

by Dr. Ralph E. Engel
Research Professor
Turfgrass Management
Rutgers University

Weed Control: An Exact Science

“One aspect of determining when to use a chemical is the relative benefits and risks involved. No herbicides make the grass grow better. If the weed problem is worse than the injury risk, treatment is justifiable.”

Chemical weed control has become a great tool in growing turf. It has brought more improvement in the last 25 years than any other phase of turfgrass management. Yet, careless use of this procedure is dangerous to turf. On occasions, herbicides have done more harm to the grass than we have realized.

There are certain steps that generally apply when we attempt turfgrass weed control if we obtain the best results with the greatest efficiency and safety. The first step is growing good turf. This reduces the necessity for frequent use of herbicides that may injure the grass. Second, choose the correct herbicide. This becomes more difficult as more and more herbicides and variations of their use occurs. If there is no clear answer on which chemical to apply, use the established chemicals that you have known and worked with before. There are times you must try a new chemical for the first time. Check with other turfgrass persons on such occasions. This may be a good procedure even though you know the chemical. Third, know when to use a chemical herbicide. One aspect of determining when to use a chemical is the relative benefits and risks involved. No herbicides make the grass grow better. If the weed problem is worse than the injury risk, treatment is justifiable.

Application at the correct time of the year is an important concern in herbicide use. While dandelions can be treated too early with 2,4-D for good kill, it is just as important to apply this chemical in time to pre-

vent a large crop of seedheads. In the case of preemerge herbicides, most of these are at their best when they are applied two or three weeks in advance or near the time of crabgrass germination. Fourth, applying the correct rate is important. Too little gives poor control and too much can cause serious injury and wastes money. The first step is determining the amount of chemical concentrate required per unit area for use in calibration of the spreader or sprayer. Recheck the calculations to assure no mistake has been made. The second step is to calibrate the spreader or sprayer. This may take considerable time if equipment is unfamiliar or working poorly. At the time of calibration, make sure the equipment has good spreading pattern.

Attaining complete control of turf weeds, that is, to the last weed, is efficient for many sites. This is especially true on small areas and with weeds such as crabgrass, dandelions and goosegrass. Once the number of weeds is reduced to a few, hand removal or spot treatment on a regular basis may be easier and safer than allowing a few weeds to increase into a problem that requires use of severe herbicide treatment at an early date.

Suggestions on several weeds and herbicides. It is standard procedure to use 2,4-D for dandelion, buckhorn and broadleaf plantain. Yet, a special distinction should be made on a golf turf where bentgrass and annual bluegrass are often the major grasses. With these species, use of $\frac{1}{2}$ to $\frac{3}{4}$ pound of 2,4-D per acre will

give quite satisfactory control with less risk to the turf. This contrasts with the one to $1\frac{1}{2}$ pounds per acre rate which is appropriate on Kentucky bluegrass roughs. On occasions, use low volatility 2,4-D for greater safety to nearby plants. When clover, chickweed and/or knotweed are present in bentgrass-annual bluegrass fairways in the spring, use the lower rate of $\frac{1}{2}$ pound 2,4-D per acre with $\frac{1}{8}$ to $\frac{1}{4}$ pound of dicamba per acre. Some may prefer to use some of the commercial mixes for these weeds on the golf course, but these herbicide preparations should be checked for the total of the related compounds of 2,4-D, silvex and mecoprop. When these total one pound per acre or more, the risk to the turf becomes similar to the use of a high rate of 2,4-D alone.

When clover, chickweed and/or knotweed occur, spring treatment, well in advance of hot weather, is recommended. Usually, this can be done as soon as the clover has a good leaf growth. When these weeds occur with no dandelions, dicamba at $\frac{1}{2}$ pound per acre is adequate. Some may wish to use the phenoxy's such as mecoprop and silvex. Again, with bentgrass-annual bluegrass turf, this raises the concern of a large total of phenoxy that is risky. Silvex is always questionable on fine turf and rather than use mecoprop alone, it might be combined with dicamba.

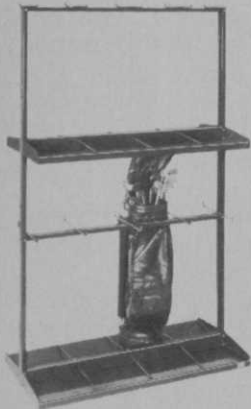
Preemerge for control of crabgrass and goosegrass. Control of crabgrass with the available preemerge herbicides is quite good but they are often less satisfactory on goosegrass. Yet, the superintendent has no choice but to use these chemicals on many occasions. Careful and well-conceived use of these chemicals becomes important.

Control of annual bluegrass. Before superintendents in the cooler latitudes consider all-out attacks on annual bluegrass, they should con-

WEED CONTROL continued

sider their chances of growing this grass successfully. In some of our cooler climates, it should not be looked upon as a weed. Along with this, if annual bluegrass is a weed, we must still rely heavily on management for control because we do not have herbicide panaceas. Of the chemicals available, calcium arsenate has given the best control in spite of the fact it is a risky chemi-

cal. Currently, the unavailability of this chemical does not leave us with any simple methods of eliminating the annual bluegrass problem. A number of our premerge herbicides are quite good at preventing annual bluegrass germination. But the need for their retaining activity from late summer through spring plus their inability to control the vegetative types of this weed do not make them a good prospect for control of this weed.



INCREASE EARNINGS, SERVICE & SPACE Remodel your present storage space, update with NEW *Stafford* VERTICAL BAG RACKS

- Wear and tear of golf bags is completely eliminated
- Damp bags dry faster — no mildew
- Faster, easier storage
- Provides a neat appearance
- Easy to install and add more as needed

Your members will like the extra convenience and care. Your pro shop profits from 40% more space these racks make available. Double unit shown holds 16 bags, size 2' x 4' x 6'-6" high, gives 12" x 12" space for bags. Single unit holds 8, size 1' x 4' x 6'-6" high. Sturdy steel. Bags set solid on tapered shelves. Send us your floor measurements, we will plan a layout and quote you — no obligation. U.S. and Canadian patents. Send for folder.

The A.G. STAFFORD Co.

2000 Allen Ave., S. E.
Box 8877, Canton, O. 44711
Phone 216/453-8431

For More Details Circle (130) on Reply Card

DISPOSABLE

Chix[®]
Tee Towels

NOW AVAILABLE
IN WHITE

NO LOSSES...
NO LAUNDRY PROBLEMS

Look for the CROSS HATCH Brand.

For samples and information:
Chicopee Mills, Inc.

P.O. Box 68, Milltown, N.J. 08850
Offices in leading cities

*Trademark © CMI

For More Details Circle (104) on Reply Card

Endothal showed some selectivity on annual bluegrass in bentgrass turf in our tests of some years ago. We never, and do not now, propose that it can be used as an eradicator for annual bluegrass. When used in early spring during cooler weather, before the flush of heavy growth, several endothal treatments will depress the annual bluegrass content of the turf and control clover. This type procedure will help bentgrass remain dominant. The endothal treatment is inexpensive and leaves no residue problem.

When concerned about annual bluegrass, utilize the management tools that minimize this weed. First, avoid loss of turf by: (a) watering to save the bentgrass — not annual bluegrass; (b) disease control; (c) insect control; (d) discreet mowing; and (e) spreading traffic. Second, use the minimum amount of water for bentgrass growth in late summer when annual bluegrass might germinate. Third, use a minimum of nitrogen required for the bentgrass.

"No mistakes" with herbicides. "No mistakes" is a big order, but the disaster of some wrong herbicide applications is about the worst thing that can happen to a turf. An important step in avoiding mistakes is knowing the chemicals. Do not rely on trade names only, learn to associate these with the common chemical name. Maintain information on such things as the safe rates of applications, residue problems, safety concerns for the applicator, the weeds that are controlled effectively, etc. Possibly, such records should be maintained for each chemical and weed on a 5" x 8" card.

Check with others on the use of a herbicide. This is especially true for the newer chemicals. Opinions on such things as choice of chemicals, rates of application, worthwhileness of the treatment, and timeliness of the application commonly need consideration. Do not hesitate to call someone else for a quick opinion. Mistakes in application rate and techniques can be avoided. Allow plenty of time to prepare for a herbicide application. This will permit rechecking the rate. Also, it gives time to check on the delivery rate of the application equipment and the uniformity of distribution. Continually recheck the application rate during use of the chemical. □