

Weed control guide:

allows you to reduce their individual single use rates through a synergistic action. Double and triple combinations of these materials provide effective control for almost any broadleaf species found in turf. Likewise, the materials are formulated either as esters or amine based compounds, to provide more control or a higher level of turf safety (Table 1).

Two particular materials, triclopyr and clopyralid, are broad-spectrum post-emergence herbicides that can be targeted toward a wide range of weeds in many turfs. Triclopyr is often formulated by itself or in combinations with 2,4-D to broaden its effectiveness across a wider group of weeds. Confront is a combination of both triclopyr and clopyralid, which is particularly effective with many tough-to-control broadleaf weeds, such as wild violets and creeping charlie.

Several additional materials are available for a smaller group of weeds or for special uses. Bromoxynil will not injure seedling turfgrasses and is often used as the initial material for cleaning up newly-seeded turf. Several materials such as Basagran, Vantage and DCPA are targeted toward a small group of species. Manage and Basagran can be used effectively for controlling yellow and purple nutsedge.

Grassy weeds

For grassy weeds, particularly annual grasses, several products are available for se-

lective control. Additionally, non-selective herbicides can be used for spot control of both annual and perennial weeds.

Ethofumesate, fenoxaprop and dithiopyr can all be used to control annual grasses after they have emerged. Each material has its own unique spectrum of species it is effective on. In general, each of these herbicides is most effective when applied to young grass seedlings. As with the broadleaf herbicides, the grass seedlings should be actively growing under good conditions.

Non-selective herbicides

For tough-to-control weeds or perennial grasses, non-selective materials such as Roundup Pro or Finale can be used effectively. These products will remove both the unwanted weeds and any underlying turf. They should be made only during periods of the year when the weeds are actively growing and ample opportunity is available for renovating or re-establishing the turf. □

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DOWN SOUTH, control product tolerance a key

Proper turf nutrition and soil moisture will help you achieve maximum product efficacy.

by TIM R. MURPHY, Ph.D. / University of Georgia

Properly-maintained warm-season turfgrass is a good defense against strong weed competition.

Using correct fertility programs; following water requirements, mowing heights and schedules; and proper insect and disease control products all increase turfgrass vigor. They also improve the tolerance of warm-season turfgrasses to herbicides, and increase a weed control program's effectiveness.

Using herbicides without proper turfgrass management practices may control problem weeds, but will not produce high-quality turf.

Turfgrass managers in warm-season climates have a wide array of pre-emergence herbicides that can be used to control weeds. (See table on page 46.)

Tolerance factors

The single most important factor in selecting a herbicide is the tolerance of the turfgrass to the herbicide. Generally, most pre-emergence herbicides can be used on all established

warm-season turfgrasses. There are exceptions. Ronstar is not labeled for use on centipede-grass or home lawns.

There is a dramatic difference in the tolerance of warm-season turfgrass species to post-emergence herbicides. Bermudagrass has good tolerance to MSMA and DSMA; however, carpetgrass, centipede-grass and St. Augustine-grass are severely injured by these herbicides.

Cultivars within a species may also respond differently to the same herbicide.

Post-emergence herbicides should be avoided when turfgrasses and weeds are stressed due to high air temperatures or drought. The tolerance of warm-season turfgrasses to post-emergence herbicides decreases at air temperatures greater than 90 degrees F., when turfgrasses are drought-stressed or when turfgrasses are growing under high soil moisture and high humidity.

Herbicides that contain 2,4-D, mecoprop, dichlorprop, imazaquin, MSMA and DSMA

should not be applied at high air temperatures greater than 90 degrees F. because there is an increased risk of unacceptable turfgrass injury. Always follow the most restrictive warning that is shown on the label.

Application frequency

For some herbicides, particularly post-emergence products, a repeat application is necessary. For example, two applications of MSMA, at a 7- to 10-day interval, are needed to control crabgrass in bermudagrass.

In contrast, one application of Vantage will usually control crabgrass in centipedegrass. Pre-emergence herbicides may be applied either as full rate single applications, or as sequential repeated applications. With the sequential application program, one-half the maximum labeled rate is initially applied, with the remaining half applied 60 days later. With most pre-emergence herbicides, sequential applications tend to improve crabgrass and goosegrass control over the control achieved with a single application.

Application timing

Most pre-emergence herbicides control susceptible weeds during germination of weed seeds. Additionally, most pre-emergence herbicides require about one-half inch of rainfall or irrigation water to move the herbicide into the upper one to two inches of the soil profile.

A pre-emergence herbicide can undergo volatility losses and photodegradation the longer it remains on turfgrass foliage or thatch. Irrigation is advised unless a rainfall is anticipated within four to seven

days of application.

Most species of crabgrass initiate germination when soil temperatures at the four-inch depth reach 53-58 degrees F. Depending on the geographical location, this will occur during February through April in the southern U.S.

Goosegrass germinates at a soil temperature of 60 to 65 degrees F., or approximately two to eight weeks later than crabgrass. On warm-season turfgrasses that are not fall-overseeded, pre-emergence herbicides control annual bluegrass and certain annual broadleaf weeds. Annual bluegrass germinates at soil temperatures of around 70 degrees F. Apply the pre-emergence herbicide early in fall.

Post-emergence herbicides should be applied to small, actively-growing weeds. Perennial and annual weeds that grow under good soil moisture conditions at moderate air temperatures are easier to control than weeds that are stressed due to adverse environmental conditions. **LM**

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COMMON AND TRADE NAMES OF WARM-SEASON TURFGRASS PRE-EMERGENCE HERBICIDES¹

Common name	Trade name	Uses
atrazine	Aatrex, others	Annual broadleaf weeds.
benefin	Balan, others	Annual grass; some annual broadleaf weeds.
benefin+oryzalin	XL	Annual grass; some annual broadleaf weeds.
benefin+trifluralin	Team, others	Annual grass, some annual broadleaf weeds.
bensulide	Bensumec, Betasan, others	Primarily controls annual grasses.
bensulide+oxadiazon	Goosegrass/ Crabgrass Control	Annual grass control.
DCPA	Dacthal, others	Annual grass; some annual broadleaf weeds.
dithiopyr	Dimension	Annual grass; some annual broadleaf weeds.
ethofumesate	Prograss	Annual bluegrass control in bermudagrass and overseeded perennial ryegrass.
fenarimol	Rubigan	Annual bluegrass control in bermudagrass-overseeded cool-season turfgrasses.
isoxaben	Gallery	Annual broadleaf weeds. Does not control established perennials; provides residual control of some species that reproduce by seed.
metolachlor	Pennant	Controls yellow nutsedge and annual sedge; some annual grasses.
napropamide	Devrinol	Annual grass; some annual broadleaf weeds.
oryzalin	Surflan	Annual grass and some annual broadleaf weeds.
oxadiazon	Ronstar	Annual grass and some annual broadleaf weeds.
oxadiazon+benefin	Regalstar	Primarily controls annual grasses.
pendimethalin	Pre-M, Pendulum, others	Annual grass; some annual broadleaf weeds.
proflam	Barricade, Regalkade	Annual grass; some annual broadleaf weeds.
pronamide	Kerb	Winter annual weed control. May be used 90 days prior to overseeding bermudagrass with a cool-season turfgrass to control annual bluegrass.
simazine	Princep, others	Winter annual broadleaf weeds.

¹ Refer to the herbicide label for a complete listing of tolerant turfgrasses and labeled application sites.