The biggest tournament of the year is only days away. Who needs spurge?

Pesky, hard-to-control weeds like spurge, oxalis or chickweed can be especially embarrassing at a time like this.

Happily, WEEDONE® brand DPC broadleaf herbicide controls those and more than 65 other tough turf weeds. With control that's quick, effective, dependable.

**Designed for turf**

WEEDONE® brand DPC is a powerful combination of both 2,4-D and dichlorprop in one convenient turf herbicide with the weed-killing performance of more expensive, three-way mixes.

And WEEDONE® brand DPC herbicide won't harm most grass species.

So for golf courses, lawns, parks, athletic fields and other valuable turf areas, WEEDONE® brand DPC could be the only broadleaf herbicide you need.

That simplifies your inventory and handling. Not to mention budgeting.

WEEDONE® brand DPC is approved for season-long use. So you can spray any time from early spring through late fall. Whenever weeds are actively growing.

WEEDONE® brand DPC herbicide mixes easily with most liquid fertilizers for economical one-trip spraying. Another big plus for turf professionals.

**The first name in herbicides**

At Union Carbide, we were the first to develop the phenoxy herbicide chemistry turf pros have depended on for nearly 40 years. And, with formulations like WEEDONE® brand DPC we're still working to help make turf weeds the least of your worries.

This year, ask your turf chemical supplier for WEEDONE® brand DPC broadleaf herbicide. And enjoy the tournament.

From the turf care group at Union Carbide
Active period of plant growth varies from year to year and from north to south — apply preemergence chemicals — apply postemergence treatments. Approximate periods may vary two weeks from season to season.

Fumigants and nonselective herbicides will kill desirable plant material contacted by them. Care must be taken to protect nearby trees and shrubs which cannot be moved.

A number of preemergence herbicides are labelled for ornamentals and two are recommended for use prior to planting. Eptam or Treflan can be incorporated into the soil, following tillage, to control annual and some perennial weeds for a period of four to six weeks. Following incorporation to a depth specified on the label, ornamentals can be planted. This method has been used extensively by commercial nurseriesmen and is now being used by landscape contractors to a large extent, especially where maintenance for a specified period of time is in a planting contract.

Tillage as a method of weed control prior to planting is a successful practice for the control of annual weeds but not perennial weeds. In some cases, tillage only cuts the root systems of perennials into smaller pieces and distributes them.

Landscape fabrics are growing in use for low maintenance areas. The black plastic cover has been improved to a knitted fabric which allows water and nutrients through but blocks light and growing weeds. These are useful in mulched beds where plants are spaced out. They are impractical for groundcover areas and they do not control germination of weed seeds in the mulch above the fabric.

The most successful approach to a weed-free landscape is to control perennial grasses and broadleaf weeds prior to planting.

After planting

In recent years, the landscape industry has made extensive use of mulches to prevent weeds in the landscape. Mulches should be applied two-inches deep and renewed to that depth annually. Mulch layers deeper than two inches accomplish little and actually harm shallow-rooted ornamentals which will root into the mulch instead of into the soil.

The most popular mulches are Cypress and pinebark mulches, as well as wood chips, peat moss, and various hulls. Materials which are not composted or inorganic, can rob the soil below of important nitrogen. Composting or sterilization also kills any weed seeds in the mulch.

Preemergence materials can be used in combination with mulches to stop germination of weed seeds in the mulch or those deposited by birds and wind. They control annual weeds for a period of four to eight weeks. Reapplication is usually necessary for season-long control.

Determine the amount of preemergence herbicide to be applied by figuring the area of the plant bed, measuring the proper amount for that area, and distributing it evenly in the area.
GOOD REASONS FOR BUYING

... and every one of 'em has savings written all over it.

Charlie, here, was all set to spend really big money on another brand of commercial mower. Then he heard about Scag. And, after he took a good look at and priced the 61 inch Scag machine, he bought it and saved about $2,000 in the process.

Pretty smart, huh? But, wait, he has another pleasant surprise coming. That new Scag is every bit as efficient and dependable as other machines costing much more. It just doesn't have all those budget-robbing, gas-guzzling frills like hydrostats, hydraulics and universal drive.

If you're about ready to invest in a new commercial riding mower, better do some comparison shopping of your own. Scag may be just your kind of machine — no fancy frills, just lots of well engineered mower for the money. Plus plenty of operator comfort. You'll like the mower! You'll love the price!

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POWER EQUIPMENT, INC.
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PHONE: (414) 544-4090
Right-of-Way Weed Control
by R. W. Bovey, USDA-ARS, College Station, TX

Many areas around buildings, ditches, billboards, poles, factories, shops, golf courses, parking areas, parks, industrial plant sites, vacant lots, schools, airports, roadsides, fences, lawns, pipelines, and other public or non-cropland areas may harbor unwanted trees and brush.

If these undesirable woody plants resprout after top removal, they may be difficult to kill and remove and cause unsightly appearance or interfere with the intended use of the property. The landscape manager has many options at his disposal to control and remove undesirable woody vegetation and replace it with desirable cover.

Woody plants can be removed by two primary methods or combinations of these methods which include mechanical or chemical means. The selection of the method depends upon:

1. size of the area to be cleared;
2. size of the brush;
3. difficulty of control and kind of brush;
4. proximity to valuable vegetation, water sources, and population centers; and
5. use to be made of the area following brush removal.

Control methods

It is essential that problem plants be accurately identified so the proper control methods can be used. If the species cannot be identified, consult the local county agent, extension specialists, or personnel from the State Agricultural Experiment Station or U.S. Department of Agriculture. Some well illustrated circulars, bulletins, and books are also available.

Mechanical Control. Hand methods of brush control, although effective, are slow, costly, and laborious. They are practical on small areas or in scattered stands.

Hand methods include grubbing, cutting, girdling, and burning.

Grubbing consists of using a grubbing hoe, shovel, or similar tool to dig enough of the root system out of the soil to kill the plants. The operation is difficult and time consuming, but effective if properly done.

Cutting down brush with axes or saws is most effective on woody species that are killed when the top growth is removed, such as eastern redbud and blueberry juniper. Species that resprout can be treated with herbicides to prevent resprouting.

Girdling is cutting a ring through the bark and cambium layer to prevent movement of water and nutrients to top growth. Girdling is practical in scattered stands of large trees 6-inches in diameter or greater. It is most effective during the summer months. Herbicides can be applied to the cut ring for improved kill.

Portable chain or power saws and girdlers are available for brush control. They reduce labor, time, and cost in brush removal but have limited use in dense stands or large areas.

Dozing is one of the more widely used methods of brush control. Much clearing is done with straight dozer blades; however, many modifications and attachments are available for specialized clearing jobs.

Ideally, dozing removes brush and large trees by pushing or pulling the plants out with as much of the roots intact as possible. Special attachments to the straight blade include teeth or U-shaped "stingers" to allow cutting the plant off below the ground line and lifting out the roots.

Dozing is most commonly practiced in open stands of large trees and brush or on rocky soils where other mechanical control methods are limited. It is not desirable in dense stands of brush that sprout from the roots after top removal.

Dozed trees can be windrowed or stacked so the brush can be burned or left to decay. The equipment and fuel required for dozing are costly. Dozing heavily damages the turf and grounds.

Mowing and shredding are temporary control methods for weeds and small brush in landscape management.

continued on page 68
When we develop a perennial ryegrass, we mean business.

**Fiesta**

TURF-TYPE
PERENNIAL RYEGRASS

Quality doesn't just happen ... it is the product of years of careful research and extensive evaluation. That's what it took for researchers to develop Fiesta, the outstanding turf-type perennial ryegrass that meets the demands of today's turf manager.

**The results:**
- Dense, dark green turf
- Fine leaf texture
- Thrives under low cutting heights
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- Outstanding winter hardiness combined with tolerance to summer stress
- High seed count—up to 330,000 seeds per pound—20-25% higher than most other varieties

**Fiesta**—for permanent turf or overseeding—rapidly becoming the first choice of turf professionals.

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Circle No. 166 on Reader Inquiry Card
HOW TO TAKE OUT SURFACE FEEDERS AND GRUBS IN ONE SWELL FOOP.

To take out surface feeders like sod webworm larvae, chinch bugs, billbugs, and flea beetles, just follow these simple steps.

Step one, get some OFTANOL 2 Insecticide. It's the liquid formulation of OFTANOL. If you think OFTANOL is too expensive to use on surface feeders, check out step two.

Step two, mix it at the economical rate and spray where the bugs are. It'll work.

The same product, OFTANOL 2, does a bang up job on grubs. Mix it at the recommended rate and spray it on. Use OFTANOL anytime, as a preventive in the spring or as a curative, whenever grubs are a problem.

Surface feeders and grubs, two serious problems with one serious solution. OFTANOL 2.

OFTANOL is also available in a granular formulation. Always read the label before use.

OFTANOL 2.
WHEN YOU'RE SERIOUS ABOUT SURFACE FEEDERS AND GRUBS.

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OFTANOL is a Reg. TM of the Parent Company of Farbenfabriken Bayer GmbH, Leverkusen.

Circle No. 149 on Reader Inquiry Card
ment. Repeated mowing, once or twice a year, is needed for maintenance on most weed-infested areas.

Mower types vary, but most consist of sharp rotary blades. Heavy duty shredders can be used on large brush and small trees, three- to four-inches in diameter.

**Disking.** Large disk plows or tandem disks will destroy stands of small brush. They may also destroy the grass stand. Disking is limited to tillable soils. Disking prepares a good seedbed, although compaction by a cultipacker, roller, or other implement may be desired. The operation is expensive.

Cost of mechanical treatments is usually closely correlated with degree of soil disturbance and size and density of brush to be removed. Dozing, disk ing, and grubbing are among the most effective mechanical brush control treatments, but are the most costly to perform, while mowing is less expensive. Hand methods, such as sawing, axing or grubbing, are sometimes effective, but are slow, costly, and laborious.

**Chemical Control.** Herbicides are an important means of weed and brush control. Compared to mechanical practices, herbicides are usually less expensive, less damaging to the environment, and often more effective.

Herbicide sprays, however, are subject to drift and may damage susceptible crops or valuable vegetation on nearby areas if improperly applied.

A variety of herbicides and herbicide combinations are commercially available. It is necessary to understand the properties and effects of herbicides in order to safely and effectively use them.

Individual herbicides and combinations of herbicides are used for weed and woody plant control. After manufacturing, technical (pure) herbicide must be formulated with other ingredients to prepare usable products for ease of handling and to obtain the desired effects.

Since very small amounts are sometimes required per unit of land, uniform application is essential. Herbicides are formulated as liquid concentrates, wettable powders, and granules or pellets. It is important to know the characteristics and precautions to be taken when using herbicides.

**Characteristics of Herbicides**

- **Phenoxy herbicides,** such as 2,4-D, 2,4-DB, dichlorprop, and MCPA have been used for over 30 years and are effective for the control of many weed and brush species. They are used to produce changes and shifts in plant cover for crops, pastures, lawns, or wildlife habitat.

  - The phenoxy compounds are toxic to livestock or man at dosages labelled for weed control and disappear rapidly from the soil, vegetation, and water. They do not accumulate in the food chain.

  - Susceptible vegetation, especially broadleaf plants, may be damaged from spray drift or from volatilization. Following label instructions and making applications during favorable weather should prevent drift and volatilization problems.

  - The phenoxy herbicides selectively control broadleaf weeds in grasslands or grass crops. Rates of 0.25 to 2 pounds per acre effectively control many broadleaf plants.

The phenoxy compounds are relatively inexpensive and easy to apply. They are usually marketed as liquid concentrates as salts or esters.

The ester formulations are often more effective as foliar sprays on trees and brush than the salts. Amine formulations commonly available include dimethylamine, triethyamine, diethanolamine, trimethylamine, and others.

Other inorganic salts of the phenoxy that have been sold include the ammonium, sodium, potassium, and lithium salts. Salts are sprayed in water carriers.

Esters are classified as high volatile or low volatile, depending upon how readily they vaporize. Low volatile esters should be used in areas where sensitive crops or vegetation are grown.

The concentration of the active ingredient, the "acid equivalent," is indicated on the label as pound-per-gallon. If a herbicide concentrate has an acid equivalent of 4 pounds per gallon, then 1 gallon of the concentrate contains 4 pounds by weight of the parent acid, regardless of formulation. Usually the most concentrated formulations cost less per pound and are more economical to use than weaker concentrates.

The phenoxy compounds are readily absorbed by leaves and are translocated throughout the plant along with the products of photosynthesis. Oil soluble formulations, usually esters, applied in kerosene or diesel oil will penetrate the bark of most woody plants, and can be used as basal sprays or foliar sprays to individual plants.

Phenoxy herbicides, however, are more commonly applied broadcast to large areas containing dense stands of brush. These herbicides are sprayed on above-ground parts and foliage since they are not effective at economical rates as soil-applied herbicides.

**Organic arsenicals.** The organic arsenicals include DSMA, MSMA, and cacodylic acid and are available as liquid concentrates. These compounds

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**Calculating Rates and Quantities**

<table>
<thead>
<tr>
<th>Granular Materials</th>
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<tbody>
<tr>
<td>Example—A landscaper needs to treat 4,000 sq. ft. of Juniper with 4% RONSTAR granules at 4 lbs. a.i. How much RONSTAR is required?</td>
</tr>
<tr>
<td><strong>Formula</strong></td>
</tr>
<tr>
<td>lbs. a.i. x sq. ft. to be treated = lbs. required to treat area</td>
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<tr>
<td>44,000 x 4 =</td>
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<thead>
<tr>
<th>Wettable Powders</th>
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<tbody>
<tr>
<td>Example—A landscape firm needs to treat 4,000 sq. ft. with 50% DEVRINOL wettable powder at the rate of 10 lbs. a.i.</td>
</tr>
<tr>
<td><strong>Formula</strong></td>
</tr>
<tr>
<td>lbs. a.i. x sq. ft. to be treated = lbs. required to treat area</td>
</tr>
<tr>
<td>44,000 x 10 = 1.8 lbs. 50% DEVRINOL W.P. to be mixed in enough water to cover 4,000 sq. ft.</td>
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<tr>
<th>Liquid Concentrate</th>
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<tbody>
<tr>
<td><strong>Formula</strong></td>
</tr>
<tr>
<td>lbs. a.i. x sq. ft. to be treated = gallons required to treat area</td>
</tr>
<tr>
<td>44,000 x 1 = .25 or .25 gal. TREFLAN to be mixed in enough water to cover .25 acre</td>
</tr>
</tbody>
</table>

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**Continued on page 72**
New Du Pont Landscape Fabric. It lets water through to give you healthier beds with less work.

New DuPont Landscape Fabric lets water pass through, reduces wash-away of mulch while it impedes weed growth. So you get healthier, more attractive plant beds with less maintenance work and cost.

Everything you apply for bed care gets to plant roots in the amount you want, where you want it. Water, fertilizers, herbicides and pesticides seep down through this chemically inert fabric to nourish and protect every plant in your bed.

DuPont Landscape fabric is easy to put down with scissors or knife. It comes in four roll sizes from 3- to 12-feet wide.

Call 800-441-7515 for the name of the nearest distributor and more information about DuPont Landscape Fabric. Or write DuPont Company, Room G40955, Wilmington, DE 19898.
WHAT MAKES THE CUSHMAN GRASS GROOMING SYSTEM WORTH THE INVESTMENT:

Twenty-two percent more horsepower.
Improved performance. Increased work value. Nothing cuts, catches and dumps as fast or as economically.

The problem with most mowers is that no matter how fast they cut, your work slows to a turtle's pace when it comes to cleaning up the clippings.
That's why we created the Cushman Grass Grooming System. With it, you can cut, catch, dump and resume cutting without interruption.

A NEW 22-HP ENGINE.
At the heart of our Grass Grooming System is the Cushman Front Line™ mower.
And at the heart of the Front Line is a remarkable new 22-hp gas engine.
It gives you the power to maintain blade speed through tall grass, dense weeds and other conditions that might stop other mowers.
It's built the way you want an engine built—tough. The crankshaft is forged alloy steel.
The cylinder heads are reinforced for extra strength under stress. And all the details—from the Teflon-coated O-rings and swaged-in-place valve guides to our exclusive Clean-Air Induction System—were designed with one goal in mind.
Years of dependable performance.

FIRST CLASS MOWING.
Here's where it all pays off: the quality of a Front Line mowing job.
The three cutting blades are positioned to overlap each others' swath slightly. So no grass is left uncut. The driver can maneuver around bushes, trees and sidewalks with incredible precision, thanks to the Front Line's Dual Traction Assist pedals—separate braking for each of the two front wheels that gives you a tight, zero turning radius.

THE FINISHING TOUCH.
Mounted to the Front Line's right side is the Cushman Grass Caddy™—a durable, non-stick polyolefin hopper that collects up to 16 bushels of clippings and debris.
When it's filled, just back the Front Line up to a truck or container, engage the hydraulic control and the Grass Caddy hopper lifts 4½-feet above the ground and dumps.
In seconds, you're back on the turf mowing again. And you've never once left the driver's seat.
All of which makes the Cushman Grass Grooming System the world's most labor-saving mower.

Every major component is made by Cushman, so you have a single source for service and parts.

A FREE DEMONSTRATION.
See the Cushman Grass Grooming System in action. Call toll-free:
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