

Build cool-season weed strategy on healthy turf

Turfgrass that is established and maintained properly is turfgrass that won't provide an opportunity for weeds to muscle their way in and spread.

By FRANK S. ROSSI, Ph.D.
Cornell University

The coexistence of turfgrass and weeds is the basis of the age-old tip for controlling weeds in turf: maintain a healthy, dense stand of turf that prohibits weeds from establishing.

This is based on two important ecological concepts—space and competition. Therefore, the foundation of a turfgrass weed management program must be to implement management programs that favor the competitive advantage of turf, while minimizing bare areas where weeds can invade.

These ecological principles will always work in your favor as a turf manager if the proper decisions are made during turfgrass

establishment regarding site preparation, soil modification, turf selection and establishment procedure.

The primary cultural practices of mowing, watering and fertilizing should also focus on maximizing root growth. A healthy root system will always make turf more forgiving of environmental, biological and traffic stress. For example, maintaining a higher than usual height of cut (3" or greater) will promote deep rooting and shade the soil surface. Irrigating judiciously will encourage weed seed germination. Finally, fertilizing cool-season turf in the fall will maximize energy production under cooler temperatures. Still, if turf

PREEMERGENCE HERBICIDE EFFICACY RATINGS

Herbicide	Crabgrass	Goosegrass	Annual bluegrass	Common chickweed	Henbit	Lawn burweed	Corn speedwell
atrazine (Aatrex)	F ¹	P	E	E	E	E	E
benefin (Balan)	G-E	F	G-E	G	G	P	E
benefin+oryzalin (XL)	E	G	E	L	L	—	—
benefin+trifluralin (Team)	E	G	E	L	L	—	—
bensulide (Betasan, PreSan)	G-E	F	F	P	P	P	P
bensulide+oxadiazon	E	G-E	—	—	—	—	—
DCPA (Dacthal)	G-E	F	G	E	F	P	G
dithiopyr (Dimension)	E	G-E	G-E	G	—	—	—
fenarimol (Rubigan)	P	P	G	P	P	P	P
isoxaben (Gallery)	F	P	F	E	L	—	—
metolachlor (Pennant)	G	F	—	—	—	—	—
napropamide (Devrinol)	G-E	G	G	E	P	E	E
oryzalin (Surflan)	E	G-E	E	L	L	—	P
oxadiazon (Ronstar)	G	E	G	P	P	P	G
pendimethalin (Pre-M)	E	G-E	G-E	E	L	—	E
proflaminate (Barricade)	E	G-E	G	G	G	G	G
pronamide (Kerb)	F	P	G-E	E	P	P	E
simazine (Princep T&O)	F	P	E	E	E	E	E

¹E=Excellent, >89% control; G=Good, 80 to 89% control; F=Fair, 70 to 79% control; P=Poor, <70% control; L=Listed on the label; — = Data not available.

These are relative ratings and depend on many factors such as environmental conditions, turfgrass vigor or health, application timing, etc., and are intended only as a guide.

SUSCEPTIBILITY OF WINTER BROADLEAF WEEDS TO TURF HERBICIDES

Weed	Atrazine/ Simazine	2,4-D	Mecoprop (or MCPP)	Dicamba	2,4-D + MCPP	2,4-D + 2,4-DP	2,4-D + MCPP + dicamba	2,4-D + triclopyr	Triclopyr + clopypalid
Betony, Florida	E-F ¹	F	F	F-E	F	F	F-E	—	—
Black Medic	—	P	F	E	F	E	E	—	E
Buttonweed, Va.	—	E-F	F	F	F	E-F	E-F	F-P	—
Chamberbitter	E	—	—	—	—	—	—	—	—
Chickweed	F	F-P	E-F	E	E	E	E	E-F	E
Clover, hop	E	F	E	E	E	E	E	E	E
Clover, white	E	F	E	E	E	E	E	E-F	E
Daisy, English	—	P	F	E	F	F	E	—	—
Daisy, oxeye	—	F	F	F	F	F	E-F	—	—
Dandelion	E-F	E	E	E	E	E	E	F-E	—
Dock, broadleaf & curly	F	F	F-P	E	F	F	E-F	F	E
Garlic, wild	—	E-F	P	E-F	E-F	E-F	E-F	—	—
Geranium, Carolina	—	E	E-F	E	E	E	E	—	—
Henbit	E	F-P	F	E	F	E-F	E	E	—
Ivy, ground	—	F-P	F	E-F	F	F-E	E-F	—	—
Parsley-piert	E	P	E-F	E-F	E-F	P	E-F	E	—
Pearlwort	—	E-F	E-F	—	E-F	E-F	E-F	—	—
Pennywort (dollarweed)	E	E-F	E-F	E-F	E-F	E-F	E-F	—	—
Pepperweed	—	E	E-F	E	E-F	E	E	—	—
Plantains	F-P	E	F-P	P	E	E	E	F-P	E
Shepherd's-purse	—	E	E-F	E	E-F	E-F	E	—	—
Speedwell, corn	E	F-P	F-P	F-P	F-P	F-P	F-P	—	—
Spurweed (lawn burweed)	E-F	F	E-F	E	E-F	F	E	E	E
Strawberry, Indian mock	—	P	F	E-F	F	P	E-F	—	—
Thistles	—	E-F	F	E	E-F	E-F	E	—	—
Vetch, common	—	G	G	G	G	G	G	G	G
Violets	—	F-P	F-P	E-F	F-P	F	F-P	F-P	E-F
Woodsorrel, yellow	F	P	P	F	F-P	F-P	F-P	—	E-F
Yarrow	—	F	F-P	E	F-P	F	E-F	—	—

¹ E = excellent (>89%) control; F = Fair to good (70 to 89%); G = good control sometimes with high rates, however a repeat treatment 1 to 3 weeks later each at the standard or reduced rate is usually more effective; P = poor (<70%) control in most cases. Not all weeds have been tested for susceptibility to each herbicide listed.

These are relative rankings and depend on many factors such as environmental conditions, turfgrass vigor or health, application timing, etc., and are intended only as a guide.

density is low in spring, a fertilization will be needed to increase density (to fill the space with turf).

Characterize your weed management.

Map and monitor weed populations (as well as turf species). This provides insight into the response of the turf and the weeds to different environmental conditions and management programs. For example, you may have decided to change a fertilizer program to a more water soluble source and notice from your mapping new

patches of annual bluegrass. Following a dry year, you may notice more clover. Over time this information can assist with weed management programs.

Establish weed thresholds. As you might imagine, establishing thresholds can be subjective. Do you evaluate the visual quality from a distance, or by standing over the turf? What season do you determine threshold? Is there any tolerance for weed invasion or must the turf be 100% weed free? The same questions arise for func-

tional quality. How many dandelions or prostrate knotweed plants can you have in a soccer field before the game is affected? How much clover is tolerated in a golf course rough area before you hear complaints of playability? How many crabgrass or broadleaf plantain plants can a lawn tolerate before soil movement is increased?

Viewing weed management from this perspective will challenge the turf manager to communicate with their clientele to assist in establishing thresholds. **LM**

Integrated plan needed for warm-season weeds

Winter broadleaf weeds are an opportunity or a headache for the turfgrass manager. If control is late, customers should expect multiple applications and slow results.

By BERT McCARTY, Ph. D.
Clemson University

For the professional turfgrass manager, late winter and early spring often rings in the new season with a deluge of irate customers calling about winter weeds.

By their nature, winter weeds usually do not die until hot temperatures of early summer. Until then, these weeds are an eyesore for homeowners and because of their maturity are difficult to control for the professional turfgrass manager.

Usually, multiple applications are required to control these, which really drive up labor costs. One also needs to be for-

mulating and applying a strategy for pre-emergence crabgrass control at this time.

Have a program

Weed management is an integrated process involving intelligent selection and use of herbicides and good cultural practices.

Start with proper identification. Often, turfgrass managers are forced to identify weeds on the basis of the vegetative structures, such as ligules, leaves and stems. An excellent weed identification guide is *Weeds of Southern Turfgrasses*, a publication available through Clemson University for \$8.00 per copy. Call 864/656-3261 for ordering information. Check also with Cooperative Extension Services in Georgia, Alabama and Florida.

Winter weeds germinate in late summer through early fall when daytime temperatures consistently drop in the 70s. They grow throughout the winter, and flower or produce seedheads during late winter and early spring. Winter weeds are sneaky in that they blend with the turf in the fall and early winter months and do not become noticeable until late winter, when growth spurts, along with seedheads and flowers, producing a ragged appearing turf.

Scouting for success

To control the weeds, you've first got to identify them by scouting. This will give you valuable information about where the weeds are so you can make informed decisions. Break the service area into logical sections or units and determine which weeds are present and at what level. Because of visibility, start in the front lawn, then go to the side yards and finally the back yard section. Section golf courses into tees, fairways, greens and roughs for each hole. Roughs receive least attention for weed

WINTER WEED MANAGEMENT SCHEDULE FOR WARM SEASON TURFGRASSES

LATE SUMMER

To build root carbohydrates, apply winterizing fertilizer which supplies adequate potassium and mow at the upper recommended mowing height. Apply preemergence herbicides for annual bluegrass if scouting the previous spring warrants it. Scout and map areas with crabgrass to pinpoint herbicide needs for the following spring.

EARLY/MID FALL

If needed, apply postemergence herbicides for annual bluegrass control.

MID FALL

If needed, apply postemergence herbicides for broadleaf weed control.

EARLY WINTER

Reapply postemergence herbicides for broadleaf weeds and annual bluegrass, if necessary.

WINTER

Calibrate and repair sprayers. Evaluate the previous year's weed control strategies. Plan for the upcoming year's strategy.

LATE WINTER

Apply preemergence herbicides for crabgrass control. Apply postemergence herbicides for broadleaf weed control for new customers.

EARLY SPRING

Apply preemergence herbicides for goosegrass control. Repeat broadleaf weed control application, if necessary, for new customers. Follow-up scouting for remaining winter weeds for formulating the upcoming fall control strategies.

SUMMER

Maintain optimum fertility, watering and mowing height and frequency to encourage healthy, thick turf stands which helps discourage weeds and other pests.

**ESTABLISHED SOUTHERN TURFGRASS TOLERANCE TO POSTEMERGENCE HERBICIDES
(REFER TO HERBICIDE LABEL FOR SPECIFIC SPECIES LISTING)**

Herbicide	Bahiagrass	Bermuda-grass	Carpetgrass	Centipede-grass	St. Augustine-grass	Zoysiagrass	Overseeded Ryegrass	Tall Fescue
<i>Broadleaf Weeds</i>								
atrazine (Aatrex)	NR ¹	I-NR	I ³	S-I	S-I	I	NR	NR
bentazon (Basagran)	S	S	S	S	S	S	S-I	S
bromoxynil (Buctril)	S	S	S	S	S	S	S	S
2,4-D	S	S	I	I	I-NR	S	S-I	S
2,4-D+dicamba	S	S	I	I	I-NR	S	S-I	S
2,4-D+2,4-DP	S	S	I	I	I-NR	S	I-NR	S
2,4-D+MCP	S	S	I	I	I-NR	S	I-NR	S
2,4-D+MCP+dicamba	S	S	I	I	I-NR	S	I-NR	S
2,4-D+MCP+2,4-DP	S	S	I	I	I-NR	S	I-NR	S
dicamba (Vanquish)	S	S	I	I	I-NR	S	I	S
MCPA+MCP+2,4-DP	S	S	I	I	I-NR	I	I-NR	S
MCP	S	S	I	I	I-NR	S	I	S
imazaquin (Image)	NR	I-S	I	NR	S	S	NR	NR
simazine (Princep T&O)	NR	I-NR	I	S-I	S-I	I	NR	NR
<i>Grass Weed Control</i>								
asulam (Asulox)	NR	S-I ²	NR	NR	S-I	NR	NR	NR
diclofop (Illoxan)	NR	S	NR	NR	NR	NR	NR	NR
DSMA, MSMA	NR	S	NR	NR	NR	I	NR	I
fenoxaprop (Acclaim)	I-NR	I-NR	NR	NR	NR	I	I	NR
metribuzin (Sencor)	NR	S-I	NR	NR	NR	NR	NR	NR
pronamide (Kerb)	NR	S	NR	NR	NR	NR	NR	NR
sethoxydim (Vantage)	NR	NR	NR	S	NR	NR	NR	NR

¹S=Safe at labeled rates; I=Intermediate safety, use at reduced rates; NR=Not Registered for use on and/or damages this turfgrass.

²Asulam is labeled for 'Tifway' (419) Bermudagrass and St. Augustinegrass.

³Carpetgrass tolerance to herbicides listed has not fully been explored.

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control while greens and tees receive the most. Weed cover patterns can be as elaborate as estimating the percent weed cover for each unit or, more realistically, just labeling areas as widespread, spotty or in a single patch. The owner or manager of the turf site will probably determine how many weeds will be tolerated.

Begin scouting for winter weeds in early fall (September/October) with a follow-up in early spring (March/April). The fall scouting allows early detection.

Herbicide Selection and Use

Preemergence herbicides are applied

prior to weed seed germination and prevent development of the germinating seed. They should be activated by rainfall or irrigation after application.

Postemergence herbicides generally are effective only on visible weeds. Young (two to four-leaf stage) and actively growing weeds are the most susceptible and require least amount of herbicide. At this stage, herbicide uptake and translocation are favored and weeds have less developed, more tender root systems. Waiting later results in poorer translocation of applied materials in plants, more difficulty controlling

mature plants and possible setback of turf during green-up.

Postemergence herbicides should only be used when weeds are actively growing. This primarily occurs with temperatures between 40° and 80°F. Applications outside this temperature range are either too slow to be effective or result in excessive turf damage. **LM**