Turf Weed Control:
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Annual Grassy Weeds

- crabgrass
- goosegrass
- foxtails
- barnyardgrass

Preemergent Herbicides Labeled for Use in Colorado

- benefin (Balan)
- benefin + trifluralin (Team)
- bensulide (Betasan)
- corn gluten meal (Amaizing Lawn, WOW, many others)
- dithiopyr (Dimension)
- isoxaben (Gallery) – broadleaf weeds only
- oxadiazon (Ronstar)
- pendimethalin (Pre-M, Pendulum, Scotts home products)
- prodiamine (Barricade)
- siduron (Tupersan) – for use at time of seeding

Annual Grass Control Ratings

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Crabgrass</th>
<th>Foxtails</th>
<th>Goosegrass</th>
<th>Annual Bluegrass</th>
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<td>Benefin</td>
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<td>Benefin + oryzalin</td>
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<td>Bensulide</td>
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<td>Dithiopyr</td>
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Causes of Unsatisfactory Preemergence Herbicide Performance

- Applied after weed emergence
- Rate applied was too low
- Non-uniform application
- Insufficient (at application) rainfall or irrigation
- Thin, unhealthy, poorly maintained turf
- Excessive rain immediately after application
- High rainfall year
- Poor site drainage
- Drought
- Excessive/prolonged summer heat
- Clippings collected before preemergent incorporated
Preemergence Herbicide Efficacy

- If irrigation is not available, apply well in advance of expected weed germination to allow for an activating precipitation.
- Loss of activity may occur if not watered in within 7 to 10 days.
- Losses from photodecomposition and volatilization can be important, especially with sprayable formulations.
- Avoid clipping collection.
- Healthy turf is important to good preemergent control.

Anything new in preemergents?

**Dimension 2EW**
- Water-soluble formulation of dithiopyr.
- Low odor, non-staining.
- 2 lbs. ai/gal.
- Single applications at 1-2 pints/A (0.25-0.5 lbs ai/A); no more than 6 pints/year.
- Use with care on fine fescues.
- Do not apply to seedling buffalograss less than one year old.
- Not for use on bentgrass greens.
- Safe on many landscape ornamentals at 2 pint rate.

What if you get crabgrass anyway?

- Dimension (dithiopyr) will give EARLY postemergent control.
- MSMA (organic arsenicals) gives good EARLY postemergent control.
- Acclaim Extra (fenoxaprop) gives good postemergent control at all stages.
- Drive (quinclorac) gives excellent postemergent control at all stages.

Crabgrass: Dimension 2EW

Goosegrass: Drive (quinclorac)
Goosegrass

- Difficult to control
- Preemergent
  - Ronstar gives best control
  - PreM, Barricade, Dimension
    fair to good
- Postemergent
  - MSMA (seeding)
  - Drive ineffective
  - Acclaim OK on 2-3 tiller
    plants

Preemergent Broadleaf Control
with Isoxaben

- Excellent preemergent control of
  many broadleaf weeds
- Poor control of grassy weeds
- Does NOT give any
  postemergent control of
  broadleaf weeds
- Fall followed by spring
  applications appear very
  effective

Perennial Weedy Grass Species

- Fountain grass
- Tall fescue
- Quackgrass
- Bromegrass
- Bentgrass
- Zoysiagrass
- Bermudagrass
- Poa annua
- Poa trivialis

Pennisetum

- Noxious weed in
  some areas due to
  uncontrolled spread

Fountain Grass

- one or two spot treatments of glyphosate
- kills all other grasses
- may not be a great choice especially
  for lawns with a heavy infestation of this
  weedy grass.
Fountain Grass

- Very rough cut
- Tears when mown
- Forms large clumps

Drive – quinclorac
- Won’t kill bluegrass, tall fescue, ryegrass or zoysiagrass.
- The only effective selective option.
- Two applications of Drive XLR8 at full rate, about 10-14 days apart, provides good control.
- Remove seed heads.

Bentgrass (Agrostis spp.)

- Usually “creeping”, unless old lawns
- Likes water, shade
- Puffy; scalps with mowing
- Blue-green color, fine leaves
- Very tall, white ligule

Scalping of Creeping Bentgrass in Lawn

Roughstalk bluegrass (Poa trivialis)

- Stoloniferous bluegrass
- Very fine, shiny leaves
- Forms dense patches
- Likes water, but very adaptable species

Poa trivialis in home lawn
Rough bluegrass (*Poa trivialis*)

- Coarse, tough leaves
- Rolled vernation
- Aggressive rhizomes
- Greens up early in spring
- Common on old ag land, pastures, ditchbanks

Smooth bromegrass (*Bromus inermis*)

- Coarse, tough leaves
- Rolled vernation
- Aggressive rhizomes
- Greens up early in spring
- Common on old ag land, pastures, ditchbanks

Rolled vs. Folded

- New leaves are rolled or twisted in bud before they open
- New leaves are folded in bud before they open

Quackgrass (*Agropyron repens*)

- Coarse, blue-green leaves
- Aggressive rhizome former
- Rolled vernation
- Early spring green-up
- Common ag and ditchbank weed

Managing Perennial Grassy Weeds

- Glyphosate, followed by reseeding or sodding
- Learn to tolerate the different grass species

Corsair (chlorsulfuron)

- Formerly known as Lesco TFC
- Selectively controls tall fescue, perennial ryegrass in Kentucky bluegrass
- Low use rates: 1-5 oz. product/A
- Will also control wild violet, mallow, filaree, and yarrow
- Very long soil residual (up to 6 months or more, depending on rate, soil, moisture)
- Nufarm Turf and Specialty
  [http://www.cdms.net](http://www.cdms.net)
Manor (metsulfuron methyl)

- For use on Kentucky bluegrass, fine fescue and buffalograss lawns
- Will damage perennial ryegrass
- Low use rates: 0.125 to 0.5 oz. product/acre
- Controls ryegrass, thistle, spurge, oxalis, filaree, yarrow, kochia, knotweed, dandelion, most legumes
- Nufarm Turf and Specialty
  http://www.cdms.net

Bermudagrass Suppression in Cool-Season Turf

- Acclaim Extra (fenoxaprop)
  - 20 oz./acre
  - every 28-35 days
  - begin at green-up
  - must be actively growing
  - no more than 121 oz/yr

- Turflon (triclopyr)
  - 1 quart/acre
  - apply at 4 week intervals
  - 4-5 applications
  - actively growing grass
  - Improved control if “tank-mixed with a post emergence herbicide registered for this use pattern”

Bermudagrass Suppression

- Repeat applications may kill significant amounts of bermudagrass
- Phytotoxicity on cool-season species must still be anticipated

Bermudagrass Suppression in Cool-Season Turf

- 0.5 lb. ai/acre Acclaim Extra tank-mixed with
- 2.0 lbs. ai/acre MSMA

Try applying monthly in June, July, August

Bentgrass in Ryegrass and Kentucky Bluegrass
Dicot Weed Control

Perennials
- Dandelion, clover, bindweed, thistle, plantain, violet

Annuals
- Spurge, puncturevine, oxalis, purslane

Prevention
- Proper establishment
- Ongoing maintenance

Herbicides
- Gallery (good), grass preemergents (fair)
- Many postemergent options

Dicot Weeds Can Be Difficult to Control

- Control is contingent upon herbicide uptake and translocation – mode of photosynthesis
- Death of the weed may be slow
- Mature weeds may not be controlled completely
- Perennial dicots are perennial for a reason

Postemergent Broadleaf Herbicides

- 2,4-D (many names, often with other herbicides)
- dicamba (Banvel)
- MCPP, mecoprop (many brands)
- MCPA (many)
- dichlorprop
- triclopyr (Turflon Amine, Turflon Ester)
- clopyralid + triclopyr (Confront)
- quinclorac (Drive)
- clopyralid (Lontrel)
- chlorsulfuron (Corsair)
- metsulfuron methyl (Manor)
- carfentrazone-ethyl (component of Speed Zone, Power Zone)
- fluroxypyr (Spotlight)
- sulfentrazone (Dismiss) NEW IN 2006 (component of Surge and Q4)

Postemergent Herbicide “Failure”

- Weeds curl and discolor, but don’t die
- Weeds appear to have died, but come back
- Reasons...
  - Weed species
  - Weed age
  - Weed health/vigor

Seedlings are easier to control than mature weeds
Stress: What are We Talking About?

High temperature stress (85-90 F or greater)
- Slows growth and metabolism of cool-season turf and weed species – C3 photosynthesis
  - lower potential for effective weed control
- can favor growth and competitiveness of warm-season weeds
- Increases growth and metabolism of warm-season turf and weed species – C4 photosynthesis
  - greater tillering and higher metabolism may result in decreased efficacy of postemergent herbicides
- Increases potential for undesirable turf injury
- Increases the potential for volatilization of any herbicides you apply

Cool-Season (C3) Species
- Bluegrasses, ryegrass, fescues, bentgrasses are cool-season turf species
- Dandelion, thistle, bindweed are cool-season broadleaf weeds
- Quackgrass, bromegrass, annual bluegrass are perennial weedy grasses
- Grow best (and are easiest to control) during spring and fall

Cool-Season (C3) Species

Warm-Season (C4) Weeds
- Most are annuals
- Crabgrass, foxtails, goosegrass, sandbur, barnyardgrass
- Purslane, spurge, knotweed, puncturevine
- Aggressive competitors with cool-season (C-3) grasses during the summer months

Warm-Season (C4) Weeds

Water stress
(drought, irrigation restrictions, improper water management, poor irrigation coverage)
- Warm-season turf and weeds (C-4) favored under low-water conditions
- Drought-stressed weeds form a thicker cuticle and to reduce water loss
- Herbicide movement is reduced when weeds are under drought stress

Increased Weed Problems Under Heat/Drought Conditions

Thin, non-competitive turf
- Drought stress
- Fertilizers less effective
- Decreased wear tolerance
- Increased disease
- Lower insect populations can cause turf injury
- Salinity problems increase
- Preemergent herbicides work less effectively
- Thinning may be more common with bunch-type species

Increased Weed Problems Under Heat/Drought Conditions

Irrigation system problems!
Drought-stressed weeds:
- poor herbicide uptake
- poor translocation
- difficult to kill

Active growing weeds:
- good herbicide uptake
- rapid translocation
- more easily killed

Puncturevine (*Tribulus terrestris*):
- Healthy turf
- Preemergent control
  - Pendimethalin
- Postemergent control
  - Bromoxynil, MSMA, DSMA when young
  - MCPP, MCPA, 2,4-D
  - Phenoxys with triclopyr, clopyralid, dicamba

Field Sandbur (*Cenchrus pauciflorus*):
- Healthy turf
- Preemergent control
  - Pendimethalin, DCPA
  - Products containing oryzalin on tall fescue, warm-season grasses
- Postemergent control
  - DSMA, MSMA
  - fenoxaprop

Wood Sorrel, Oxalis
(*Oxalis stricta, O. corniculatus*)
- Healthy turf
- Preemergence
  - Pendimethalin, prodiamine, isoxaben, oxadiazon
- Postemergence
  - Combination products containing dichlorprop, triclopyr, or dicamba
**Prostrate spurge** - summer annual

**Postemergence:**
- Trimec, Q4

**Preemergence:**
- Gallery, Dimension, Barricade

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**Black medic (Medicago lupulina)**

- Healthy turf
- Increase N fertility
- Preemergent control
  - Gallery
- Postemergent control
  - MCPP, MCPA
  - Drive
  - Clopyralid products

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**Yarrow (Achillea)**

- Healthy turf
- Increase N fertility
- Preemergent control
  - none
- Postemergent control
  - 3- and 4-way products
  - Clopyralid products

**VERY DIFFICULT WEED!**

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**Bindweed (Convolvulus)**

- Healthy turf suppresses it
- Increase N fertility
- Preemergent control
  - none
- Postemergent control
  - 3- and 4-way products
  - Clopyralid products
  - Drive, Q4 VERY good!

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**Yellow NutSedge**

- Cyperaceae – not a grass
- *C. esculentus*

**Control Options:**
- Imazaquin – Image
  - Established Warm season grass only
- Halosulfuron
  - Established warm and cool-season grasses
  - Controls Horsetail - Equisetum
- A multi-year project

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**Algae and Moss Control**

- Algae
  - thin dense green scum
  - tough black crust when dry
  - problem in compacted, waterlogged soils
Mosses

- May grow erect or prostrate
- Typically form a thick green mat at the soil surface
- low fertility, poorly drained soils, high soil acidity, excessively wet soils, soil compaction, excessive thatch

CSU Turf Program Web Site
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