

cont. from page 48

duced as alternatives to the traditional materials mentioned above. Although this new herbicide chemistry provides a wider array of materials to choose from, economics and turf tolerance must still be considered before use.

#### Grass Weed Control

In winter, the predominant annual grass weeds are annual bluegrass and clumps of ryegrass that escape from an intended over-

seeding site. Annual bluegrass can be effectively controlled with postemergence herbicides, assuming the turf is not overseeded with ryegrass or is a cool-season grass. In non-overseeded turf, atrazine (AAtrex), simazine (Princep T&O), and pronamide (Kerb) provide excellent control of annual bluegrass and ryegrass. The key to the use of these materials is timing. The first applications should be applied in

cont. on next page



Speedwell (*Veronica* spp.) begins low-growing, then grows tall. Flowers are small, blue/white.

TABLE 2. 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 + clopyralid
Betony, Florida	E-F <sup>1</sup>	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	—	—

<sup>1</sup> 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.

**TABLE 3. 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 <sup>1</sup>	I-NR	I <sup>3</sup>	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
MCP+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 <sup>2</sup>	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

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

<sup>2</sup>Asulam is labeled for 'Tifway' (419) Bermudagrass and St. Augustinegrass.

<sup>3</sup>Carpetgrass tolerance to herbicides listed has not fully been explored.

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.

cont. from previous page

mid fall when weeds are small and easiest to control. A second application in Janu-

ary will be necessary to control the second flush of germination that normally occurs at this time, especially with annual blue-

grass. Atrazine and simazine have the added benefit of also controlling many winter annual broadleaf weeds such as lawn burweed, chickweed, and henbit (Table 2). However, as mentioned earlier, if control is attempted later in March or April, problems with herbicide efficacy and turf safety may occur.

Postemergence grass weed control in cool-season turfgrasses has previously been limited to various members of the organic arsenicals such as MSMA, DSMA, or CMA (Table 3). Specific formulations (e.g., CMA) and rates are necessary for use on most cool-season turfgrasses or unacceptable levels of injury may result.



Annual bluegrass (*Poa annua* L.) is a common winter annual grass weed.

cont. on page 56

These questions came straight from the customers of lawn care operators, pest control operators and other professional pesticide applicators across the country—and probably reflect the concerns of your customers. The more your customers know about the products you use, how you use them and how much is used, the more confident they will be in you and your service.

## Communicate With Your Customers

Your customers expect you and your employees to be credible and knowledgeable sources of information about your products. Take time to talk with them about your safe and responsible use of pesticides.

Studies show that most people don't know that pesticide products are among the most highly tested products sold. The U.S. Environmental Protection Agency (EPA) registers only those uses of pesticide products that pose minimal risks.

- Emphasize that pesticide products must undergo stringent government-monitored testing before they can be sold. It is a long and costly process. For example:
  - It takes a chemical manufacturer eight to 10 years to test and register a product, at an average cost of \$30 million to \$50 million.
  - As many as 120 tests or more are performed, many specific to health, safety and the environment.
  - Only one potential pesticide in 20,000 makes it from the research lab to the market.
- Explain Integrated Pest Management (IPM) to your customers. Most do not fully understand the concept. Point out that a successful IPM program stresses prevention, pest identification and selection of the best method of pest control, which may require the use of pesticides. Tell how you incorporate IPM into your pest management practices.
- Identify the specific pesticides you use and the pests they control.
- Indicate that professionals use an array of products, many the same as those used by homeowners.
- Assure customers of the benefits pesticides provide for turf, trees and ornamentals, and in the home. For example:
  - Termites cause over \$1 billion in structural damage each year.

*"Are the pesticides you use safe?"*

*"Are the pesticides that professionals use stronger and more toxic?"*

*"When is it safe for my children and pets to return to an area after a pesticide application?"*



- One large, pest- and disease-free tree has the same cooling effect as 15 room-size air conditioners.

- A well-maintained lawn and landscape adds as much as 15 percent to a home's value.

- Discuss your safe and responsible use of pesticides as a professional applicator. Note the many steps you take to ensure that the pesticides you use are used properly.
- Advise your customers that you closely follow label instructions. The label contains instructions for only those uses approved by EPA.
- Outline the extensive training that is mandatory for professional applicators in order to apply specialty pesticides. Applicators are required by law to undergo training, certification and licensing, as well as to keep records of each job performed.

- Explain what happens to pesticide containers once a job has been completed. Note that containers are disposed of properly.

## What Else Can You Do?

Provide your customers with materials such as newsletters, brochures, fact sheets and bill stuffers that communicate these messages. Be sure that someone at your company, who has a basic knowledge of the products and application methods your company uses, is available to answer questions.

## RISE Is A Resource

RISE is the voice for the specialty pesticide industry. Its members include manufacturers, formulators, distributors and other industry leaders.

RISE works in cooperation with your national, state and local user/applicator associations and is an additional source of information regarding issues facing pesticide users. We can help you in your role as a knowledgeable and credible information source to customers and to the public. A brochure on communicating about pesticides with your customers is available. Contact RISE to receive your copy.

We urge you to take an active part in your state and national association(s). We work together to support your business.



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When you're thinking of ways to expand your business and boost profits, Roundup® Pro herbicide may be your most useful tool. Roundup Pro can solve almost any lawn care problem you can think of. And it can create some opportunities that may surprise you.

## Think Of All The Possibilities.



### 1 GIVE NEW LIFE TO LAWNS

Take out areas of old worn, damaged grass or an unsightly varietal mix and start with a clean slate. The control you get from Roundup Pro gives new turf a healthy start. The perfect first step in a total or partial lawn renovation and to long-term relationships with customers.

### 2 ZAP 'EM AND WHACK 'EM

First, zap weeds with Roundup Pro; wait three days for it to move into the roots; then whack 'em with a string trimmer while they're still green. You'll get fast, effective results in hard-to-reach places. Plus, Roundup Pro gives you complete control—roots and all—with no regrowth.

### 3 BANISH BACKYARD BRUSH

Expand your horizons by using Roundup Pro to remove brush that can encroach on the perimeter of a backyard. The "roots and all" action of Roundup Pro also eliminates regrowth, so you'll achieve beautiful results that cutting alone just can't provide. It's a great way to increase your "trade area," giving you and your customer more yard to beautify.

### 4 MASTER MULCH BEDS AND TREE RINGS

Enhance landscapes and add to the natural beauty of the surroundings. It's easy to create mulch beds around trees, shrubs and ornamentals. Just use Roundup Pro to control the vegetation in these areas, then cover with mulch. Spot treatments keep them beautiful and beat hand-weeding, hands down.

To get more information on these and other profit opportunities, call the Monsanto Customer Relations Center at 1-800-332-3111 and ask for these sell sheets by name:

- Roundup Pro. The Brightest Idea Since Roundup.
- Zap 'Em And Whack 'Em.
- Mulch Beds Made Easy.
- Backyard Brush Control.
- Turf Renovation.
- Questions & Answers About Roundup Pro.
- Roundup Pro In The 21st Century.
- Product Label and MSDS.

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**TABLE 4. PREEMERGENCE HERBICIDE EFFICACY RATINGS**

Herbicide	Crabgrass	Goosegrass	Annual bluegrass	Common Chickweed	Henbit	Lawn Burweed	Corn Speedwell
atrazine (Aatrex)	F <sup>1</sup>	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
prodiamine (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

<sup>1</sup>E=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.

cont. from page 52

In addition to the organic arsenicals, Fluazifop (Fusilade T&O) maybe used on tall fescue and zoysiagrass to control annual grassy weeds and suppress bermudagrass. Applications should be in spring when weeds are small and prior to the summer stress period.

Sethoxydim (Vantage) controls many annual grasses in centipedegrass and fine fescue. Spring applications are best due to cooler temperatures and younger weeds which are easier to control.

Chlorosulfuron (TFC 75DF) controls tall fescue selectively in Kentucky bluegrass and fine fescues. Low rates (1 to 5 oz/a) and spot treatments help minimize turf phytotoxicity.

Fenoxaprop (Acclaim) may be used on Kentucky bluegrass, fine fescues, zoysiagrass, and perennial ryegrass to control most annual grass weeds and to suppress bermudagrass encroachment. Spring applications are best and the turf should not be

under moisture or heat stress when treated.

#### Preemergence Crabgrass Control

As discussed earlier, turf managers should also be formulating their crabgrass control strategies during late winter. Crabgrass seeds begin to germinate when soil temperatures reach 53°F for several consecutive days. This timing often coincides with peak flowering of redbud trees.

The effectiveness of preemergence herbicides varies because of many factors. These factors include the timing of herbicidal application in relation to weed seed germination, the soil types, environmental conditions (e.g., rainfall and temperature) during and immediately following application, the target weed species and biotypes and cultural factors (e.g., aeration) following application. Generally, preemergence herbicides are most effective for annual grass control although some annual small seeded broadleaf weeds also are suppressed (Table 4).

Repeat applications of preemergence

herbicides usually are necessary. When exposed to the environment, most herbicides begin to degrade. Usually, the level of degradation that occurs from 60 to 75 days after application reduces the herbicide level in the soil to the point that its effectiveness on germinating weed seeds is lost. Repeat applications approximately 8 to 10 weeks apart, therefore, become necessary for prolonged preemergence weed control.

#### Summary

In conclusion, winter broadleaf weeds can be an opportunity or a headache for the professional turfgrass manager. If control is not attempted until spring, customers should expect the need for multiple applications and slow results. There are also restrictions on the use of many of these materials around trees and shrubs. Success, however, can be achieved with the combination of proper turfgrass management practices supplemented with appropriate herbicide use. **LM**



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# WEED CONTROL

## in landscape ornamentals

*Whether the weed is a grass, a sedge or a broadleaf plant dictates the control and the timing of the control.*

By CAROLYN STEADMAN

**W**ith all weeds, it's important to prevent the plant from setting and dispersing seeds, either by cultivation, hand weeding or herbicides. No seeds means many fewer weeds the next season.

There are several approaches to controlling weeds in ornamentals. Planning to eliminate weeds before planting and developing a post-planting strategy are ways to minimize the weed problems in landscape beds.

The plan-before-planting-approach developed by Dr. Joe Neal, associate professor at North Carolina State University (while he was a weed specialist at Cornell University) has five steps:

**1. Site assessment.** Survey the site for cultural and weed information. Note particularly any weeds that are difficult or impossible to control after planting such as bamboo, Japanese knotweed and field horsetail. Include the surrounding areas in the survey, as weeds can and do encroach on plantings. Scout for weeds in mid-to-late summer. Consider soil pH, soil type, drainage.

**2. Define the type of planting.** Does the plan call for only woody ornamentals, or will a ground cover or herbaceous annuals or perennials be used? The kind and mixture of plants will determine the usefulness of weed man-



The kind and mixture of plants will determine the usefulness of weed management options like geotextiles, mulches and/or herbicides.

agement options like geotextiles, other organic and non-organic mulches and herbicides. A mixed planting of woody and herbaceous material has fewer post-plant options. For example, in a planting of trees and shrubs, geotextiles and a thin layer of mulch are options for weed control. There are also several herbicides that are labeled for use on woody plants that will injure herbaceous material. Geotextiles are not generally used in a ground cover bed, or with mass plantings of annuals or perennials.

*cont. on page 61*



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