

WEED CONTROL

COOL-SEASON

by Thomas Watschke, Penn State Univ.

Cool Season Herbicides

Herbicide	Brand Name(s)	Company	Uses
ammonium sulphamate	Ammate	DuPont	Non-selective rights of way herbicide
asulam	Asulox	Rhone Poulenc	Post-emergence grassy weed control for turf and ornamentals
atrazine	Aatrex	Ciba Geigy	Non-selective control in non-crop areas.
benefin	Balan	Elanco	Pre-emergence control of annual grasses and broadleaf weeds in established turf.
bensulide	Betasan Pre-San Lescosan Betamec-4	ICI Sierra Lesco PBI Gordon	Pre-emergence control of annual grasses and broadleaf weeds in established turf and established flower gardens. Safe near tulip and daffodil bulbs.
bentazon	Basagran	BASF	Selective post-emergence control of nutsedge in warm-season turf.
bromacil	Hyvar	DuPont	Non-selective control of weeds and grasses on non-crop areas. Usually mixed with diuron for roadsides and rights-of-way.

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Cool Season Herbicides (cont.)

Herbicide	Brand Name(s)	Company	Uses
bromoxynil	Buctril	Rhone Poulenc	Post-emergence control of broadleaf weeds in seedling turf, established turf and non-crop areas.
cacodylic acid	Phytar Rad-E-Cate	Vertac Vineland	Non-selective control for turf renovation, edging and in plant beds.
chloramben	Amiben	Rhone Poulenc	Pre-emergence control in ornamentals.
chlorflurenol	Maintain	Uniroyal	Growth regulator. Also controls broadleaf weeds and vines.
copper	Citrine-Plus	Applied Biochemists	Control algae, chara and hydrilla in potable water.
dalapon	Dalapon 85 Dowpon M	Fermenta Dow	Selective control of perennial and annual grasses in non-crop areas and ditchbanks.
dazomet	Mylone	Hopkins Ag.	Preplant sterilant for turf and ornamental beds.
DCPA	Dacthal	Fermenta	Pre-emergence control of annual grasses and broadleaf weeds in turf and ornamental beds.
dicamba	Banvel	Sandoz	Selective post-emergence control of broadleaf weeds in turf and for non-crop control of brush.
dichlobenil	Dyclomec	PBI Gordon	Selective weed control in ornamental beds and for total weed control on roadsides, fencerows, etc.
dichlorprop	2,4-DP	Rhone Poulenc	Brush control and aquatic weed control.

Cool Season Herbicides (cont.)

Herbicide	Brand Name(s)	Company	Uses
diphenamid	Enide	Nor-Am, Upjohn	Selective control of annual grasses and broadleaf weeds in bermudagrass, dichondra and around ornamentals.
DSMA	Methar 30 DSMA Liquid DSMA 81% Weed-E-Rad	W.A. Cleary Drexel Vertac Vineland	Selective post-emergence control of sedges and grasses on turf and ditchbanks and storage yard.
diquat	Diquat	Valent	Aquatic weed control.
diuron	Karmex Dynex Diuron 80WP Urox	DuPont Vertac Drexel Hopkins	Generally used at high rates for non-selective total weed control in industrial sites:
endothall	Aquathol K Endothall	Pennwalt Pennwalt	Aquatic weed control and turf herbicide and dessicant.
EPTC	Eptam	ICI	Selective control of annual grassy weeds, nutgrass, and perennial weeds.
ethofumesate	Prograss	Nor-Am	For control of <i>Poa annua</i> and white clover in fairways.
fosamine	Kernite	DuPont	Brush control.
flurprimidol	Cutless	Elanco	Growth regulator that suppresses annual bluegrass.
fluazifop-butyl	Fusilade	ICI Americas	Selective post-emergence control of grassy weeds in ornamentals.
fluridone	Sonar	Elanco	Broad spectrum herbicide for submersed and emersed aquatic weeds.

Cool Season Herbicides (cont.)

Herbicide	Brand Name(s)	Company	Uses
glyphosate	Rodeo	Monsanto	For control of emerged aquatic weeds and broad leaf weeds in or near aquatic sites, such as ditchbanks.
glyphosate	Roundup	Monsanto	Non-selective, short-term herbicide for turf renovation and total weed control along fences and plant beds.
imazaquin	Image	American Cyanamid	Experimental herbicide for turf
imazapyr	Arsenal	American Cyanamid	Broad spectrum systemic industrial herbicide
linuron	Lorox	DuPont	Short-term control of annual weeds in roadsides and fence rows.
mefluidide	Embark	PBI Gordon	Grown regulator that suppresses <i>Poa annua</i> .
metham	Vapam	ICI	Preplant soil fumigant killing weeds, weed seed, insects and fungi.
methyl bromide	Dowfume	Dow	Fumigant for pre-plant control. Also kills weed seed.
metribuzin	Sencor	Mobay	Post-emergence control of goosegrass in warm-season turf.
MCPP	MCPP Mecomec MCP Chipco Turf Herbicide	Fermenta PBI Gordon WA Cleary Rhone Poulenc	Selective broadleaf weed control in turf. Often combined with other herbicides.

Cool Season Herbicides (cont.)

Herbicide	Brand Name(s)	Company	Uses
MSMA	Daconatel Broadside Ansar Weed-Hoe	Fermenta Vertac Drexel Vineland	Post-emergence selective control of crabgrass and broadleaf weeds in turf. Also, grassy weed control in ditchbanks, roadsides, industrial areas.
napropamide	Devrinol	ICI	Selective control of weeds in ornamental beds and containers. Experimental combination with Betasan for season-long crabgrass control in turf.
oryzalin	Surflan	Elanco	Pre-emergence control of weeds in established ornamentals and warm-season turf.
oxadiazon	Ronstar	Rhone Poulenc	Pre-emergence control of weeds in ornamentals and turf.
oxyfluorfen	Goal	Rohm & Haas	Selective control of weeds in ornamentals.
paraquat	Paraquat	Valent	Non-selective control of weeds in rights-of-way, industrial areas and fencerows.
pendimethalin	Proturf Weedgrass Control Pre-M	Lesco	Pre-emergence turf herbicide for control of grassy and broadleaf weeds.
picloram	Tordon	Dow	Systemic, long-term killer of woody plants and broadleaf weeds.
prometon	Pramitol	Ciba Geigy	Non-selective herbicide with long residual for industrial weed control.

Cool Season Herbicides (cont.)

Herbicide	Brand Name(s)	Company	Uses
pronamide	Kerb	Rohm & Haas	<i>Poa annua</i> control in warm-season grasses. Also weed and grass control around woody ornamentals and Christmas trees.
sethoxydim	Poast	BASF	Post-emergence control of grassy weeds around broadleaf ornamentals.
siduron	Tupersan	DuPont	Pre-emergence control of annual grasses in newly seeded turf areas.
simazine	Princep	Ciba Geigy	Selective control of annual grasses and broadleaf weeds in established bermudagrass. Also, used in industrial and aquatic weed control.
sulfometuron-methyl	Oust	DuPont	Non-selective industrial and selective in bermudagrass.
tebuthiuron	Spike	Elanco	Brush control and total vegetation control in non-crop areas.
trifluralin	Treflan	Elanco	Selective pre-emergence weed control in established ornamentals and under asphalt.
triclopyr	Garlon	Dow	Systemic control of woody plants in rights-of-way and industrial sites.
2,4-D	2,4-D	Dow Fermenta Rhone Poulenc Vertac	Selective control of weeds in turf and numerous other areas. Usually mixed with other herbicides.
Vorlex	Vorlex	Nor-Am	Preplant fumigant. Broadleaf weed control in established turf.

WARM-SEASON

by Tim Murphy, Univ. of Georgia

**Warm-Season Turfgrass Tolerance
to Pre-Emergence Herbicides**

TURFGRASSES					
Herbicide	Bahia-grass	Bermuda-grass	Centipede-grass	St. Augustine-grass	Zoysia grass
<i>(PRE-EMERGENCE)</i>					
atrazine ¹	NR	T(D)	T	T	I
benefin	T	T	T	T	T
benefin + oryzalin	T	T	T	T	T
benefin + trifluralin	T	T	T	T	T
bensulide	T	T	T	T	T
bensulide + oxadiazon	NR	T	NR	NR	T
DCPA	T	T	T	T	T
ethofumesate ²	NR	T(D)	NR	NR	NR
fenarimol	—	T	—	—	—
napropamide	T	T	T	T	NR
oryzalin	T	T	T	T	T
oxadiazon	NR	T	NR	T	T
pendimethalin	T	T	T	T	T
pronamide	NR	T	NR	NR	NR
simazine	NR	T	T	T	T

¹When dormant, bermudagrass and zoysiagrass have good tolerance to atrazine.²Ethofumesate is labeled for use on dormant bermudagrass that is overseeded with perennial ryegrass.

T = Tolerant at labeled rates; I = Intermediate tolerance, NR = Not registered for use on this turfgrass.

Warm-Season Turfgrass Tolerance to Post-Emergence Herbicides

TURFGRASSES					
Herbicides	Bahia-grass	Bermuda-grass	Centipede-grass	St. Augustine-grass	Zoysia-grass
<i>(POST-EMERGENCE)</i>					
asulam	NR-S	T ¹	NR-S	T	NR-I
atrazine	NR-I	T(D)	T(D)	T	I
bentazon	T	T	T	T	T
bromoxynil	T	T	T	T	T
2,4-D	T	T	S-I	S-I	T
2,4-D + dicamba	T	T	S-I	S-I	T
2,4-D + dichlorprop	T	T	S-I	S-I	T
2,4-D + mecoprop	T	T	S-I	S-I	T
2,4-D + mecoprop + dicamba	T	T	S-I	S-I	T
2,4-D + mecoprop + dichlorprop	T	T	I	I	T
dicamba	T	T	I-T	S-I	T
DSMA, MSMA	S	T	S	S	I
glyphosate ²	NR-S	T(D)	NR-S	NR-S	NR-S
imazaquin	—	T	T	T	T
MCPA + MCPP + dichlorprop	T	T	I	I	T
MCPP + 2,4-D + dicamba	T	T	I	I	T
MCPP	T	T	S-I	S-I	T
metribuzin	NR-S	T	NR-S	NR-S	NR-S
pronamide	NR	T	NR	NR	NR
sethoxydim	NR-S	NR-S	T	NR-S	NR-I

¹ Asulam is labeled for use only on 'Tifway' (419) bermudagrass.

² Bermudagrass is tolerant to glyphosate when completely dormant.

T = Tolerant at labeled rates; I = Intermediate tolerance, use at reduced rates; S = Sensitive, do not use this herbicide; NR = Not registered for use on this turfgrass.

Common and Trade Names of Warm-Season Turfgrass Herbicides (cont.)

Common Name	Company	Trade Name and Formulation ¹
asulam	Rhone-Poulenc	Asulox 3.34 lbs./gal.
atrazine	Royalgard Ciba-Geigy	Purge 4 lbs./gal. Aatrex 4L, 90DG, 80W
benefin	Elanco Lesco	Balan 2.5G, 85DG 2.5 Benefin Granular (2.5G)
benefin + oryzalin	Elanco	XL 2G
benefin + trifluralin	Elanco	Team 2G
bensulide	ICI Royalgard PBI/Gordon Lesco	Betasan 2.9E, 4E, 3.6G, 7G, 12.5G Roysan 4E, 12.5G Betamec 4LF Lescosan 4E, 7G
bensulide + oxadiazon	Scotts	Goosegrass/Crabgrass Control 6.5G
bentazon	BASF	Basagran - 4lbs./gal.
bromoxynil	Rhone-Poulenc Lesco	Buctril 2 lbs./gal., Buctril 4EC, Brominal 2 lbs./gal., ME4 Brominal Brominal 2 lbs./gal.
2,4-D	Interag, Lesco, Fermenta Others	Numerous trade names and formulations are available
2,4-D + dicamba	Rhone-Poulenc Lesco PBI/Gordon	Weedone Super D Pro Amine Eight-One Selective Herbicide Phenaban 801
2,4-D + dichlorprop	Rhone-Poulenc	Weedone DPC Amine, Weedone DPC
2,4-D + mecoprop	Lesco Rhone Poulenc PBI/Gordon	Lescopar Turf Kleen Phenomec 2 + 1
2,4-D + mecoprop + dicamba	Lesco	Three-way
2,4-D + mecoprop + dichlorprop	Riverdale	Weedestroy Triamine

¹Numeral refers to percent or pounds of active ingredient.

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Common and Trade Names of Warm-Season Turfgrass Herbicides (cont.)

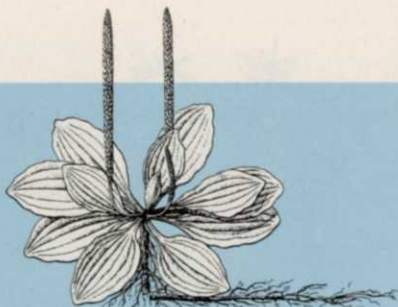
Common Name	Company	Trade Name and Formulation ¹
DCPA	Fermenta	Dacthal 75W
dicamba	Sandoz PBI/Gordon	Banvel 4 lbs./gal. Dicamba 4, 4 lbs./gal.
DSMA	Interag, Vineland, Others	Numerous trade names and formulations are available.
ethofumesate	Nor-Am	Prograss 1.5EC
fenarimol	Elanco	Rubigan 50W, 1AS
glyphosate	Monsanto	Roundup 4 lbs./gal.
imazaquin	Lesco	Image 1.5 lbs./gal.
MCPA	PBI/Gordon	MCPA 4 lbs./gal.
MCPA + MCPP	Riverdale	Weedestroy Triamine II
+ dichlorprop MCPP	Royalgard Rhone-Poulenc PBI/Gordon Lesco	Sabre Turf Herbicide MCPP 2 lbs./gal. Mecomec 4 4 lbs./gal. Lescepex 2.5 lbs./gal.
MCPP + 2,4-D + dicamba	PBI/Gordon	Trimec Southern
metribuzin MSMA	Mobay Fermenta, Platte, others	Sencor Turf 75W Numerous trade names and formulations are available.
napropamide	Lesco ICI	Devrinol 5-G Ornamental Devrinol 50WP, 5G
oryzalin	Elanco	Surflan 4AS
oxadiazon	Rhone-Poulenc	Ronstar 2G
pendimethalin	Lesco Scotts	PRE-M 60DG Southern Weedgrass Control 2.45G, Turf Weedgrass Control 1.71G, Weedgrass Control 60DG
pronamide	Rohm-Haas	Kerb 50W
sethoxydim	BASF	Poast 1.5 lbs./gal.
simazine	Ciba-Geigy	Princep 80W, 4L, 90DG, 4G

IDENTIFICATION OF SOME COMMON TURF WEEDS

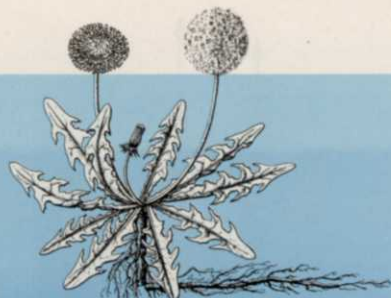
O.M. Scott & Sons



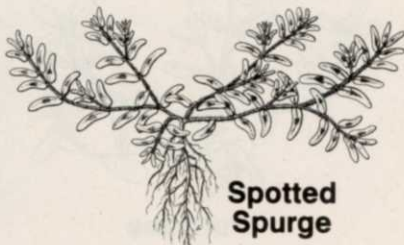
Ground Ivy



Plantain



Dandelion



**Spotted
Spurge**



Corn Speedwell



Clover



Common Chickweed



Ragweed



Purslane



Buckhorn