Cut Out Weeds Cutting

For one or more years*

OXY®

UREDABOR®
Granular, non-selective, non-crop herbicide

Why let weeds make a hazardous, unsightly takeover of your operation? And why waste time mowing, hoeing, pulling or griping? Oxy Ureabor puts weeds out of sight, out of mind, for one or more years. In most cases, at high rates, no weed or seedling is tolerant of Ureabor. And it’s so easy to apply direct, from convenient-size bags.

- Kills perennials and annuals in one application.
- Long-lasting control of seedlings and regrowth.
- Ready to apply straight from the bag.
- Water soluble—readily absorbed after rainfall or sprinkling.
- Quick action—down to the root zone.
- 98% active ingredients (1 to 3 lbs. per 100 sq. ft.)

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<th>Product</th>
<th>Movement in Soil</th>
<th>Control of Annuals</th>
<th>Control of Perennials</th>
<th>Comparative Longevity</th>
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<tr>
<td>Monobor-Chlorate</td>
<td>Low</td>
<td>Excellent</td>
<td>Good</td>
<td>Long</td>
<td>Most economical</td>
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<tr>
<td>Monobor-Chlorate + Diuron</td>
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<td>Excellent</td>
<td>Good</td>
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<td>Ureabor</td>
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<td>Excellent</td>
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<td>Excellent</td>
<td>Excellent</td>
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*Single high-rate application under normal soil & rainfall conditions Always read and follow directions on labels.

Circle 137 on free information card
Using plant protectants economically
by George M. Kozelnicky

Plant protectants are generally divided into herbicides, fungicides and insecticides. The EPA includes in its definition of pesticides other compounds such as certain surfactants and growth regulators, and such things as rodent-, pisc-, mollusc-, "icides", etc. For the purposes of our discussion here we will consider all of these as a group.

How can we economize in this area? We actually need to know how much pesticide costs are now before we can show a need for economy.

Two sets of data obtained last year are available. The firm, Harris, Kerr, Forster, sampling 100 clubs found that the annual maintenance cost per hole is $7244, + $467 over two years ago. This is $130,382 for an entire 18-hole course. The G.C.S.A.A. survey, based on a better sampling of 1168 clubs states the cost per hole to be $5632, + $748 over three years ago.

Regulations increase costs

The average annual cost of 'pesticides' for an 18-hole course is $4298 ($239 per hole). This is four percent of the entire annual budget (109,501) and may appear to be an insignificant area in which to attempt to economize. However, the costs associated with this area are subject to the same criteria and influences as all others, but unlike others, are directly affected by outside agencies such as the EPA which impose regulations.

Regulations and laws always seem to increase costs. Because of this you can count on the cost of product to rise, some products may well be unavailable in the future, and you will be told implicitly how you must use a product.

Before we use a plant protectant we need to have a reason for its use; i.e., we anticipate, or have, a problem. The first thing is to be aware of what the problem could be, or is. This requires foreknowledge on our part of many things. The more we educate ourselves about weeds, insects, diseases and other pests, the less expensive our operations will be and we will cut costs. If anything, our expertise will reduce the number of mistakes we are liable to make.

Weather records are useful tools

Knowledge of the life cycle of a pest is of value to us in knowing when it is vulnerable so that we can inflict damage upon it. Except in the case of certain fungi it does no good to apply a chemical to a pest which is not there. And since pest appearance is strongly influenced by environmental conditions, one must be aware of these also.

Keeping daily weather records is not a useless thing; over a period of years these can be a useful tool and reliable guide in planning your budget for expenditures of chemicals.

A good example of use of weather knowledge (especially where irrigation is not available) is the timing of the application of pre-emergence herbicides to take advantage of rains. A ½-inch rain is required for maximum effectiveness. If you miss a rain after having applied the chemical, you may well lose its effect. It costs money if you have to re-apply or you don't get control.

Another aspect: when the label says the chemical should not be applied when temperatures are too warm, do you go ahead and apply regardless of the stated temperature just because the job is set up? Convenience can result in loss of something and that something is usually measured in dollars and cents.

Knowledge of what a certain chemical can do is essential to your doing a job most economically. You need to know whether the action is one of strict contact or if action is by assimilation and subsequent spread through the host plant. Is it the right chemical for the job? Does a certain chemical have selective properties or does it affect a broad group of pests? Does the chemical have long residual life or is it one that is rapidly dissipated? Is the chemical capable of being rendered ineffective by some environmental factor?

Safety is important. Are your people, your applicators, capable of applying toxic chemicals without injury to themselves or to the environment? More importantly, do you provide them with the necessary protection and with supervision? Loss of service by an employee is costly!

Careful buying saves dollars

Armed with this foreknowledge and with all proper turf management procedures in gear, you are now ready to introduce into your program the chemicals, plant protectants, you need. A few pointers in this area are appropriate.

Don't buy more than you need; and certainly don't buy a drum when a 5-gallon pail will do. Don't buy substitutes! Read, understand and abide by the label.

Acquaint yourself with the common names of the chemicals you will be using. Brand, or trade, names differ; common names do not. For example, the Koban you use for Pythium control is commonly, Terrazole; its other names are MF-344, Truban, and OM2424, but its only chemical name is 5-ethoxy-3-trichloromethyl-1,1,4-thiadiazole.

Watch out for trade names...
Let's say you've gone to all the trouble of carefully selecting the turf care equipment you've been looking for.

You've worked hard to find it, and get it at the best price you can, and delivered as quickly as possible.

Only to start using it and then discover you can't get good service on it. It's like you went to all that trouble for nothing.

We know you don't like bad service. And we don't either. That's why every Jacobsen distributor goes out of his way to be second to nobody in service.

The reason is really simple. We're independent businessmen whose success or failure depends upon our reputation. So we jealously guard it.

We do this by offering you the finest and most complete line of turf care equipment we can find. It's made by Jacobsen. Whatever you need, we probably have it.

Then we back it up with service matched by none. We have parts in stock. Our mechanics are Jacobsen-trained to know the equipment inside and out. And we can help you train your people in equipment maintenance through Jacobsen's school, or field training program.

Besides that, we can probably help you arrange a financing or leasing program to suit your needs.

And we can probably help you do a cost analysis of your turf care chores to determine which equipment will do the fastest job at least cost.

So the next time you need turf care equipment, talk to your Jacobsen distributor. He has the right product. If you want good service, he has that, too.

And that's not bad. Not bad at all.

Your Jacobsen Distributors

Great products deserve great service.

For the name of the distributor near you write: Jacobsen Turf Distributor Directory, 1721 Packard Avenue, Racine, Wisconsin 53403

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which may cover a number of different products, an example of which is Weedone. A can of Weedone may be PCP, 2,4,5-T, or a mixture of 2,4-D and 2,4,5-T. The common name Chlorothalonil stands for the brands Daconil 2787 and Bravo (Forturf-1968). As a chemical it is known as tetrachloroisophthalonitrile.

The label also tells you how you must apply the product. It possesses all of the information about the product that you need to know and must meet every requirement imposed by the EPA. Then you may begin to prepare to apply it.

Check equipment calibration

Your application equipment must be in proper operating condition. This is the area in which economy begins. A worn-out pump causes loss of fuel, reduced pressure, and erratic spray pattern. Repair, where needed, pump and pressure regulator, leaking tanks and hose, replace inaccurate pressure gauges, improperly functioning agitators, and most importantly, nozzles.

Nozzles are available in brass, stainless steel, plastic, aluminum and tungsten-carbide metals. Your most economical compromise is the brass nozzle, followed by the stainless steel.

When your equipment is in good working order, you then need to calibrate it. Improperly calibrated equipment will also cost you money. Calibration procedures are readily available; such information even comes on the equipment itself.

There is nothing hard about calibrating a piece of equipment but you should be able to measure land. The only true way is to determine the width of your nozzle coverage and then move a predetermined, measured distance. This gives you the squared area. In moving that distance, you have hung receptacles under each nozzle and collected the amount sprayed over that area. From this you can determine whether you are spraying too little, the required amount, or too much material.

Here is the place where you can determine if your nozzles are delivering uniformly. If there is a wide discrepancy in the amounts each delivers you may need to replace them all.

It saves money if you know the actual area you have to spray on your golf course. Guessing at an area will result in improper amount of product applied. There is the tendency to let the tank run out at this place or save what's left in the tank for the next place. Planning your route from area to area is an economical move.

Certainly, in order to get uniform coverage of all areas, predetermined speed set at time of calibration must be observed while applying on the golf course. Make an accurate measurement of your greens and other areas to which you will be applying chemicals.

Mix chemicals outside tank

Of seemingly insignificant importance but nevertheless of economic impact is the need to mix chemicals outside the tank. There is the opportunity for too much spillage when chemicals are loaded directly into the tank. And too, it's safer. Mix them outside the tank and then pour the mixture through the strainer into the partially-filled tank which should be in agitation.

Another important aspect is compatibility of chemicals. If you wish to mix two products together in order to apply once instead of twice, be sure the two chemicals are compatible. That is, be sure they are first miscible without settling out or coagulating and then not capable of being phytotoxic in the combination to grass.

When in doubt never mix

The wall of your chemical storage room, or that of your office, should have a compatibility chart. Don't mix if in doubt and certainly not if the chart shows incompatibility. Here again, convenience can result in wasted economy.

When the subject of prevention arises, it is possible to arouse many different opinions. The use of chemicals for prevention of a pest is common. The best example in our field is the use of pre-emergence herbicides for the control of the annuals Poa annua and crabgrass. Successes with goosegrass, however, have been far from satisfactory. The application of a pre-emerge appears to be more economical than relying on strict post-emergence control.

Of help here is the fact that the pre-emerge chemicals can be applied in the slacker times of golf play but most importantly, one application of pre-emerge beats 2, 3 or 4 of post-emerge.

As far as insect control is concerned, the erratic nature of the insect precludes our using insecticides for prevention. It is important that the insect be identified correctly and the chemical chosen be one that will do the most effective job the first time. Haphazard choices cost money.

Use proven disease controls

In the realm of prevention of diseases, one can apply the method to those which historically and potentially are capable of being very destructive. Such diseases are those

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Whether you purchase seedlings for permanent planting or prefer to grow your own stock for later transplanting, you'll be impressed with our wide variety of fir, pine and spruce seedlings. Northern-grown for hardiness, they've all been personally cared for by the owner to assure that you receive only the very best.

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Good things come in small packages.
Using plant protectants
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which affect the root and crown of the grass plant and examples of which are the Pythiums, Helminthosporiums, snow molds, Fusarium blight and spring dead spot of bermudagrass. Most turf pathogens are found inhabiting the soil most of the time during their life cycle. In fact, it is from thence that the step to pathogeneity takes place.

Predict disease occurrences

The time of the occurrence and appearance of such diseases can be predicted with considerable accuracy. Therefore, the plan of attack is to reduce the potential of primary source of infection with a relatively inexpensive chemical so that when conditions become favorable for the full expression of disease, that expression will be easily met using a specific fungicide.

Specific fungicides usually have a higher price tag than broad spectrum chemicals. The important thing is that now one doesn’t need to use as much specific fungicide. In contrast, should one wait for something like Pythium to appear, it’s too late and no amount of specific fungicide is going to prevent loss of grass. The present method of control of snow molds is a good example of prevention. Snow mold chemicals are applied before snowfall. In this particular area, a good deal of economy can result.

Of course, how much economy can result from the foregoing suggestions is conditioned by each of your individual cases. As an example, fungicidal application to bermudagrass greens is less demanding than to bentgrass greens. Nevertheless, I hope that there are enough ideas here to stimulate your mind into delving into those areas where you can actually economize and find other areas in your operations where you can find other opportunities to economize.

George Kozelicky is with the department of plant pathology and plant genetics of the University of Georgia.
We finally found a way to improve Balan...

...we made it easier to apply!

Balan's new granular size lets you apply it like fertilizer, and makes it easier than ever to effectively control some of your tough weed grasses.

Balan gets the tough ones, such as, crabgrass, foxtail, goosegrass and Poa annua.

After ten years of proven success on thousands of acres of turf, Balan has become the nation's number-one granular pre-emergence herbicide. Its unmatched effectiveness and economy make Balan a "must" in every turf program.
What you call it can't make it go away ...
...but Balan® can.

Depending on where you are, Goosegrass gets called a lot of things. But no matter where you are, nobody calls Goosegrass an early riser. It doesn't get up and get growing with regular crabgrass in early spring. Goosegrass waits to make its appearance until six to eight weeks after crabgrass germinates. And by the time you see it, there's not much you can do about it. But an application of Balan just before it begins to germinate is all it takes to put an end to your Goosegrass problems. Ask your Elanco distributor salesman to help you work out a full-course Balan program.

Elanco Products Company
a division of Eli Lilly and Company
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Indianapolis, Indiana 46206

Balan's new granular form makes it even easier to apply.
A relatively unknown insect is killing numerous hemlock trees in southwestern Connecticut.

Mark McClure, an entomologist at The Connecticut Agricultural Experiment Station in New Haven, says that hemlock scale is a severe problem in parts of Fairfield County, especially in Westport and New Canaan. The scale also occurs in scattered pockets in New Haven County, but is less of a problem than in Fairfield County.

The scale, which looks more like a fish scale than an insect during most of its lifetime, attacks the underside of needles and feeds on sap. It prefers new needles, and primarily attacks the bottom branches. It may kill a tree in a few years. It was discovered in Queens, N.Y. in 1908.

McClure has approached the problem from two directions: one is chemical, the other is biological. He has tried several insecticides and has studied their effects, and is studying natural enemies of the scale in hopes of finding a way to control it without chemicals.

In his tests of chemical controls, McClure has found that Cygon 2E foliar systemic insecticide gives over 99 percent control when used during the peak of hemlock scale crawler activity in mid-June to mid-July. Except in the crawler stage the insect is generally protected from insecticides by a scale-like excretion.

While control can be achieved, McClure notes that if applied incompletely or at the wrong time insecticides can actually help the scale flourish by killing off most of its natural enemies.

In his biological control efforts, McClure is collecting foliage from infested trees to study parasites and predators of the scale. The foliage is placed inside cardboard cylinders, and he identifies and studies natural enemies that emerge.

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Here's great news you can stake your professional reputation on!

The ROSS Super Tree Stakes, with their pre-measured once-a-year formulation work on trees, evergreens, shrubs and bushes. Our high food value formulation 16-10-9 plus Iron and Zinc, helps promote fast, healthy growth.

These all-purpose stakes will help you cut costs, too... Each case of 160 stakes is enough to feed over 35 3" diameter trees. One application of this quality formula usually lasts all season.

Made to the exacting standards Ross Daniels, Inc. is noted for, these new stakes can be used either spring or fall, whenever time is most available to you and your crews.

Simple and easy to use, you just drive three Stakes for every 2" of tree trunk diameter into the ground at the tree drip line. Water does the rest, carrying plant food to the feeder roots.

Be sure to ask for ROSS Super Tree Stakes. Available at your regular Ross distributor or write:

Ross Daniels, Inc., P.O. Box 430, West Des Moines, Iowa 50265

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Versatile new Hypro sprayer pump

Hypro series 6500 pump has a wide range of uses. It will deliver up to 20 gpm (at 1200 rpm) or develop pressures to 300 psi, and it is available in either cast iron or Ni-resist. Its % shaft is stainless steel. Rolling vanes and cartridge type seals are available in a choice of materials.

The pump is designed for weed and insect control chemicals but is also used for many industrial solvents. A coupler is available for direct mounting on a truck or tractor PTO shaft, or—with optional mounting base—it can be driven by motor or gas engine.

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Epoxi-Lokt, the strong epoxy-coated steel fittings and couplings for plastic pipe! Easy to install, sizes 3" thru 12", working pressures to 200 psi.

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Toro products school hosts MSU students

Twenty-one men and one woman, all students at Michigan State University in East Lansing, Mich., participated recently in a four-day training seminar in servicing turf equipment, sponsored by The Toro Co.

The course is one of five offered by Toro's Turf Products Service Training Center to such customers as golf course maintenance crews, distributors' service personnel and students studying turf management. According to James R. Maloney, director of Toro's turf products service, the courses are designed to increase the professionalism of service personnel, especially in the maintenance and care of turf equipment.

The MSU students, under the direction of Dr. Kenyon T. Payne, are studying turf management in either the two- or four-year program at the University. The training they received at Toro's Eden Prairie, Minn., facility supplements their classroom training, Maloney said. "For some of them, it was their first look at the insides of the turf equipment they will be required to maintain once they enter the job market," he commented.

Subjects covered at the seminar were: fundamentals of reel and rotary mowers, hydraulics, obtaining maximum equipment performance using proper maintenance techniques, electrical circuit layout, and trouble-shooting and adjustment procedures for turf equipment.

Directors of the four-day seminar were Dale Atkinson, Toro manager of technical training for the turf service center, and Dean Gayther, field service technician.