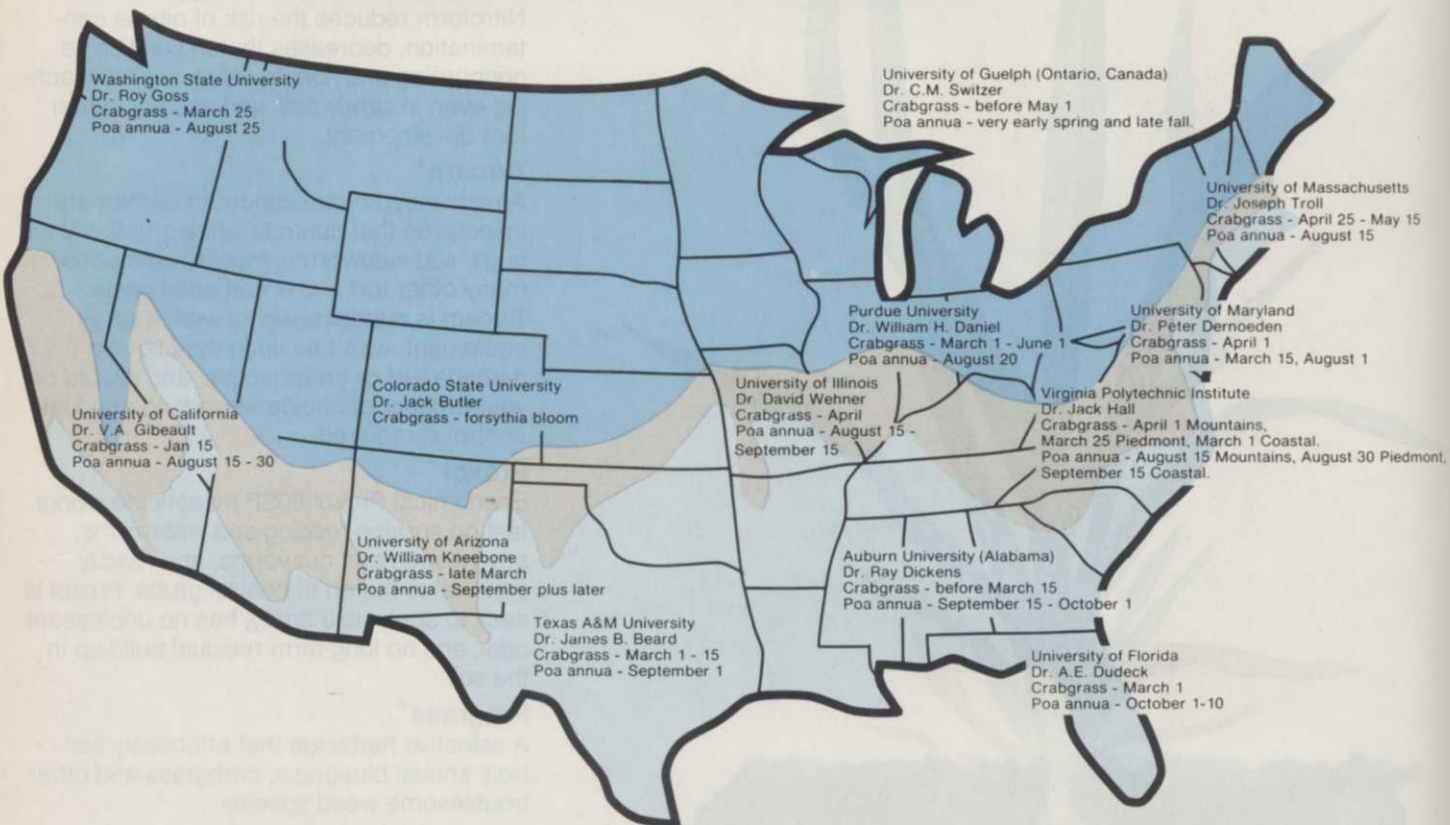


Suggested timing for preemergence herbicides to control crabgrass and annual bluegrass



Bermudagrass is the dominant turf species in warmer climates. In general, herbicides that can be used on bermudagrass can be used safely on zoysiagrass.

However, special attention should be paid to herbicide labels regarding applications to centipedegrass and St. Augustine, which are similar to each other in their tolerance to herbicides.

Summer grass weeds: Large crabgrass and dallisgrass invade more turf acreage in the southern U.S. than any other grasses. Germinating seeds of both can be satisfactorily controlled with benefin, bensulide, DCPA, oryzalin, pendimethalin, atrazine, and simazine.

Certain formulations of atrazine are labelled for use on St. Augustine, zoysia, and centipede for sod production while other commercial products containing atrazine are labeled for homeowner use. A combination of acetamide (Dual) and either atrazine or simazine is currently being tested for effectiveness.

Only asulam is used for post-emergence control of crabgrass and dallisgrass in St. Augustine. MSMA and DSMA are effective post-emergence herbicides for these weeds in

bermudagrass. The arsonates MSMA and DSMA are used almost exclusively in bermuda and zoysia turfs.

Goosegrass is the most difficult summer grass to control in the South.

Timing of application of pre-emergence herbicides is of paramount importance if control is to be achieved.

We generally think goosegrass starts germinating in significant quantities four to six weeks after crabgrass. However, this may vary. In the lower South, the two species may well germinate simultaneously.

If application of a pre-emergent herbicide is delayed, large crabgrass may escape because it germinates earlier than goosegrass. In bermudagrass and zoysia, large crabgrass can be controlled quite effectively with post-emergence applications of the arsonates.

Pre-emergence herbicides would appear to be a better approach to goosegrass control than post-emergence control with arsonates.

Oxadiazon (Ronstar) and oryzalin (Surflan) give excellent, season-long control of goosegrass. Research has shown post-emergence applications of MSMA plus metribuzin (Sencor) gives good control of goosegrass.

Sandbur and bahiagrass in bermuda and zoysia can be controlled with arsonates.

Research results over the past few years have shown that bahiagrass can be selectively controlled in established centipedegrass with sulfometuron or metsulfuron, but neither material is currently labelled for this use.

At present, there is no selective control of torpedograss in southern turf.

Both annual and perennial sedges are problems in the South. Purple nutsedge and, to a lesser degree, yellow nutsedge are the most severe problems.

Multiple applications of arsonates or an arsonate/phenoxo combination are generally recommended for purple nutsedge, only on bermuda or zoysia. Basagran can be used for control of yellow nutsedge and several annual species.

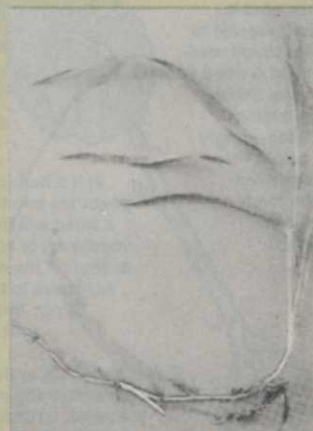
Summer broadleaf weeds are a problem throughout Southern turf but not to the extent of the grassy weeds, such as dallisgrass, large crabgrass, and goosegrass.

Prostrate spurge and Virginia buttonweed, along with yellow woodsor-

GRASSY WEEDS



Wild garlic



Quackgrass



Common yellow woodsorrel



Goosegrass



Crabgrass



Yellow nutsedge



Dallisgrass



Annual bluegrass

rel, are important and difficult-to-control broadleaf weeds.

Multiple applications of 2,4-D plus dicamba, Trimec, or Trex-San are almost always necessary. Researchers suggest the use of a non-ionic surfactant with the herbicide.

Winter grass weeds: Annual bluegrass is by far the most severe grassy weed infesting southern turf during the late fall, through the dormancy period, and into the early spring.

Annual bluegrass decreases the aesthetic value of turf and interferes with warm-season turfs in late spring.

Coverage is usually slow following fade out of annual bluegrass, leaving large sections of bare ground exposed.

Other weeds, such as goosegrass, tend to move into bare areas.

Annual bluegrass control with pre-emergence herbicides is usually accomplished with either benefin, bensulide, DCPA, oryzalin, pendimethalin, pronamide, simazine, or oxadiazon.

Two applications may be necessary during the dormant season for acceptable control, except with pronamide, oryzalin, or simazine, all of which provide pre-emergence and post-emergence control of annual bluegrass in bermudagrass.

There are three choices for annual bluegrass control on bermudagrass greens overseeded with perennial

ryegrass.

Bensulide may be applied prior to overseeding as a pre-emergence approach. Ethofumesate may be applied 15 to 30 days after overseeding. Check label for timing to avoid delaying spring transition back to bermudagrass.

Fenarimol, a fungicide, applied two weeks prior to overseeding, controls several turf diseases in addition to controlling annual bluegrass.

Another approach employed particularly on golf courses, is to use a post-emergence, non-selective herbicide such as paraquat, glyphosate, or cacocyclic acid prior to the warm-season turf breaking dormancy. This

Herbicide Directory

Herbicide	Brand Name(s)	Company	Uses
bromacil	Hyvar	DuPont	Nonselective control of weeds and grasses in non-crop areas. Usually mixed with diuron for roadsides and rights-of-way.
bromoxynil	Brominal Buctril	Union Carbide Rhône Poulenc	Postemergence control of broadleaf weeds in seedling turf, established turf and non-crop areas.
cacodylic acid	Phytar Rad-E-Cate	Vertac Vineland	Nonselective control for turf renovation, edging and in plant beds.
chloramben	Amiben	Union Carbide	Preemergence control in ornamentals.
chlorthalendrol	Maintain	Uniroyal	Growth regulator. Also controls broadleaf weeds and vines.
copper	Cutrine-Plus	Applied Biochemists	Control algae, chara and hydrilla in potable water.
dalapon	Dalapon 85 Dowpon M	SDS Biotech 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.

usually does an excellent job on annual bluegrass and annual broadleaf weeds.

Injury is often encountered if bermudagrass is breaking dormancy at the time of application. The degree of injury is dependent upon the herbicide used and the amount of green foliage at the time of application.

Winter broadleaf weeds: Important winter broadleaf weeds include common chickweed, henbit, clovers, spurweed, mouse-ear chickweed, lawn burweed, common dandelion, wild onion, wild garlic, plantains, and speedwells.

Pre-emergence control of some species can be obtained with benefin, bensulide, DCPA, pendimethalin, simazine, and other herbicides.

PROSTRATE AND SPOTTED SPURGE CONTROL

BENEFIN—*POOR*
BENSULIDE—*POOR*
DCPA—*EXCELLENT*
OXADIAZON—*VARIABLE*
PENDIMETHALIN—*EXCELLENT*
SIDURON—*VARIABLE*

Herbicide	Brand Name(s)	Company	Uses
amitrole	Amitrole-T	Union Carbide	Non-selective grass and broadleaf control in non-crop areas including ditches, roadsides, industrial areas & marshes.
ammonium sulphamate	Ammate	DuPont	Non-selective rights of way herbicide
asulam	Asulox	Rhône Poulenc	Postemergence grassy weed control for turf and ornamentals
atrazine	Aatrex	Ciba Geigy	Non-selective control in non-crop areas.
benefin	Balan	Elanco	Preemergence control of annual grasses and broadleaf weeds in established turf.
bensulide	Betasan Pre-San Lescosan Betamec-4	Stauffer Mallinckrodt Lesco PBI Gordon	Preemergence control of annual grasses and broadleaf weeds in established turf and established flower gardens. Safe near tulip and daffodil bulbs.
bentazon	Basagran	BASF	Selective postemergence control of nutsedge in warm-season turf.

Henbit, chickweed, and clovers usually require something other than 2,4-D for post-emergence control. In dormant bermudagrass and zoysiagrass, dicamba or combinations with dicamba are used often for post-emergence control.

The phenoxy herbicides are safe on completely dormant turfs. However, actively growing turfs vary considerably in tolerance to phenoxy materials.

St. Augustine will usually tolerate 0.5 lbs./acre of 2,4-D with only minimal injury. At rates above that, St. Augustine is usually injured.

This may be unimportant when using phenoxy herbicides on dormant warm-season turfs, but invariably application is made during spring transition. All turfgrasses are more susceptible to phenoxy injury during this transition period.

The combination of mecoprop plus chlorthalendrol is often used, especially by the homeowner on St. Augustine.

Several experimental herbicides show promise for control of wild garlic and numerous winter broadleaf weeds. Single applications of imazaquin, sulfometuron, and metsulfuron have provided control of wild garlic equal to that obtained from multiple applications of phenoxy herbicides. **WT&T**