24c
Geographic use														
W = West of Cascades														
S = Statewide	S	S	S	W*	S	S	S	S	S	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.



## SECTION I: HERBICIDE-WEED CHARTS

### Orchardgrass: grass weeds

	Prowl (pendimethalin)	Dual Magnum (s-metolachlor)	Outlook (s-dimethenamid)	Axiom (flufenacet + metribuzin)	Goal (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Kerb (pronamide)	Rely (glufosinate)	Gramoxone Extra (paraquat)	glyphosate
Mode of action	3	15	15	15+5	14	7	5	3	10	22	9
Annual bluegrass — resistant ( <i>Poa annua</i> )	G	F	F	G	P-F	P-F	F	F-G	F	G	G
Annual bluegrass — susceptible ( <i>Poa annua</i> )	G	F-G	F-G	G	P-F	G	F	G	F	G	G
Annual bromes ( <i>Bromus</i> spp.)	P-F	P-G	P-G	P-G	P-F	P	F	F-G	P-G	G	G
Annual ryegrass — resistant ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F	P-F	F-G	F	P-F	G	G
Annual ryegrass — susceptible ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F	F-G	F-G	F	P-F	G	G
Barnyardgrass ( <i>Echinochloa crus-galli</i> )										G	G
Bentgrass ( <i>Agrostis</i> spp.)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	G(s)	F(s)	G(s)	G
California brome ( <i>Bromus carinatus</i> )	F(s)	F(s)	F(s)	F(s)	F(s)	P	F(s)	G(s)	P-F	G(s)	G
Common velvetgrass ( <i>Holcus lanatus</i> )											G
Crabgrass ( <i>Digitaria</i> spp.)										G	G
Foxtail ( <i>Setaria</i> spp.)										G	G
German velvetgrass ( <i>Holcus mollis</i> )	P	P	P	P	P	P	P			G	
Mannagrass ( <i>Glyceria occidentalis</i> )									F	G	G
Quackgrass ( <i>Elytrigia repens</i> )	P	P	P	P	P	P	P	P-F		F(s)	G
Rattail fescue ( <i>Vulpia myuros</i> )	G	G	G	G	F-G	G	F	G	P-F	G	G
Roughstalk bluegrass ( <i>Poa trivialis</i> )	G(s)	F(s)	F(s)	G(s)	F(s)	F(s)	F(s)		F-G	G(s)	G
Volunteer crop seedlings	F-G	F-G	F-G	F-G	P-F	P-G	P-G	P-F		G	G
Wild oat ( <i>Avena fatua</i> )	P-F	P-F	F	F-G	P-F	P	P-F	P-F		G	G
Witchgrass ( <i>Panicum capillare</i> )										G	G
Label type	24c	24c	3	24c	24c	3/24c	24c	24c	24c	3	3
Geographic use W = West of Cascades S = Statewide	S	S	S	W	S	S	W*	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

\*Label also valid in Crook, Deschutes, Jefferson, and Wasco counties.

## SECTION 1: HERBICIDE-WEED CHARTS

### Kentucky bluegrass: broadleaf weeds

	Prowl (pendimethalin)	Goal/Galigan (oxyfluorfen)	Gramoxone Extra (paraquat)	glyphosate	2,4-D	MCPA	Banvel/Clarity (dicamba)	Stinger/Curtail/Curtail M (clopyralid)	Express (tribenuron-methyl)	Buctril/Bronate (bromoxynil)	Starane (fluroxypyr)	Paramount (quinclorac)	Aim (carfentrazone)	Beacon (primisulfuron-methyl)
Mode of action	3	14	22	9	4	4	4	4	2	6	4	4	14	2
Bedstraw ( <i>Galium aparine</i> )		G	F-G	G	P-F	P-F	F	P-F		P-F	F-G	F-G	G	
Bittercress ( <i>Cardamine</i> spp.)		G	G	G	G	G	F-G	P-G	G	F-G			G	
Blue mustard ( <i>Chorispora tenella</i> )	G	G	F-G		F			P-G	G	G	G		G	G
Buckhorn plantain ( <i>Plantago lanceolata</i> )				G	G	G	F							
Bull thistle ( <i>Cirsium vulgare</i> )		G(s)	G(s)	G	G	G	G	G		G				
Canada thistle ( <i>Cirsium arvense</i> )		P	P	F-G	F-G	F-G	F-G	G	F-G	P-F	P-F			
Common dandelion ( <i>Taraxacum officinale</i> )		G(s)	G(s)	G	G	G	F-G	G		G(s)				
Common groundsel ( <i>Senecio vulgaris</i> )	P	G	G(s)	G	F-G	F-G	F-G	G	G	P-G				
Common lambsquarters ( <i>Chenopodium album</i> )			G	G	G	G	G	P-G	G	G			G	
Fiddleneck ( <i>Amsinckia intermedia</i> )	F	G	F					P-F	G	G	P-F		F	
Field bindweed ( <i>Convolvulus arvensis</i> )				F-G	F-G	F-G	F-G	P-F		P-F		G		
Filaree ( <i>Erodium</i> spp.)		G	G(s)	G	G	G	G	P-F		G			F-G	
Flixweed ( <i>Descurainia sophia</i> )	G	G	F-G	G	G	G	F	P-G	G	F-G	G		G	G
Henbit ( <i>Lamium amplexicaule</i> )	F-G		G	G	F	F	G		F	P-F			F-G	
Jagged chickweed ( <i>Holosteum umbellatum</i> )	G		G	G			F		F	P-F				G
Kochia ( <i>Kochia scoparia</i> )	F	P-F		G	F	P-F	G				F-G		F-G	
Mayweed chamomile ( <i>Anthemis cotula</i> )	G	G	F-G	G	P-F	P-F	F	F-G	G	F-G			P	
Pennycress, field ( <i>Thlaspi arvense</i> )	G	G	F-G		G	G	F	P-G	G	F-G	G		G	G
Prickly lettuce ( <i>Lactuca serriola</i> )	G	G	G(s)	G	G	G	G	G	P-G	F-G	G			
Prostrate knotweed ( <i>Polygonum aviculare</i> )	F-G	F-G	G(s)	G	P-F	P-F	F-G		F	F-G	F			
Redroot pigweed ( <i>Amaranthus retroflexus</i> )			G	G	G	G	G	P-G	G	F-G			G	
Shepherdspurse ( <i>Capsella bursa-pastoris</i> )	F-G	G(s)	G(s)	G	G	G	F-G	P-G	F	F-G			F-G	
Smartweed ( <i>Polygonum</i> spp.)	F	F-G	G	G	G	F	G	F	F	G				
Sowthistle ( <i>Sonchus</i> spp.)	G	G	G	G	G	G	G	G	F	G				
Sticky chickweed ( <i>Cerastium viscosum</i> )	G	P	G	G	P-F	P-F	F			P-F	G			
Tansy mustard ( <i>Descurainia pinnata</i> )	G	G	F-G	G	G	F		P-G	F	G	G		G	G
Tumble mustard ( <i>Sisymbrium altissimum</i> )	G	G	F-G	G	G	G	F	P-G	F	F-G	G		G	G
Label type	24c	24c	3	3	3	3	3	3	3	3	24c	3	24c	24c
Geographic use														
W = West of Cascades														
S = Statewide	S	S	S	S	S	S	S	S	S	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage

## SECTION I: HERBICIDE-WEED CHARTS

### Kentucky bluegrass: grass weeds

	Prowl (pendimethalin)	Dual Magnum (s-metolachlor)	Outlook (s-dimethenamid)	Axiom (flufenacet + metribuzin)	Goal/Galigan (oxyfluorfen)	Karmex/Direx (diuron)	Sencor (metribuzin)	Sinbar (terbacil)	Nortron (ethofumesate)	Rely (glufosinate)	Gramoxone Extra (paraquat)	glyphosate	Beacon (primisulfuron-methyl)	Avenge + Assert tank-mix (difenzoquat + imazamethabenz-methyl)
Mode of action	3	15	15	15+5	14	7	5	5	16	10	22	9	2	8+2
Annual bluegrass — resistant ( <i>Poa annua</i> )	G	F	F	G	P-F	P-F	F	F-G	P-F	F	G	G	P	
Annual bluegrass — susceptible ( <i>Poa annua</i> )	G	F-G	G	G	P-F	G	F	F-G	G	F	G	G	P	
Annual ryegrass — resistant ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F			F-G		P-F	G	G		
Annual ryegrass — susceptible ( <i>Lolium multiflorum</i> )	G	G	G	G	P-F	F-G	F-G	F-G		P-F	G	G		
Barnyardgrass ( <i>Echinochloa crus-galli</i> )											G	G		
California brome ( <i>Bromus carinatus</i> )	F	F	F	F-G		P	P	F-G	G	P-F	G(s)	G		
Crabgrass ( <i>Digitaria</i> spp.)											G	G		
Downy brome ( <i>Bromus tectorum</i> )	F-G	F-G	F-G		F	P	F	F-G	P-F	F	G	G	F-G	
Foxtail ( <i>Setaria</i> spp.)											G	G		
Other bromes ( <i>Bromus</i> spp.)	P-F	P-G	P-G	P-G	P-F	P	F	F-G	G		G	G		
Quackgrass ( <i>Elytrigia repens</i> )	P	P	P	P	P	P	P	P			F(s)	G	F-G	
Rattail fescue ( <i>Vulpia myuros</i> )	G	G	G	G	F-G	G	F	F-G	F-G	P-F	G	G	P-F	
Volunteer crop seedlings	F-G	F-G	F-G	F-G	P-F	P-G	P-G	F-G			G	G		
Wild oat ( <i>Avena fatua</i> )	P-F	P-F	F	F-G	P-F		P-F		F-G		G	G	F-G	F-G
Label type	24c	24c	3	24c	24c	3/24c	24c	24c	3	24c	3	3	24c	24c
Geographic use W = West of Cascades S = Statewide	S	S	S	W	S	S	W*	S	S	S	S	S	S	S

P = poor control; F = fair control; G = good control; (s) = rating based on seedling growth stage



## Section 2: Herbicide Notes

### Preemergence

#### **Prowl 3.3 EC (pendimethalin)**

**Crops:** Perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Annual bluegrass, annual ryegrass, rattail fescue, seedling brome, volunteer crop seedlings, and some broadleaf weeds

**Labeled rates (product/A):** *Established stand:* 4.8–7.2 pints/A

**Notes:** Must be applied and activated by moisture prior to weed germination for effective control. While least injurious of the preemergence herbicides, Prowl may prune crop plant roots. In research plots, crop injury observed when Prowl was applied after December 15. Does not move through straw on soil surface very well, but will persist on dry soil surface for 3 to 4 weeks before rainfall and still maintain weed control. Do not graze treated areas.

#### **Dual Magnum (s-metolachlor)**

**Crops:** Perennial ryegrass, fine fescue, tall fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Very effective control for annual ryegrass, rattail fescue, seedling brome, and volunteer crop seedlings; less effective control of annual bluegrass, particularly herbicide-resistant plants

**Labeled rates (product/A):**  
Perennial ryegrass, fine fescue: *Established stand:* 1 pint/A

Tall fescue, orchardgrass, bentgrass, Kentucky bluegrass: *Established stand:* 1.0–1.33 pints/A

**Notes:** Control is optimized when Dual Magnum is applied prior to weed germination. Early postemergence applications will control some very young weed seedlings. In research plots, crop injury observed when Dual Magnum was applied after December 15. Moves through straw on soil surface fairly well. Persists on dry soil surface for only 7 to 10 days prior to rainfall. Do not graze until 250 days after application.

#### **Outlook 6.0 (s-dimethenamid)**

**Crops:** Perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Very effective control for annual ryegrass, rattail fescue, seedling brome, and volunteer crop seedlings; less effective control of annual bluegrass, particularly herbicide-resistant plants

**Labeled rates (product/A):** *Established stand:* 14–21 oz/A

**Notes:** Control is optimized when Outlook is applied prior to weed germination. Early postemergence applications will control some very young weed seedlings. In research plots, crop injury observed when Outlook was applied after December 15. Moves through straw on soil surface fairly well. Persists on dry soil surface for only 7 to 10 days prior to rainfall. Do not graze treated areas or feed straw or seed screenings.

#### **Axiom (flufenacet + metribuzin)**

**Crops:** Perennial ryegrass, tall fescue, fine fescue, orchardgrass, Kentucky bluegrass

**Weeds controlled:** Very effective control for annual bluegrass, annual ryegrass, rattail fescue, seedling brome, and volunteer crop seedlings

**Labeled rates (product/A):** *Established stand:* 9–13 oz/A

**Notes:** Best control if applied before weed emergence, but will also provide best postemergence weed control of the preemergence herbicides. In research plots, crop injury observed when Axiom was applied after December 15. Moves through straw on soil surface fairly well. Persists on dry soil surface for only 7 to 10 days prior to rainfall. Crop injury observed when Axiom is applied to weak or stressed crop plants. Do not graze treated areas. Preharvest interval (PHI) is 120 days. Significant orchardgrass injury has been observed in research plots.

### Preemergence/Early Postemergence: Foliar and Soil Uptake

#### Goal 2XL/Galigan 2E (oxyfluorfen)

**Crops:** Perennial ryegrass, tall fescue, bentgrass, Kentucky bluegrass, orchardgrass, fine fescue

**Weeds controlled:** Goal provides both preemergence and early postemergence weed control

#### Labeled rates (product/A):

Perennial ryegrass, tall fescue: *New plantings:* 2–3 oz/A; *Established stand:* 6–16 oz/A

Bentgrass, Kentucky bluegrass, orchardgrass: *Established stand:* 6–16 oz/A

Fine fescue: *Established stand:* 4–8 oz/A

**Notes:** Apply at least 6 oz/A for residual weed control. Best activity under cloudy conditions with very high humidity and wet soils. As tank-mix treatments, Goal should be applied at 4–8 oz/A with Karmex/Direx at 1.0–1.25 lb 80 DF/A, Sencor at 4–8 oz/A, or Sinbar at 0.4–0.8 lb 80 WP/A. Do not graze for 150 days after application. Preharvest interval (PHI) is 150 days.

### Early Postemergence: Primarily Soil Uptake

#### Karmex/Direx (diuron)

**Crops:** Perennial ryegrass, fine fescue, tall fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Good soil persistence provides residual control of a broad spectrum of species; however, no control of *Bromus* species. Annual bluegrass and Italian ryegrass often resistant; resistance in other species also suspected.

#### Labeled rates (product/A):

Perennial ryegrass, fine fescue: *Carbon-seeding:* 2.5–3.0 lb Karmex 80DF or Direx 80DF/A, 60.4–76.8 oz Direx 4L/A; *Established stand:* 1–2 lb Karmex 80DF or Direx 80DF/A, or 25.6–51.2 oz Direx 4L/A

Tall fescue, orchardgrass: *Carbon-seeding:* 2.5–3.0 lb Karmex 80DF or Direx 80DF/A, or 60.4–76.8 oz Direx 4L/A; *New stand:* <2.0 lb Karmex 80DF or Direx 80DF/A, or 51.2 oz Direx 4L/A; *Established stand:* 2–4 lb Karmex 80DF or Direx 80DF/A, or 51.2–102.4 oz Direx 4L/A

Bentgrass: *Carbon-seeding:* 2.5–3.0 lb Karmex 80DF or Direx 80DF/A, or 60.4–76.8 oz Direx 4L/A; *Established stand:* 1.0–3.75 lb Karmex 80DF or Direx 80DF/A, or 25.6–96.0 oz Direx 4L/A

Kentucky bluegrass, western OR: *Carbon-seeding:* 2.5–3.0 lb Karmex 80DF or Direx 80DF/A, or 60.4–76.8 oz Direx 4L/A; *Established stand:* 2–4 lb Karmex 80DF or Direx 80DF/A, or 51.2–102.4 oz Direx 4L/A

Kentucky bluegrass, eastern OR: *Established stand:* 0.5–1.25 lb Karmex 80DF or Direx 80DF/A, or 12.8–32.0 oz Direx 4L/A

**Notes:** Most effective when applied before seedlings have more than one leaf. Even in herbicide-resistant fields, diuron will control some weed seedlings when following a properly timed preemergence treatment, and particularly when combined with Goal. Significant injury from diuron is observed most often on older crop stands. Weed control is often poor when applied to dry soil.

#### Sencor (metribuzin)

**Crops:** Perennial ryegrass, tall fescue, bentgrass, Kentucky bluegrass, fine fescue, orchardgrass

**Weeds controlled:** Effective control of Karmex/Direx-resistant species and most *Bromus* species

#### Labeled rates (product/A):

Perennial ryegrass, tall fescue: *Established stand:* 7.7–17.9 oz Sencor 4F/A or 0.33–0.75 lb Sencor 75DF/A

Bentgrass: *Established stand:* 9.1–12.0 oz Sencor 4F/A or 0.38–0.47 lb Sencor 75DF/A

Kentucky bluegrass, fine fescue, orchardgrass: *Established stand:* 7.7–12.2 oz Sencor 4F/A or 0.33–0.47 lb Sencor 75DF/A

**Notes:** Marginal and variable crop tolerance. Less soil persistence than Karmex/Direx. Most effective and safest early in season. Injury observed and weed control reduced when applied later than early December. Do not graze for 28 days after treatment. Preharvest interval (PHI) is 120 days. Feeding of straw and seed screenings allowed after 28 days.



## SECTION 2: HERBICIDE NOTES

### **Sinbar (terbacil)**

**Crops:** Kentucky bluegrass, fine fescue, tall fescue

**Weeds controlled:** Marginal to fair control of annual bluegrass; excellent control of Italian ryegrass, seedling brome, and volunteer crop seedlings

**Labeled rates (product/A):** *Established stand:* 0.5–1.0 lb/A

**Notes:** Soil persistence similar to Karmex/Direx. More active when applied as a tank-mix with Goal. Do not graze. Preharvest interval (PHI) is 90 days. Do not plant other crops within 2 years of Sinbar treatment. Soil persistence can be a problem where rotational crops are grown with grass, particularly in the Columbia Basin.

### **Nortron (ethofumesate)**

**Crops:** Annual ryegrass, perennial ryegrass; Highland, creeping, or Astoria bentgrass; tall fescue; Kentucky bluegrass

**Weeds controlled:** Used almost exclusively in newly seeded annual ryegrass, perennial ryegrass, and tall fescue fields for control of susceptible annual bluegrass, rattail fescue, mannagrass, wild oat, and volunteer oat; herbicide resistance confirmed in annual bluegrass and mannagrass

**Labeled rates (product/A):**

Annual ryegrass, perennial ryegrass: *New or established stand:* 24–60 oz/A

Highland or Astoria bentgrass, tall fescue: *Established stand:* 24–60 oz/A

Creeping bentgrass: *Established stand:* 32–48 oz/A

Kentucky bluegrass: *Established stand:* 32 oz/A

**Notes:** Most effective when applied preemergence. Less effective on dry soils. Do not graze treated areas. Weed control reduced by activated carbon and heavy plant residues on the soil surface.

### **Kerb (pronamide)**

**Crops:** Perennial ryegrass, tall fescue, orchardgrass

**Weeds controlled:** Used primarily for *Bromus* control in established orchardgrass and as a substitute for part of the Karmex/Direx in carbon-seeded fields where Karmex/Direx- or Nortron-resistant annual bluegrass and annual ryegrass are present

**Labeled rates (product/A):** Perennial ryegrass, tall fescue, orchardgrass: *Carbon-seeding:* 0.25–0.5 lb/A; *Established orchardgrass:* 0.5–0.75 lb/A

**Notes:** Do not graze for 180 days.

---

## Postemergence

### **Rely (glufosinate)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Most often used to control herbicide-resistant annual bluegrass, roughstalk bluegrass, and mannagrass

**Labeled rates (product/A):** *New and established stands:* Broadcast: 2.5–3.0 pints/A; directed, shielded spray: 8–12 pints/A

**Notes:** Use as a salvage treatment only. Causes considerable crop injury. Tall fescue, fine fescue, and orchardgrass injured more than perennial ryegrass; therefore, apply as a shielded or directed spray. Perennial ryegrass seed yield often not reduced if applied before the boot stage of growth. Best crop safety and weed control if applied when growing conditions favor crop recovery before weed regrowth. Do not graze for 1 year (365 days).

### **Beacon (primisulfuron-methyl)**

**Crops:** Kentucky bluegrass

**Weeds controlled:** Used for control of bromes, wild oat, quackgrass, and mustards

**Labeled rates (product/A):** *New and established stands:* 0.76 oz/A

**Notes:** Stunts Kentucky bluegrass; therefore, use should be restricted to fields where serious downy brome or quackgrass populations are present. Do not graze for 90 days. Preharvest interval (PHI) is 60 days.

### **Gramoxone Extra (paraquat)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Nonselective weed seedling control during crop establishment, prior to crop emergence

**Labeled rates (product/A):** *Seedbed preparation:* 25 oz/A



## SECTION 2: HERBICIDE NOTES

**Notes:** No soil activity. Gramoxone Extra is a contact herbicide; therefore, good weed coverage is critical. Do not graze. Do not feed straw or seed screenings.

### **glyphosate (various trade names)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Nonselective weed control prior to crop emergence and/or crop seeding

**Labeled rates (acid equivalent/A):** *Seedbed preparation:* 0.5–1.5 lb ae/A; *Wick, wiper, or roller:* 3 lb ae/A + 2 gal water; *Shielded spray:* 0.75–2.25 lb ae/A

**Notes:** Readily translocated. No soil activity.

### **2,4-D (various trade names)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Often used in a tank-mix with other herbicides for broadleaf weed control

**Labeled rates (acid equivalent/A):** *New and established stands:* 0.36–0.75 lb ae/A

**Notes:** Low-volatile (LV) esters and amine formulations available. Esters can volatilize when temperatures reach 70°F or higher. Amine formulations generally do not turn into a gas until temperatures are above 90°F. Do not graze dairy cattle for 7 days. Preharvest interval (PHI) is 30 days for hay.

### **MCPA (various trade names)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Often used in a tank-mix with other herbicides for broadleaf weed control

**Labeled rates (acid equivalent/A):** *New and established stands:* 0.5–1.0 lb ae/A

**Notes:** Somewhat safer on smaller grasses than 2,4-D. Low-volatile (LV) esters and amine formulations available. Esters can volatilize when temperatures reach 70°F or higher. Amine formulations generally do not turn into a gas until temperatures are above 90°F. Do not graze for 7 days.

### **Banvell/Clarity (dicamba)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Effective control of curly dock, smartweeds, knotweed, and sorrels; poor control of many mustards

**Labeled rates (product/A):** *New stands:* 0.5–1.0 pint/A; *Established stands:* 0.5–2.0 pints/A

**Notes:** Often tank-mixed with 2,4-D or MCPA (0.5–1.5 lb ae/A 2,4-D or MCPA), or Express (0.16–0.33 oz/A). Grazing restricted for 7 to 40 days. Preharvest interval (PHI) is 37 to 70 days. Restrictions vary based on rate applied.

### **Stinger/Curtail/Curtail M (clopyralid)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Effective control of thistles, common groundsel, common dandelion, red sorrel, and mayweed chamomile

**Labeled rates (product/A):** *Established stands:* Stinger: 2.7–10.7 oz/A; Curtail: 2–4 pints/A; Curtail M: 1.75–3.5 pints/A

**Notes:** Curtail is a mixture of clopyralid + 2,4-D amine. Curtail M contains a formulated mixture of clopyralid + MCPA LV ester. Often tank-mixed with 2,4-D, MCPA, or dicamba. Do not graze dairy animals for 14 days after application.

### **Express (tribenuron-methyl)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Fair to good control of wild carrot

**Labeled rates (product/A):** *New and established stands:* 0.16–0.33 oz/A

**Notes:** Marginal crop tolerance in many grass species and may cause yield loss. Usually tank-mixed with 2,4-D or MCPA for a broader weed control spectrum and crop tolerance. Do not graze for 60 days. Preharvest interval (PHI) is 60 days.

## SECTION 2: HERBICIDE NOTES

### **Buctrill/Bronate (bromoxynil)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Good control of several broadleaf weeds

**Labeled rates (product/A):** *New and established stands:* 1–2 pints/A

**Notes:** Excellent crop tolerance in small grass seedlings. Bronate contains bromoxynil + MCPA LV ester. Do not graze and do not feed straw and seed screenings.

### **Starane (fluroxypyr-methyl)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Fair to good bedstraw control

**Labeled rates (product/A):** *New and established stands:* 10.2 oz/A

**Notes:** Very good crop tolerance after grasses have at least two leaves but before the boot stage of growth. Do not graze. Do not feed any portion of treated field.

### **Paramount (quinclorac)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, Kentucky bluegrass

**Weeds controlled:** Very good control of field bindweed

**Labeled rates (product/A):** *New and established stands:* 0.33–0.5 lb/A

**Notes:** Apply in fall when field bindweed is actively growing but before hard frost. Narrow weed control spectrum. Good crop tolerance. Do not graze treated areas or feed straw or seed screenings.

### **Aim (carfentrazone)**

**Crops:** Annual ryegrass, perennial ryegrass, tall fescue, fine fescue, orchardgrass, bentgrass, Kentucky bluegrass

**Weeds controlled:** Excellent control of bedstraw, henbit, speedwells, and certain other broadleaf weeds

**Labeled rates (product/A):** *New and established stands:* 0.33–1.24 oz/A

**Notes:** Some crop injury has been observed. Do not graze for 1 year (365 days) after application.

### **Avenge + Assert (difenzoquat + imazamethabenz-methyl)**

**Crops:** Kentucky bluegrass

**Weeds controlled:** Good control of wild oat

**Labeled rates (product/A):** *New stands:* 2 pints Avenge/A + 0.75 pint Assert/A

**Notes:** Registered as tank-mix partners only during the establishment year in Kentucky bluegrass. Do not apply within 1 year (365 days) of harvesting grass hay. Do not graze treated areas for 1 year (365 days).

### **Poast (sethoxydim)**

**Crops:** Fine fescue

**Weeds controlled:** Fair to good control of several grass weed species

**Labeled rates (product/A):** *Established stands:* 24.0–42.7 oz/A

**Notes:** Apply when fine fescue is semidormant, from November to March. Late fall applications after maximum germination will provide best control. Do not graze treated fields.

### **Fusilade DX (fluzifop)**

**Crops:** Fine fescue

**Weeds controlled:** Fair to good control of several grass weed species

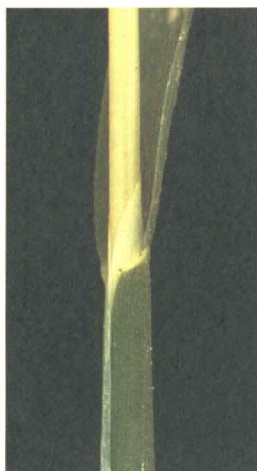
**Labeled rates (product/A):** *Established stands:* 0.5–1.0 pint/A

**Notes:** Apply to actively growing grasses 2 to 4 inches tall. Larger grasses and established quackgrass and bentgrass may require highest rate and repeated applications. Do not apply a total of more than 0.5 lb ai/A per season.



## Section 3: Weed Identification and Management

### Annual bluegrass (*Poa annua*)



#### Identification

Flattened stems that are spreading or erect, forming dense clumps 2 to 12 inches long. Short leaves are bright green with the tip curved. Inflorescences on short, spreading branches.

**Life cycle:** Annual

#### Management

**Resistant:** Preemergence herbicide (Axiom and Prowl most effective) followed by Goal + Karmex/Direx, Goal + Sencor, or Goal + Sinbar (less effective than other combinations). Many fields contain resistant annual bluegrass.

**Susceptible:** High populations controlled with preemergence herbicide followed by Goal + Karmex/Direx or Goal + Sencor. Lower populations controlled with Goal + Karmex/Direx or Goal + Sencor.

### Barnyardgrass (*Echinochloa crus-galli*)



#### Identification

Vigorous and numerous stems 1 to 5 feet tall with stem bases often red or purple. Flat, wide leaves without a ligule. Panicles are often red or purple.

**Life cycle:** Annual

#### Management

Summer annual grass most often found in spring-seeded fields. Controlled with non-selective spot application of glyphosate. Poast and Fusilade effective for control in fine fescues.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Bentgrass (*Agrostis* spp.)



#### Identification

Thin, membranous leaf ligule. Creeping perennial 8 to 20 inches tall.

**Life cycle:** Perennial

#### Management

No effective selective herbicides except Poast and Fusilade in Chewings, creeping red, hard, and other fine fescues. Spot treatment with glyphosate effective.

### Blue mustard (*Chorispora tenella*)



#### Identification

Leaves wavy or coarsely toothed with gland-tipped hairs. Branched stems 6 to 18 inches tall. Flowers with four pale purple petals.

**Life cycle:** Annual

#### Management

Most effective control with Prowl, Goal, Aim, Starane, or Beacon.

### Broadleaf plantain (*Plantago major*)



#### Identification

Basal leaves are smooth and broad with wavy margins and distinctive sunken veins. Blades measure 3 to 7 inches long. Flower stems are up to 15 inches long with elongated but dense spikes.

**Life cycle:** Perennial

#### Management

Best control with fall treatment of established plants.

## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Buckhorn plantain (*Plantago lanceolata*)



#### Identification

Lancelike leaves 4 to 12 inches long and less than 1½ inches wide, covered with tan wooly hairs. Leaves have three or more distinct parallel veins. Abundant flower stalks up to 18 inches tall end with tan, compacted spike.

**Life cycle:** Perennial

#### Management

Best control with fall treatment of established plants.

### Bull thistle (*Cirsium vulgare*)



#### Identification

Deeply lobed, wavy leaves form a rosette in the first year. Upper leaf surface prickly, lower leaf surface cottony. In second year, spiny, winged stem branches and grows 2 to 5 feet tall. Dark purple flowers clustered at ends of branches.

**Life cycle:** Biennial

#### Management

Herbicides most effective when bull thistle is in rosette stage, before flower stalk emerges.

### California brome (*Bromus carinatus*)



#### Identification

Rough, hairy leaf blades 8 to 12 inches long and up to ½ inch wide. Plant ranges from 25 to 40 inches tall. Highly variable growth.

**Life cycle:** Perennial

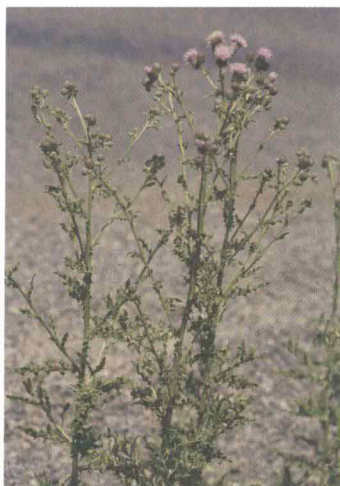
#### Management

Seedlings controlled with preemergence herbicide (Prowl, Dual, Frontier, or Axiom are equally effective) followed by Goal + Sencor or Goal + Sinbar. Established plants must be spot-treated with glyphosate. Not effectively controlled with Rely.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Canada thistle (*Cirsium arvense*)



#### Identification

Forms colony of plants interconnected by deep roots. Stems 1 to 4 feet tall and branched above. Leaves are alternate and lobed with spiny margins. Flowers are purple or occasionally white in heads  $\frac{1}{2}$  to  $\frac{3}{4}$  inch in diameter.

**Life cycle:** Perennial

#### Management

Control of established plants best when 2,4-D, MCPA, or Banvel/Clarity are applied to budding Canada thistle. Wait until grass crop is in medium dough stage of growth, and then apply prior to harvest. Stinger effective when Canada thistle is in the rosette stage.

### Bedstraw (*Galium aparine*)



#### Identification

Numerous square stems often intertwined and up to 7 feet in length. Slender leaves in whorls of six to eight and with stiff hairs. Minuscule white flowers in leaf axils.

**Life cycle:** Annual

#### Management

Aim and Starane most effective. Not controlled well with other broadleaf herbicides.

### Common chickweed (*Stellaria media*)



#### Identification

Prostrate stems, with numerous branches, form mat 4 to 12 inches tall. Lower leaves small with petioles, while upper leaves lack petioles and are up to  $1\frac{1}{2}$  inches long. Numerous white flowers with petioles shorter than sepals.

**Life cycle:** Annual

#### Management

Controlled with Express.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Common dandelion (*Taraxacum officinale*)



#### Identification

Tap-rooted perennial that forms a basal rosette of toothed leaves. Yellow flowers produced on leafless stalks. Vegetative parts exude milky sap when injured.

**Life cycle:** Perennial

#### Management

Fall applications of a mixture of 2,4-D and Banvel/Clarity most effective when herbicide will accompany photoassimilates into the root system.

### Common groundsel (*Senecio vulgaris*)



#### Identification

Branched annual or biennial with taproot. Leaves are alternate and irregularly produced. Young leaves are hairy and purplish on the underside. Yellow disk flowers on several heads per plant.

**Life cycle:** Annual, biennial

#### Management

Controlled with Goal in seedling and established stands. Tank-mixes of 2,4-D or MCPA and Banvel/Clarity effective on small plants. Germinates almost continuously throughout year and therefore may require repeated applications.

### Common lambsquarters (*Chenopodium album*)



#### Identification

Erect with branched stem up to 5 feet in height. Leaves are irregularly toothed and dusted with a gray, mealy coating. Inconspicuous flowers produced on upper stem ends and in leaf axils.

**Life cycle:** Annual

#### Management

Summer annual weed that is mainly a problem after spring seeding. Control with mowing or 2,4-D, MCPA, or Banvel/Clarity when small.

## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Common velvetgrass (*Holcus lanatus*)



#### Identification

Leaves grayish and long, pointed at tip, originating in a cluster at plant base. Entire plant velvety-hairy. Flower panicles often pale purple and hairy.

**Life cycle:** Perennial

#### Management

Spot-treatment with glyphosate most effective. Higher rates of Karmex/Direx provide moderate control. Control with Poast in Chewings, creeping red, hard, and other fine fescues.

### Common vetch (*Vicia sativa*)



#### Identification

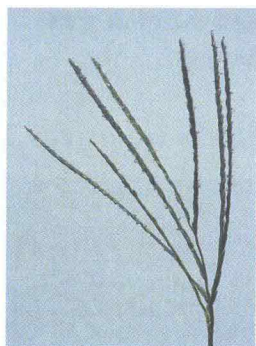
Similar to hairy vetch, with larger leaves and flowers. Often forms dense, tangling mat.

**Life cycle:** Annual

#### Management

Controlled with Express or Banvel/Clarity.

### Crabgrass (*Digitaria* spp.)



#### Identification

Flat leaf blades. Plant spreads from base and reaches 1 to 2 feet tall. Long inflorescence branches 3 to 11 times. Large crabgrass has long hairs on sheath; smooth crabgrass has smaller leaves and no hairs.

**Life cycle:** Annual

#### Management

Summer annual grass found most often in spring-seeded fields. Controlled with non-selective spot application of glyphosate. Poast and Fusilade effective for control in fine fescues.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Downy brome (*Bromus tectorum*)



#### Identification

Annual or winter annual 4 to 30 inches tall with densely hairy leaf sheaths and blades. Inflorescence is usually drooping and one-sided. Awns are  $\frac{3}{8}$  to  $\frac{5}{8}$  inch long and often slightly purple at maturity.

**Life cycle:** Annual

#### Management

Fair to good control with Prowl, Dual, or Outlook.

### Fiddleneck (*Amsinckia intermedia*)



#### Identification

Alternate leaves have bristlelike hairs. Stems 1 to 2½ feet tall with abundant long hairs. Yellow flowers grouped on one side of inflorescence that is curled when immature.

**Life cycle:** Annual

#### Management

Most effective control with Goal. Small weeds effectively controlled with Bronate.

### Field bindweed (*Convolvulus arvensis*)



#### Identification

Prostrate stems 1 to 4 feet in length form dense mats. Alternate leaves are arrowhead-shaped with rounded tips. Bell-shaped white or white-pink flowers measure 1 inch in diameter.

**Life cycle:** Perennial

#### Management

Paramount very effective and selective in all grass species. Repeated applications may be necessary when field bindweed is in the bud to early flower stage of growth.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Filaree (*Erodium cicutarium*)



#### Identification

Numerous stems 1 inch to 2 feet in length form a spreading rosette. Hairy leaves finely divided. Flowers are purple to pink in clusters of two or more.

**Life cycle:** Annual, biennial

#### Management

Most effective control when treated as very small plants.

### Flixweed (*Descurainia sophia*)



#### Identification

Stem 8 to 24 inches high with finely dissected, alternately arranged leaves. Leaves covered with numerous branched hairs. Inflorescence forms a raceme with small, yellow-green flowers. Seed capsules  $\frac{1}{2}$  to  $1\frac{1}{4}$  inches long.

**Life cycle:** Annual

#### Management

Most effective control with Prowl, Goal, Aim, Starane, or Beacon.

### German velvetgrass (*Holcus mollis*)



#### Identification

Leaves originating in cluster at base; long, pointed at tip. Roots spreading. Stems hairy only at node and greener than common velvetgrass.

**Life cycle:** Perennial

#### Management

No effective selective herbicides except Poast in Chewings, creeping red, hard, and other fine fescues. Fusilade is less effective than Poast. Spot-treatment with glyphosate most effective.

## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Green foxtail (*Setaria viridis*)



#### Identification

Forms clumps up to 3 feet tall. Rough leaves are rolled in bud and have hairs only on the lower margin. Hairy ligule. Seedhead is foxtaillike and pale green.

**Life cycle:** Annual

#### Management

Summer annual grass most often found in spring-seeded fields. Controlled with nonselective spot application of glyphosate. Poast and Fusilade effective for control in fine fescues.

### Hairy vetch (*Vicia villosa*)



#### Identification

Leaves have 10 to 20 narrow, small leaflets (less than 1 inch long). Stems are hairy and up to 6 feet long. Distinct tendrils. Deep purple flowers in clusters usually on one side of the stalk.

**Life cycle:** Annual

#### Management

Controlled with Express or Banvel/Clarity.

### Hawksbeard (*Crepis* spp.)



#### Identification

Stem leaves are arrow-shaped and coarsely toothed. Multiple branched stems originate from base to a height of 1 to 2 feet. Bristly hawksbeard has hairy stems, smooth hawksbeard is hairless. Flowers very similar to those of spotted catsear; however, spotted catsear is without leaves on stems.

**Life cycle:** Annual

#### Management

Most effective control when treated as very small plants.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Hedge mustard (*Sisymbrium officinale*)



#### Identification

Young leaves egg-shaped with toothed margins, older leaves deeply lobed and bristly. Flowering stems are erect, hairy, and branched. Alternate leaves. Yellow flowers produced in clusters on ends of elongated stems.

**Life cycle:** Annual

#### Management

Herbicides most effective when plants are very small. Banvel/Clarity not very effective.

### Henbit (*Lamium amplexicaule*)



#### Identification

Opposite leaves with petioles on lower stem, clasping a square stem on upper plant. Rounded leaves moderately toothed. Flowers borne in upper leaf axils have two lips and are pink or purple and white.

**Life cycle:** Annual

#### Management

Most effective control when treated as very small plants.

### Italian ryegrass (*Lolium multiflorum*)



#### Identification

Erect stems often purplish at base and 1 to 2½ feet tall. Shiny, dark green leaves have prominent veins. Long spikes have spikelets that are alternate along the stem.

**Life cycle:** Annual

#### Management

**Resistant:** High populations controlled with preemergence herbicide (Prowl, Dual, Frontier, or Axiom are equally effective) followed by Goal + Karmex/Direx, Goal + Sencor, or Goal + Sinbar.

**Susceptible:** High populations controlled with pre-emergence herbicide followed by Goal + Karmex/Direx, Goal + Sencor, or Goal + Sinbar. Lower populations controlled with Goal + Karmex/Direx, Goal + Sencor, or Goal + Sinbar.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Jagged chickweed (*Holosteum umbellatum*)



#### Identification

Young leaves club-shaped and clustered in a rosette. Short internodes at stem base form dense, compact plant. White flowers in clusters at tip of stem.

**Life cycle:** Annual

#### Management

Good control with Prowl.

### Little bittercress (*Cardamine oligosperma*)



#### Identification

Erect stems branched at plant base form a basal rosette. Numerous leaflets increase in size along individual stems. Small, white flowers produced on stem ends. Mature seeds are propelled from siliques when touched.

**Life cycle:** Annual, biennial

#### Management

Early control necessary to prevent spring seed production.

### Mannagrass (*Glyceria occidentalis*)



#### Identification

Rhizomatous or stoloniferous perennial with long, pointed, membranous ligule. Flat leaf blades, without auricles, rolled in the bud. Occurs in marshy areas and wet soils.

**Life cycle:** Perennial

#### Management

Nortron-resistant mannagrass can be found in many areas. Do not use repeated applications of Nortron. Control may be adequate with Rely.

## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Mayweed chamomile (*Anthemis cotula*)



#### Identification

Bushy plant with finely dissected leaves. Branched stems  $\frac{1}{2}$  to 2 feet in length. Leaves have foul odor when crushed. Flowers  $\frac{3}{4}$  inch in diameter with 12 white rays surrounding a yellow center.

**Life cycle:** Annual

#### Management

Most effective control when treated before plants exceed 1 to 2 inches in diameter.

### Pennycress, field (*Thlaspi arvense*)



#### Identification

Basal leaves are lancelike and entire to lobed. Stem 6 to 18 inches tall, terminating in raceme. White flowers. Circular fruit pod with wings, deeply notched at top. Plant has foul odor.

**Life cycle:** Annual

#### Management

Most effective control with Prowl, Goal, Aim, or Starane.

### Pineappleweed (*Matricaria matricarioides*)



#### Identification

Erect branched stem 1 foot tall. Leaves greatly divided or feathered. Branches terminate with yellow-green flowers. Pineapple odor when plant is crushed.

**Life cycle:** Annual

#### Management

Most effective control when treated before plants exceed 1 to 2 inches in diameter.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Prickly lettuce (*Lactuca serriola*)



#### Identification

Produces erect stems 2 to 4 feet tall from a basal rosette. Leaf margin and lower midrib lined with prickles. Exudes milky sap when injured.

**Life cycle:** Annual, biennial

#### Management

Most effective control when treated as very small plants.

### Prostrate knotweed (*Polygonum aviculare*)



#### Identification

Prostrate annual with multiple stems 1 to 3 feet in length. Stems swollen at each branch. Leaves slender and hairless with papery sheath at leaf base. Small, pink flowers in clusters produced on stems in the leaf axils.

**Life cycle:** Annual

#### Management

Controlled with Banvel/Clarity. Very small plants controlled with Buctril or Bronate.

### Quackgrass (*Elytrigia repens*)



#### Identification

Erect stems 1 to 3 feet tall rise from shallow below-ground rhizomes. Leaf blades are flat and have small clawlike auricles that wrap around the leaf sheath. Short spikelets arranged in two rows.

**Life cycle:** Perennial

#### Management

No effective selective herbicides except Beacon in Kentucky bluegrass and Fusilade in Chewings, creeping red, hard, and other fine fescues. Spot-treatment with glyphosate best for control of escaped plants.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Rattail fescue (*Vulpia myuros*)



#### Identification

Prostrate annual up to 2 feet tall. Narrow leaf blades are folded and hairless. Panicles are slender and up to 8 inches in length. Awns are  $\frac{5}{16}$  to  $\frac{3}{8}$  inch long.

#### Life cycle: Annual

#### Management

High populations controlled with preemergence herbicide (Prowl, Dual, Outlook, and Axiom are equally effective) followed by Goal + Karmex/Direx, Goal + Sencor, or Goal + Sinbar.

### Red sorrel (*Rumex acetosella*)



#### Identification

Woody stem  $\frac{1}{2}$  to 2 feet tall with few branches. Lower leaves arrowhead-shaped, upper leaves slender and often without lobes. Red-orange or orange-yellow flowers on terminal branches.

#### Life cycle: Perennial

#### Management

Banvel/Clarity most effective. Often mixed with 2,4-D or MCPA for wide-spectrum broadleaf weed control. Express also controls young plants. Fall applications most effective as herbicides accompany photoassimilates to the roots.

### Redroot pigweed (*Amaranthus retroflexus*)



#### Identification

Egg-shaped leaves are dull green on top and have defined veins. Underside of young leaves often red. Erect stem, often 2 to 3 feet tall, shaded red or red-striped and often hairy. Large, spikelike inflorescence.

#### Life cycle: Annual

#### Management

Summer annual weed that is mainly a problem after spring seeding. Effective control with mowing or 2,4-D, MCPA, or Banvel/Clarity when small.

## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Roughstalk bluegrass (*Poa trivialis*)



#### Identification

Yellow-green leaves folded in bud with large membranous ligule. Short hairs cover plant, giving rough feel. Plant spreads by stolons. Seedhead outline forms pyramid shape.

**Life cycle:** Perennial

#### Management

Increasing in occurrence in western Oregon. May be cyclical due to environmental conditions such as wet springs or changes in grass seed production practices. Seedlings controlled with Prowl or Axiom. Rely effective as a salvage treatment.

### Sharppoint fluvellin (*Kickxia elatine*)



#### Identification

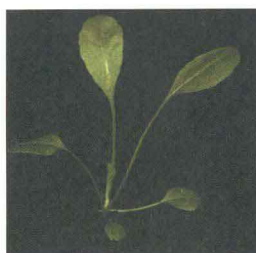
Creeping, branched annual with sticky hairs. Alternate leaves. Young leaves rounded, older leaves arrow-shaped. Flowers borne in leaf axils on stalks about 1 inch long. Flowers have two lips: upper lips purple, lower lips yellow.

**Life cycle:** Annual

#### Management

Effective control when Bronate is combined with 2,4-D or Banvel/Clarity. Goal and Express are most effective.

### Shepherdspurse (*Capsella bursa-pastoris*)



#### Identification

Lower leaves deeply lobed and form a basal rosette, while upper leaves are slightly toothed or entire on erect stems from 3 to 18 inches tall. Small, white flowers on end of elongated racemes. Fruits are heart-shaped.

**Life cycle:** Annual

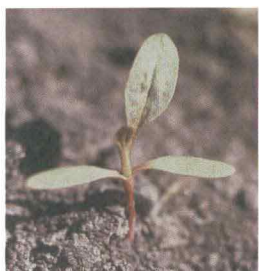
#### Management

Early control necessary to prevent late winter and early spring seed production. Herbicides most effective on very small plants.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Smartweed (*Polygonum* spp.)



#### Identification

Alternate, narrow leaves are lance-shaped. Leaf nodes are sheathed. Erect or spreading stems 1 to 3 feet long. Small pink to rose-colored flowers borne in dense spikes. Ladythumb smartweed has characteristic thumbprint near center of leaf.

**Life cycle:** Annual

#### Management

Herbicides most effective when Butril is applied to small plants. Larger plants are controlled with Banvel/Clarity.

### Speedwell (*Veronica* spp.)



#### Identification

Leaves lobed or toothed with distinct venation. Multiple stems form dense groundcover.

**Life cycle:** Annual

#### Management

Controlled in seedling stands after crop is tillered with Goal/Galigan. Aim is very effective.

### Spotted catsear (*Hypochaeris radicata*)



#### Identification

Hairy, shallowly lobed leaves in a basal rosette 4 to 12 inches in diameter. Flowering stems 1 to 2 feet tall with few branches. Yellow flowers similar to that of common dandelion, hence the alternative name "false dandelion."

**Life cycle:** Perennial

#### Management

Fall applications of a mixture of 2,4-D and Banvel/Clarity most effective when herbicide will accompany photoassimilates into the root system.

## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Sticky chickweed (*Cerastium viscosum*)



#### Identification

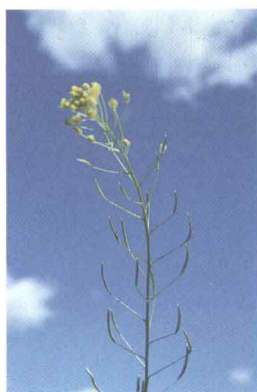
Stems and leaves abundantly hairy. Many branched stems form dense mats. Small, oval- or egg-shaped leaves. Flowers with five white petals.

**Life cycle:** Perennial

#### Management

Hairy leaf surfaces inhibit herbicide uptake; thus good spray coverage and use of a wetting agent are critical for control.

### Tansy mustard (*Descurainia pinnata*)



#### Identification

Alternate leaves finely dissected. Erect plant 4 to 32 inches tall terminating in siliques about  $\frac{3}{4}$  inch long. Often confused with flaxweed.

**Life cycle:** Annual

#### Management

Most effective control with Prowl, Goal, Aim, Starane, or Beacon.

### Toad rush (*Juncus bufonius*)



#### Identification

Leaf blades are flat and very narrow (less than  $\frac{1}{16}$  inch). Branched stems. Flowers surrounded by two elongated bracts. Plant measures 1 to 10 inches tall.

**Life cycle:** Annual

#### Management

Controlled with 2,4-D, MCPA, or Karmex/Direx.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Tumble mustard (*Sisymbrium altissimum*)



#### Identification

Winter annual 2 to 5 feet tall. Upper stem branched numerous, forming a bushy appearance. Lower leaves large and divided into coarsely divided leaflets; upper leaves small and less divided. Yellow flowers form small raceme.

**Life cycle:** Annual

#### Management

Most effective control with Prowl, Goal, Aim, Starane, or Beacon.

### Wild carrot (*Daucus carota*)



#### Identification

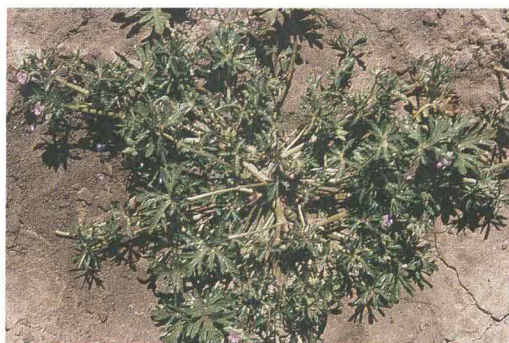
Rosette developed in first year with finely divided leaves, similar to cultivated carrot, and a deep taproot. In second year, erect stems 2 to 4 feet tall end in flat-topped white flowers. Stems and roots have distinctive carrot odor when crushed.

**Life cycle:** Biennial

#### Management

Express effective when applied in the fall; however, crop tolerance varies by species. Maintenance of a competitive crop stand often inhibits wild carrot growth.

### Wild geranium (*Geranium carolinianum*)



#### Identification

Usually a biennial, with a basal rosette of leaves. Petioles are long, brown or pink, with downward-pointing hairs. Two stipules at base of petiole. Alternate leaves hairy on both sides, palmately divided into five segments.

**Life cycle:** Annual, biennial

#### Management

Most effective control when treated as very small plants.



## SECTION 3: WEED IDENTIFICATION AND MANAGEMENT

### Wild mustard (*Brassica kaber*)



#### Identification

Lower leaves large (2 to 8 inches long and 1 to 4 inches wide) and irregularly but deeply lobed. Upper leaves smaller and slightly toothed. Erect stems with hairs on lower portions, branched near end and terminating in yellow flowers with four petals.

**Life cycle:** Annual

#### Management

Most effective control when treated as very small plants. Banvel/Clarity not very effective on most mustard species.

### Wild oat (*Avena fatua*)



#### Identification

Seedling leaves twist counterclockwise. Membranous ligule. Plant 1 to 4 feet tall with hollow stems. Open panicle with drooping spikelets.

**Life cycle:** Annual

#### Management

Fair to good control with Axiom or non-selective spot application of glyphosate. When plants are smaller than two leaves, Nortron also is effective.

### Wild radish (*Raphanus raphanistrum*)



#### Identification

Lower leaves 1 to 2 inches wide and up to 6 inches long, broadly divided. Upper leaves smaller and irregularly toothed but not distinctly divided. Stem branches reach 2 to 5 feet tall. Usually has yellow flowers with dark veins.

**Life cycle:** Annual

#### Management

Most effective control when treated as very small plants.



### Witchgrass (*Panicum capillare*)



#### Identification

Erect annual 1 to 2 feet tall and softly hairy throughout. Leaves broad and somewhat wavy. Spikelets in an open, branched panicle.

**Life cycle:** Annual

#### Management

Summer annual grass found most often in spring-seeded fields. Controlled with non-selective spot application of glyphosate. Poast and Fusilade effective for control in fine fescues.

---

## Weed Terms

**Auricle**—A small, ear-shaped lobe or appendage.

**Awn**—A slender, usually terminal bristle.

**Axil**—The angle between a leaf and stem.

**Bract**—A small, leaflike structure below a flower.

**Glabrous**—Smooth; without hairs.

**Ligule**—A thin, membranous outgrowth or fringe of hairs from the base of a grass blade.

**Panicle**—A loose, irregularly compound flowering part of a plant with flowers borne on individual stalks.

**Petiole**—A stem or stalk of a leaf.

**Raceme**—An arrangement of flowers along a stem on individual stalks about equal in length.

**Rhizome**—An underground stem, usually lateral, sending out shoots above ground and roots below.

**Rosette**—A compact cluster of leaves arranged in an often basal circle.

**Sepal**—The outer, leaflike part of a flower.

**Silique**—An elongated capsule with two separate valves.

**Spikelet**—A flower cluster in grasses consisting of usually two basal bracts and one or more florets.

**Stipule**—One of a pair of appendages at the junction of a leaf petiole and a stem.

**Stolon**—A horizontal stem that roots at the nodes.



---

## Ordering Information

If you would like additional copies of EM 8788, *Weed Management in Grass Seed Production*, send \$4.50 per copy to:

Publication Orders  
Extension & Station Communications  
Oregon State University  
422 Kerr Administration  
Corvallis, OR 97331-2119  
Fax: 541-737-0817

We offer discounts on orders of 100 or more copies of a single title. Please call 541-737-2513 for price quotes.

## World Wide Web

You can access our Publications and Videos catalog and many of our publications through our Web page at [eesc.orst.edu](http://eesc.orst.edu)

© 2001 Oregon State University

---

Trade-name products and services are mentioned as illustrations only. This does not mean that the Oregon State University Extension Service either endorses these products and services or intends to discriminate against products and services not mentioned.

---

The Oregon State University Extension Service educates Oregonians by delivering research-based, objective information to help them solve problems, develop leadership, and manage resources wisely.

Extension's agriculture program provides education, training, and technical assistance to people with agriculturally related needs and interests. Major program emphases include food and fiber production, farm business management, marketing and processing of agricultural products, resource use and conservation, and environmental preservation and improvement.

---

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.

Oregon State University Extension Service offers educational programs, activities, and materials—*without regard to race, color, religion, sex, sexual orientation, national origin, age, marital status, disability, and disabled veteran or Vietnam-era veteran status*—as required by Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973. Oregon State University Extension Service is an Equal Opportunity Employer.

---

Published October 2001.