

Lawn Weeds

S.W. Bingham, Extension Weed Scientist, Virginia Tech

Turfgrasses are used to beautify grounds around homes, businesses, industries, parks, educational facilities, and on golf courses. Quality is a relative term and is dependent upon the level of management that the lawn is provided. High-quality lawns do not happen by accident. High quality is dependent on many factors such as turfgrass variety, fertilization, irrigation, soil type, and pest management. One important consideration is the correct use of herbicides for weed control.

Weeds will compete with turfgrasses in lawns for space to grow as well as for water and nutrients. Most weeds reduce the quality of the lawn by their irregular growth in relation to the turfgrass. Sometimes weeds grow faster and appear above the desired clipping height in 1-2 days. Uneven texture and height of weedy grasses gives an undesirable low-quality appearance. When weeds are controlled and other management practices are improved, the quality of the lawn is improved.

Gradually over the years, an excellent arsenal of herbicides has been developed for weed control in lawns. This publication is directed toward lawn turfgrasses including bluegrass, tall fescue, fine fescue, perennial ryegrasses, and bermudagrass. These recommendations are not intended for bentgrass or bermudagrass under golf green management.

Preemergence Control of Crabgrass

Annual grasses are effectively controlled with preemergence and postemergence herbicides. Crabgrass, foxtail, and barnyardgrass are all quite effectively prevented by a number of preemergence compounds. In addition, each basic herbicide ingredient may be formulated into many products (sometimes 25 or more). With a wide variety of formulations, it is important to follow label instructions carefully. The preemergence herbicides are applied in early spring before seedling crabgrass can be observed. Generally, it is too late when you see the seedling emerging in the lawn. Preemergence herbicides applied in spring will be sufficiently degraded or lost during the summer to allow fall seeding of thin turfgrass areas.

Basic Choices of Preemergence Herbicides

Benefin (Balan): Apply 2 3/4 lb of 2.5% granular (gran) per 1000 sq ft in late winter or early spring before crabgrass seedlings emerge. A second application after 2 months may be required to maintain effective crabgrass control into late summer and fall.

Bensulide (Betasan): Follow label directions for proper rate. Suggestions are 7 1/2 oz of a 4 lb/gal EC, 3 1/4 lb of 7% gran, or 1.8 lb of 12-1/2% gran per 1000 sq ft for crabgrass control. When the low label rate of 7-1/2 lb active ingredient (a.i.) per acre (6 oz of a 4 lb/gal formulation) is used, a second application may be desirable to prevent late germinating crabgrass establishment. This application may be made about 4 months after the initial treatment.

Dithiopyr (Dimension): Use 1 1/2 oz of a 1 lb/gal EC per 1000 sq ft for preemergence crabgrass control. The most optimum timing is at crabgrass germination period. It may be used in warm and cool season turfgrasses. Dimension is for use by professional turfgrass applicators only. Early postemergence control of crabgrass (before crabgrass begins to tiller) is also provided by dithiopyr (see under postemergence).

DCPA (Dacthal): Use 1/3 lb of 75% wettable powder (WP) or 4-1/2 lb of 5% gran per 1000 sq ft. A second application after 2 months at one-half the regular rate is required to control late germinating crabgrass. Newly seeded turfgrass may be treated with DCPA after turfgrass has grown sufficiently to require 2 clippings.

Oxadiazon (Ronstar): Use 3 to 4 lb of 2% gran or 2.2 oz of 50WP per 1000 sq ft in early spring prior to crabgrass emergence. Lawns containing red fescue are not sufficiently tolerant for Ronstar treatment. Excellent results have been obtained on bluegrass and bermudagrass lawns. Tall fescue and perennial ryegrasses are sufficiently tolerant to oxadiazon at the low label rate (2-1/3 lb of 2% gran per 1000 sq ft). Ronstar is not used on home lawns.

Pendimethalin (Turf Weedgrass Control, PreM): Apply in spring before emergence of crabgrass using 2.7 lb of Turf Weedgrass Control 1.71 gran per 1000 sq ft. This rate is equivalent to 2 lb per acre of pendimethalin. Use spreader settings provided on product as a guide for calibration. Professional applicators may use a 60 WDG formulation (PreM, Weedgrass Control 60WP) at 1.2 oz per 1000 sq ft.

Prodiamine (Barricade): The rate of Barricade 65WG varies with the type of turfgrass and the annual grass being controlled. For crabgrass control, use 0.3-0.4 oz of 65% WG in bermudagrass, tall fescue, bluegrass, red fescue, perennial ryegrass, and some creeping bentgrasses (not putting greens).

Siduron (Tupersan): Apply in spring just before expected emergence of crabgrass. Use 7.3 oz of 50% WP per 1000 sq ft on established turfgrasses or 4-1/2 oz of 50% WP on new spring plantings. A second application of 4-1/2 oz of the 50% WP is needed about 1 month later in the new lawn to maintain a desirable level of crabgrass control during the summer. Do not use on bermudagrass lawns. Tupersan can be used at any stage of turfgrass development. Either rainfall or irrigation is necessary within 3 days after treatment for best results (1/2 inch).

Bensulide + Oxadiazon (Goosegrass/Crabgrass Control): Apply 2.6 lb of 5.25 + 1.31 gran per 1000 sq ft in spring before Crabgrass emergence.

Benefin + trifluralin (Team): Apply 3.5 lb of 1.3 + 0.7 gran per 1000 sq ft in spring before crabgrass germination and may repeat the application for late season control.

Goosegrass Control

Oxadiazon (Ronstar): Apply 3-1/2 to 4 1/2 lb of 2% gran per 1000 sq ft for goosegrass control in bermudagrass and bluegrass. In perennial ryegrass and tall fescue, use 2-3/4 to 3-1/4 lb of 2% gran per 1000 sq ft. Oxadiazon (one application) has consistently given a high level of goosegrass control for a full season. Ronstar is not for use on home lawns.

Prodamine (Barricade): The maximum amount of Barricade per 1000 sq ft varies with the type of turfgrass and the annual grass to be controlled. Apply 0.4 oz of 65 WG per 1000 sq ft before any annual grass germination. In bermudagrass and tall fescue, repeat with 0.4 oz after 60 days. In bluegrass and perennial ryegrass repeat with 0.15 oz per 1000 sq ft. Red fescue and creeping bentgrasses are not sufficiently tolerant to receive a second treatment. Do not use on putting greens.

Benefin (Balan): Use 2-3/4 lb of 2.5% gran formulation per 1000 sq ft in early spring and repeat at 2 lb 2.5% gran after 8 weeks. (The second treatment should be timed just before goosegrass begins to germinate in late spring.) Oxadiazon may be substituted for the second treatment if desired. Oxadiazon is not for use on home lawns.

Benefin plus oryzalin (XL Herbicide): This combination of herbicides may be used for crabgrass, goosegrass, and other annual grasses in warm-season turfgrasses (bermudagrass). For crabgrass control, use 2-1/2 lb of a 1% plus 1% formulation in early March and repeat the treatment after 8 weeks in areas where goosegrass has been experienced during the past few years. Oxadiazon may be substituted for the second treatment if desired. Do not use on cool-season turfgrasses.

Bensulide + Oxadiazon (Goosegrass/Crabgrass Control): Apply 2.6 lb of 5.25 + 1.31 gran per 1000 sq ft in spring before goosegrass germination. This treatment provides preemergence crabgrass control; however, application in early spring is necessary. Goosegrass germinates a few weeks later in the season than crabgrass.

Postemergence Control of Summer Annual Grasses

DSMA, MSMA, and others (several products): Various postemergence herbicides are available for crabgrass control; however, some discoloration of the turfgrasses is expected for 2-3 weeks after each use. For best results, apply the herbicides to the infested area while crabgrass is small (less than 1-inch tall) and repeat the application 7- to 10-days later. Many formulations are available and usually contain the words "Crabgrass killer" in the trade name. The active ingredient is usually one of the following: DSMA, MSMA, DMA, MAMA, and other arsenicals. Label directions must be followed for the correct rate from the various formulations.

Dithiopyr (Dimension): Use 1 1/2 oz of a 1 lb/gal EC per 1000 sq ft for postemergence crabgrass control. The optimum timing is at crabgrass germination and before any tillering is observed. It is used on cool and warm season turfgrasses and may be mixed with MSMA or Acclaim for postemergence control of crabgrass which has begun to tiller (up to 3 tillers). It is for use by professional turf applicators (only).

Fenoxaprop (Acclaim) Use 0.34 oz of a 1 lb/gal EC for postemergence control of seedling untilled crabgrass. This herbicide may be tank mixed with preemergence herbicides for longer control periods. Acclaim may be repeated after further emergence of crabgrass. Crabgrass up to four tillers may be controlled; however, the rate required increases to 0.73 oz per 1000 sq ft. Do not use on bermudagrass turf. Avoid use on drought stressed crabgrass.

The majority of homeowners prefer the preemergence method of crabgrass and goosegrass control to prevent the unsightly discoloration of the turfgrass and browning of dying weeds. Goosegrass is controlled much better by preemergence method.

**Relative Annual Grass Control Effectiveness for Preemergence
and Postemergence Turfgrass Herbicides**

Herbicide	Crabgrass	Goosegrass	Annual bluegrass	Foxtail	Sandbur	No. of Treatments Annually
Preemergent						
Benefin	S	I	S-I	S	I	2
Bensulide	S	R	S	S	--	1-2
DCPA	S	I	I	S	I	2
Dithiopyr	S	I	S-I	S	--	1
Oryzalin	S	I	S-I	S	S-I	2
Benefin + oryzalin	S	I	S-I	S	S-I	1
Oxadiazon	S	S	S-I	S	I	1
Bensulide + oxadiazon	S	S	S	S	I	1-2
Pendimethalin	S	I	S-I	S	I	2
Proflaminate	S	I	S-I	S	--	1
Benefin + trifluralin	S	I	S-I	S	S-I	2
Siduron	S	R	R	S	--	2
Postemergent						
Dithiopyr	S	I	I-R	S	--	1
DSMA, MSMA	S	I-R	R	S	I	2-6
Fenoxaprop	S	I	I-R	S	--	2
Dithiopyr + MSMA	S	I	I-R	S	--	1
Dithiopyr + fenoxaprop	S	S-I	I-R	S	--	1

¹An S=weed susceptibility, I=intermediate tolerance, good control at times with high rates, sometimes poor, may require more treatments per year, and R=resistant in most instances, poor control usually less than 70%

²The number of treatments annually to give the listed performance rating for these weeds. Lower label rates require additional applications.

**Tolerance of Established Turfgrasses to
Weedy Annual Grass Herbicides¹**

Herbicide	Kentucky bluegrass	Bermudagrass	Tall fescue	Perennial ryegrass	Fine fescue	Zoysiagrass
Preemergent						
Benefin	T	T	T	T	S	T
Bensulide	T	T	T	T	T	T
Bensulide + oxidazon	T	T	T	T	--	T
DCPA	T	T	T	T	T	T
Dithiopyr	T	T	T	T	--	T
Oryzalin	I	T	T	I	--	T
Oxadiazon	T	T	T	T	S-I	T
Pendimethalin	T	T	T	I	T	T
Prodiamine	T	T	T	I-T	I	T
Siduron	T	I	T	I	T	T
Benefin + oryzalin	S-I	T	T	I	S	T
Benefin + trifluralin	T	T	T	I-T	I	T
Postemergent						
Dithiopyr	T	T	T	T	--	T
DSMA, MSMA	I-T	T	I-T	T	I	I-T
Fenoxaprop	T	S-T	T	I-T	T	T

¹Relative tolerance is represented by: T=tolerant I=use with caution at lower rates, intermediate or marginally tolerant, may cause injury and thinning, S=turfgrass is not sufficiently tolerant and/or not registered for use.

Control of Perennial Weedy Grasses

Dallisgrass: The labels on postemergence crabgrass killers (DSMA, MSMA) discussed above, contain instructions for dallisgrass control. Usually, the higher rate listed on the label is utilized and 3 applications at 7 day intervals are required. Remember, the turfgrass will be discolored (yellowish) for 4-6 weeks. The application is made during active growth of dallisgrass and the turfgrass. Manage the turfgrass to encourage complete cover during a short interval after removing the dallisgrass.

Orchardgrass, Quackgrass, Bermudagrass, Tall Fescue: These undesirable perennial grasses cannot be selectively controlled. For non-selective control, use glyphosate (Roundup) as directed in the labeling of the formulation. The undesirable perennial grass is allowed to grow to 4-6 inch height before treatment. At 1 week after treatment, remove the shoots of the dead grasses and reseed in the surface of the soil. The area may also be resodded if desired.

It is essential that the weedy perennial grass be in an active growth stage at the time of treatment.

Broadleaf Weed Control

The phenoxy herbicides (2,4-D and related compounds) are taken up through plant foliage and then moved throughout the plant. They are extremely active in low concentrations and care must be taken to see that they do not contact desirable ornamental and garden plants. When applied as a spray, spray drift must be prevented. Spray when the wind is not blowing, keep the sprayer pressure low (20 to 30 psi), use a nozzle that will deliver large droplets rather than a fine mist (8003 fan type, TK 2.5 flooding tip, or equivalent), and keep the nozzle as close to the ground as feasible. Hose proportioners are widely advertised for applying the pesticides. It is difficult to apply growth regulator herbicides through hose proportioners without drift of the spray to desirable plants or to obtain uniform coverage with the herbicide. Do not use a sprayer that has contained a growth regulator herbicide to spray shrubs and garden plants or injury may occur.

Several herbicides have been combined with fertilizers to facilitate application. As the 2,4-D-like materials are primarily active through the foliage, applications must be made at the time when the material will adhere. This is usually in the morning when a light dew is on the grass and weeds. Dicamba (Banvel-D) is active through the soil and taken up by the plant roots as well as through the plant foliage. Because of its soil activity, granular formulations of dicamba usually give better control of many weeds than the 2,4-D-like materials. It also controls weeds such as dock and red sorrel (sheep sorrel) that are resistant to the phenoxy herbicides. Numerous cases of injury have resulted when "weed-and-feed" formulations containing dicamba were applied in the root area of desirable ornamentals. Injury is increased by over-application in an attempt to fertilize shrubs and trees with the "weed-and-feed" materials. Movement of dicamba in the soil is influenced by soil type and rainfall. Sandy soil or heavy rainfall increase the chance of injury.

2,4-D: Some common weeds that are controlled with 2,4-D in lawns are bittercress, buttercup, wild carrot, catsear, chickory, cranesbill, dandelion, hawkweed, mustards, pennycress, broadleaf and narrow-leaf plantains, pepperweed, pony foot, shepherds' purse, sowthistle, curl thistle, musk thistle, and others. Spotted knapweed and wild garlic are controlled with some difficulty. Use 1-1/2 lbs of 2,4-D in 30-50 gals of water per acre. This would be equal to about 2 1/4 tablespoons (4 lbs per gal acid equivalent) of 2,4-D in 1 gal of water for each 1000 sq ft. Apply either in late fall or early spring when the weeds and turf are actively growing. Active growth of weeds is usually sufficient when mid-day temperatures exceed 60°. The late fall is usually preferred because there is less likelihood of injury to desirable plants from spray drift. A large number of lawn weeds are young and more susceptible in the fall. Do not apply near susceptible plants (tomatoes, grapes, roses, beans, etc.). Do not use on new turf until grass has been mowed twice. White clover will be damaged, but recovers. Spraying during hot dry periods may cause injury to the grass.

Dicamba (Banvel): Dicamba kills certain weeds that are resistant to 2,4-D. Dicamba is a good selection for knotweed, smartweed, curly dock, red sorrel, bedstraw, chickweeds, ground ivy, blackmedic, knawel, white clover, yarrow, lespedeza, prostrate and spotted spurge, purslane, henbit, and several of the weeds listed for 2,4-D. Dicamba is used at a lower rate than 2,4-D. Use 2 tsp of a 4 lb/gal Banvel formulation in 1 gal of water per 1000 sq ft. Do not apply dicamba to the root area of shallow-rooted shrubs and trees. Dicamba fails to adequately control plantains.

2,4-D and dicamba (several formulations): A tank mixture of 2,4-D and dicamba has consistently controlled a wide range of broadleaf weeds (see list under both 2,4-D and dicamba above). Several formulations are available in which the 2 herbicides are already mixed for use on turfgrasses. The ratios of 2,4-D to dicamba in the formulation mixtures are usually about 3 to 1 or 4 to 1, respectively. The total active ingredient should not exceed about 1-1/2 lb/A including 2,4-D and dicamba combined for most weeds.

Mecoprop (MCP): White clover, chickweeds, hop clover, lespedeza, and spotted spurge (seedlings) are controlled quite well with mecoprop at 1-1/2-2 lb/A (4 tbsps of 2.5 lb/gal acid-equivalent mecoprop in 1 gal of water per 1000 sq ft).

2,4-D plus mecoprop: A tank mixture or formulation containing both is more commonly used than mecoprop alone. The mecoprop has a limited spectrum of susceptible broadleaf weeds and 2,4-D is mixed with mecoprop to provide better control of a wide range of weeds. See weeds listed under 2,4-D and mecoprop for the effectiveness of the mixtures.

2,4-D plus mecoprop plus dicamba: Tank mixtures and formulations of three-way mixtures are sometimes used. These mixtures are utilized to reduce the level of dicamba needed to obtain good weed control. These are excellent formulations of broadleaf herbicides that provide a broad spectrum of weed control. In many instances, however, all three active ingredients are not required for excellent weed control. In some cases the amount of dicamba in the formulated mixtures is too low.

2,4-D plus dichlorprop (Weedone DPC): Use 1 1/8 - 1 1/2 oz of 1.85 lb/gal of each 2,4-D and dichlorprop formulation per 1000 sq ft after broadleaf weeds are growing actively. Dandelions, plantain, white clover, chickweed, henbit, and other weeds that are rosettes during winter are best controlled with fall applications. Yellow woodsorrel, a summer annual requires treatment in mid to late spring. Groundivy responds to dichlorprop but may require more than one application per year. Knotweed and spurge must be treated in spring or summer, respectively, while these weeds are in seedling stage. Use in lawns, parks, golf courses, athletic fields, and industrial turfgrass areas. Do not use on bentgrass greens or tees. May be used at 6 to 10 weeks after seeding new lawn (mow at least twice). Weedone DPC is for professional weed control by professional turfgrass maintenance personnel only.

Triclopyr (Turflon ester): Triclopyr is usually tank mixed with 2,4-D or other broadleaf herbicides to provide control of a broad spectrum of weeds. Use 0.75 oz. of a 4 lb. ai/gal formulation per 1000sq.ft. alone or 0.38 oz in tank mixtures with other broadleaf herbicides on bluegrass, tall fescue or perennial ryegrass. Do not use on other turfgrasses unless injury can be tolerated.

2,4-D plus triclopyr (Turflon D and Turflon II Amine): A broad spectrum of broadleaf weeds is controlled using 1.1 to 1.5 oz of a 2 plus 1 lb/gal formulation. For certain hard-to-kill broadleaf weeds, a second application may be made after 4 weeks (groundivy, wild violets, woodsorrel, spurge, and speedwell). Apply second application only if needed for living plant or regrowth. This formulation may be used in cool-season turfgrasses (tall fescue, bluegrass, and perennial ryegrass). Do not use on bentgrass or St. Augustinegrass unless injury can be tolerated. Turflon D and Turflon II Amine are to be used only under the direct supervision of commercial applicators responsible for turf weed control programs.

Triclopyr plus clopyralid (Confront): Use at 0.6-0.75 oz per 1000 sq ft after broadleaf weeds are actively growing. Use only on Kentucky bluegrass, tall fescue and perennial ryegrass. Confront provides control of blackmedic, white clover, henbit, catsear, common chickweed, mouseear chickweed, dandelion, Shepherds'purse, Pepperweed, musk thistle, and others. Confront is used only under direct supervision of commercial applicators responsible for turf weed control programs.

Do not apply Confront to runoff areas where water flows onto susceptible crops.

Do not apply to soils containing sinkholes over limestone bedrock or fractured surfaces.

Do not apply to sand or loamy sand soils, over shallow water table.

The availability of many formulations of the various broadleaf herbicides that vary in amount of active ingredient make it difficult to establish a general rate to apply to 1000 sq ft or to determine the proper amount of formulation to use. With a 4 lb/gal formulation, 1 qt contains 1 lb of active ingredient and a rate given in lb/A is equal to qt/A. To convert to small areas, 1 qt/A = 1-1/2 tbsp/1000 sq ft.

Conversion for Small Area Application

Rate desired	Formulation available			Formulation available		
	1 lb/gal	2 lb/gal Quarts/Acre	4 lb/gal	1 lb/gal	2 lb/gal Tablespoons/1000 sq ft	4 lb/gal
1/3 lb/A	1-1/2	3/4	3/8	2-1/4	1-1/8	9/16
1/2 lb/A	2	1	1/2	3	1-1/2	3/4
1 lb/A	4	2	1	6	3	1-1/2
1-1/2 lb/A	6	3	1-1/2	9	4-1/2	2-1/4
2 lb/A	8	4	2	12	6	3

The relative effectiveness of commonly used herbicides for selected weeds is listed in the following table, using S = weed susceptible; I = intermediate, good control at times with high rates, sometimes poor, may require more than one treatment; R = resistant weed in most instances; A = annual; SA = summer Annual; WA = winter annual; B = biannual; and P = perennial. Weeds which are intermediate in response should be given repeat treatment rather than increasing the rate of a single application. It may sometimes be desirable to treat at times other than those listed. When it is necessary, make sure that good growing conditions prevail and contact with desirable plants is prevented. Combination products may be more effective than individual chemicals on a particular weed.

Broadleaf Weed Control

in Bluegrass, Tall Fescue, Perennial Ryegrass, and Common Bermudagrass
(Use caution when applying triclopyr or clopyralid to bermudagrass-see label restrictions)

Weed	Classification	Response to Herbicides (lb/A)								Preferred Time to Treat
		2, 4-D 1.5- 2.0	Dicamba 0.33-0.5	2, 4-D+ Mecoprop 1+1	2, 4-D + Mecoprop +Dicamba	2, 4-D + Dicamba 1.0+0.33	2, 4-D + Dichlorprop 1.25+1.25	2,4-D + Triclopyr 1.0+0.5	Triclopyr + Clopyralid 0.56+0.19	
BEDSTRAW	A	I-R	S	I	I-R	S	--	--	--	April & May
BINDWEED	P	S	S	S-I	S	S	S	S	--	May & June
BITTERCRESS	WA or B	S	S	S	S	S	S	S	--	Oct & Nov
BLACKMEDIC	A, B, & P	R	S	I	S	S	S	S	S	April & May
BUTTERCUP	WA, B, & P	S-I	I	S	S	S	S	I	S	Oct & Nov
BUTTONWEED										
Virginia	P	R	R	R	I-R	I	I	I	I	May & repeat
CARPETWEED	SA	S	S	S	S	S	S	S	--	May & June
CAT'S EAR										
(False Dandelion)	P	S-I	S	S	S	S	S	S	S	Oct & Nov
CHICKWEED										
Common	WA	R	S	S	S	S	S	S	S	Oct & Nov
Mouseear	P	I-R	S	S-I	S	S	S	S	S-I	Oct & Nov
CHICORY	P	S	S	S	S	S	S	S	--	Oct & Nov
CINQUEFOIL										
Common	A	S	S	S	S	S	S	S	--	May & June
CLOVER										
Crimson	SA	S	S	S	S	S	S	S	S	May & June
Hop	SA	I	S	S	S	S	S	S	S	April & May
White	P	I	S	S	S	S	S	S	S	Oct & Nov
DAISY										
Oxeye	P	I	I	I	I	I	I	I	--	Oct & Nov or May
DANDELION	P	S	S	S	S	S	S	S	S-I	Oct & Nov
DOCK	P	I	S	I	I	S	I	I	I	Feb - April
DOGFENNEL	P	R	S	I-R	I-R	S	I	I	S-I	Oct & Nov or April
GARLIC										
Wild	P	I	I	I	I	S-I	I	--	--	Oct - Nov. & Feb - March

Broadleaf Weed Control
in Bluegrass, Tall Fescue, Perennial Ryegrass, and Common Bermudagrass
 (Use caution when applying triclopyr or clopyralid to bermudagrass-see label restrictions)

Weed	Classification	Response to Herbicides (lb/A)								Preferred Time to Treat
		2, 4-D 1.5-2.0	Dicamba 0.33-0.5	2, 4-D+ Mecoprop 1+1	2, 4-D + Mecoprop +Dicamba	2, 4-D + Dicamba 1.0+0.33	2, 4-D + Dichlorprop 1.25+1.25	2,4-D + Triclopyr 1.0+0.5	Triclopyr + Clopyralid 0.56+0.19	
GERANIMUM										
Carolina	WA	S	S	S	S	S	S	S	--	April - May
HENBIT	WA	I	S	I	S-I	S	S	S	S	Oct & Nov
HONEYSUCKLE	P	S-I	S	S-I	S	S	S	S	--	May & June
HORSENETTLE	P	I-R	I	I-R	I-R	I	I	I	--	May & June
HORSEWEED	WA,SA	I	S	S-I	S-I	S	--	--	S	Oct or May
KNAPWEED										
Spotted	B	I	S	I	I	S	I	S	--	Oct & Nov
KNAWEL										
(German Moss)	WA	R	S	I	I	S	S	S-I	--	Oct & Nov
KNOTWEED	SA	R	S	I	I	S	I	--	--	March - April
LAMBSQUARTE RS	SA	S	S	S	S	S	S	S	S	April & May
LESPEDEZA	SA	I-R	S	S-I	S	S	S	S	I	April & May
MALLOW										
Common	SA	I-R	S-I	I	I	S-I	S-I	--	S-I	April & May
MUGWORT	P	I-R	S-I	I-R	I-R	S-I	I	--	--	March
MUSTARDS	WA & B	S	S	I	S-I	S	S	--	--	Oct & Nov
ONION										
Wild	P	I	I	I	I	S-I	I	--	--	Oct - Nov & Feb - March
ORNAMENTAL PLANTS	P	S-I	S	S-I	S-I	S	S	S	--	Most likely to injure April to June
OXALIS	A,P	I-R	R	I-R	I-R	I	S	I	I-R	April - May
PENNYCRESS	A	S	S	S	S	S	--	--	--	Oct & Nov
PEPPERWEED	WA or B	S	S	S	S	S	S	--	S-I	Oct & Nov
PIGWEED	SA	S	S	S	S	S	S	S	--	April & May
PLANTAINS	P	S	I-R	S	S	S	S	S	S-I	Oct & Nov
POISON IVY	P	I	S-I	I	I	S-I	I	S-I	I	June
PONY FOOT	P	S	S-I	S-I	S-I	S	--	--	--	Oct & Nov
POORJOE (Diodia)	A	S-I	--	S-I	S-I	S	--	--	--	May & June
PROSTRATE SPURGE	SA	I	S	I	S-I	S	S-I	S-I	I	April - May
PURSLANE	SA	I	S	I	I	S	I	S-I	--	May & June
RED SORREL	P	R	S	I	I	S	I	S-I	S-I	Oct & Nov

Broadleaf Weed Control
in Bluegrass, Tall Fescue, Perennial Ryegrass, and Common Bermudagrass
 (Use caution when applying triclopyr or clopyralid to bermudagrass-see label restrictions)

Response to Herbicides
(lb/A)

Weed	Classification	2, 4-D 1.5-2.0	Dicamba 0.33-0.5	2, 4-D+ Mecoprop 1+1	2, 4-D + Mecoprop +Dicamba	2, 4-D + Dicamba 1.0+0.33	2, 4-D + Dichlorprop 1.25+1.25	2,4-D + Triclopyr 1.0+0.5	Triclopyr + Clopyralid 0.56+0.19	Preferred Time to Treat
SHEPHERDS' PURSE	WA	S	S	S	S	S	S	S	S-I	Oct & Nov
SMARTWEED	SA	I-R	S	I-R	I	S	I	I	I	April & May
SOWTHISTLE	WA	S	S	S	S	S	S	S	--	Oct & Nov
SPEEDWELL Corn	SA or WA	R	R	R	R	I-R	I	I	I	April
SPOTTED SPURGE	SA	I-R	S-I	S-I	S-I	S-I	S-I	S-I	I	May & June
Bull	B	S-I	S	S-I	S-I	S	S-I	S-I	--	Oct & Nov
Canada	P	I	I	I-R	I	S-I	I	I	I	Oct & Nov
Curl	B or P	S	S	S	S	S	S	WA S	--	April
Musk	B	S	S	S	S	S	S	S	I	April
VEGETABLES	A	S	S	S	S	S	S	S	S	Most likely to injure April to June
VIOLET	P	I-R	I	I-R	I-R	I	I	I	I	April
WILD CARROT	B	S	S	S	S	S	S	S	I	Oct & Nov
WILD STRAWBERRY	P	R	S-I	R	I-R	S-I	I	I	--	Oct & Nov
YARROW	P	I	S	I	I	S	I	I	--	Oct & Nov
YELLOW ROCKET	B or P	S-I	S-I	S-I	S-I	S	S	S	--	Oct & Nov
YELLOW WOODSORREL	A	R	R	I-R	I	I	S	I	I-R	April & May

**Tolerance of Established Turfgrasses to Postemergence
Broadleaf Herbicides¹**

Herbicide	Kentucky bluegrass	Tall fescue	Perennial ryegrass	Fine fescue	Bermudagrass	Zoysiagrass
2,4-D	T	T	T	T	T	T
Dicamba	T	T	T	T	T	T
Mecoprop	T	T	T	T	T	T
Triclopyr	T	T	I-T	I	S	S
2,4-D + dicamba	T	T	I-T	T	T	T
2,4-D + dichlorprop	T	T	I-T	T	T	S-I
2,4-D + mecoprop	T	T	I-T	T	T	T
2,4-D + triclopyr	T	T	I-T	I	S	S
2,4-D + mecoprop + dicamba	T	T	I-T	T	T	T
2,4-D + dichlorprop + dicamba	T	T	I	I-T	I	S-I
2,4-D + dichlorprop + mecoprop	T	T	I-T	T	T	I-T
MCPA + mecoprop + dicamba	T	T	I-T	T	T	I
MCPA + mecoprop + dichlorprop	T	T	I-T	T	T	S-I
Triclopyr + clopyralid	T	T	I-T	I	S-I	S-I

¹Relative tolerance is represented by: T=tolerant, I=use with caution at lower rates, intermediate or marginally tolerant, may cause injury and thinning, S=turfgrass is not sufficiently tolerant and/or not registered for use

Zoysiagrass

Crabgrass and Goosegrass Control

Zoysiagrass is utilized in Eastern Virginia for lawns to some degree and herbicides suggested for control of annual grasses in established zoysiagrass turfgrass included: benefin, bensulide, oxadiazon, prodiamine, and siduron. Oxadiazon is particularly a good choice where goosegrass is part of the problem. See previous sections for rates and timing of applications. DSMA and MSMA may also be used for postemergence crabgrass control in zoysiagrass turfgrass. Oxadiazon is not used on home lawns.

Broadleaf Weed Control

MCPP and 2,4-D or Triclopyr+Clopyralid (Confront) are utilized for control of many broadleaf weeds in zoysiagrass turfgrass. Apply triclopyr+clopyralid to Zoysiagrass that is healthy and well established. Read label directions for inclusion of this turfgrass. In many instances, labels will indicate established turfgrasses and will have a list of turfgrasses excluded from label use. In most cases, zoysiagrass turfgrass is not listed as an exclusion. On some labels, tolerant turfgrasses are listed and formulations for use on zoysiagrass can be specifically selected.