



CHLORDANE

for broad protection of lawns and crops
Controls Crabgrass • Insects • Grubs



Chlordane is a money-maker for Formulators, Custom Spray Applicators and PCO's because it is both economical and effective. It protects lawns and crops two ways: 1) Controls crabgrass without harming established lawns. 2) The same application also controls turf pests such as ants, chiggers, white grubs, Japanese beetle larvae, and chinch bugs.

Yet the price of Chlordane is competitive with single-purpose chemicals. ■

When used as a soil treatment against

termites, Chlordane has shown its protective power for at least five years.

■ This multi-purpose product also has been used successfully for many years against household insects such as roaches, mosquitoes, flies, spiders, wasps, silver fish, bedbugs, etc. ■

Chlordane is available in both refined and agricultural grades, and in a wide range of dusts, granules, wettable powders, oil-soluble and emulsifiable concentrates.

Write Prentiss for information.

**OTHER
 PRENTOX
 PEST-TESTED
 PRODUCTS**

MALATHION
 DDT
 PYRETHRUM
 DIELDRIN
 ALDRIN
 DIAZINON
 DDVP
 ENDRIN
 PYRONYL PRODUCTS
 CHLOROBENZILATE
 BUTONATE
 LINDANE
 HEPTACHLOR
 ROTENONE
 KEPONE
 TABATREX
 RAX POWDER



Prentiss Drug & Chemical Co., Inc.

101 WEST 31st STREET, NEW YORK 1, N. Y. • 9 SOUTH CLINTON STREET, CHICAGO 6, ILL.

Atlanta • Detroit • San Francisco • Los Angeles • Toronto • Montreal • Fort Worth • Pittsburgh • Philadelphia

Train Yourself for Plant Pest Control

By A. B. KENNERLY

"Contract applicators have a big field waiting to be developed in controlling insects and diseases in ornamentals, lawns and shade trees," observes C. F. Garner, entomologist at Texas A & M College. "And this field is the logical opportunity for CAs and pest control operators who are willing to add this lucrative line to their present business."

New suburban developments bring new homes with new plantings. Older plantings in the established neighborhoods also need care and attention. A tree becomes a landmark. It becomes important to the family, an emotional strength, a symbol of security, and residents will spend money to preserve the tree when insects and disease threaten its existence.

"Operators who go into this business must be well qualified," Garner insists. "The business must be built entirely on satisfactory service by operators who have the answers."

Can the present operators with little experience in plant insect and disease control become proficient in this kind of work?

"Everyone should recognize that he must start where he is right now," Garner explains. "There are logical steps to take to go into this business."

First, make a survey of potential business. This survey should point up the probable demand for the service. Is the community growing or declining, or is it presently at a standstill? What is the expected life of the community in point of homeowners? Will it likely develop soon into an area of cheap boarding and apartment houses?

Assuming that the area in which the CA operates has a good opportunity for future growth and stable home ownership for another 10 to 20 years, how much time can be taken from present operations to devote to plant insect and disease control? This will determine whether it would pay to add this line to present services.

If surveys encourage the firm

It's no simple task to learn how to fight insects and diseases of lawns, shrubs, and trees as a full-time business, but many spraymen have paved the way to success with hard work and a self-education plan.

to go further, information should be collected on insects and diseases it will be called upon to control. "Plant insects and diseases differ in all parts of the nation," Garner reminds. "It is not necessary to learn about all insects — only those that give trouble."

Microscopes a Must for CAs

Collect specimens of the insects. These can be placed with pins in cigar boxes or any other box where the operator can refer to the insects for identification. Many CAs may not know the correct names for all the insects, but these can be identified at a land-grant college or university. Label them and include the dates they were collected and what they were feeding on. Later, the CA may wish to purchase his own microscope and

use it for identifying insects as he becomes more skilled. There is nothing that will add more prestige to an operator's professional ability than a microscope.

Next, start building a file of useful information that will be needed to know about insects, their controls, what they feed on and when, and something about the chemicals used in their control. It takes time to do these things, but they are the foundation of the pest control business dealing with plants.

"A library is essential to keep informed on plant pest controls," Garner points out. "No one book or publication is complete. Copies can be obtained from state experiment stations, county agents, from the U.S. Department of Agricul-



CAs in plant pest control who're teaching themselves "how to do it" can make use of insect identification displays at local extension stations. Here Texas A & M Extension Entomologists C. F. Garner (left) and H. R. Burke examine a handy exhibit. Extension people like to lend a helping hand.

ture, and from commercial concerns who manufacture pest control chemicals."

Keep Reference Library

Two books which Garner recommends are *Diseases and Pests of Ornamental Plants*, published by the Ronald Press Co., 15 East 26th St., New York 10, N.Y., and *Handbook of Pest Control*, published by MacNair-Dorland Co., 254 West 31st., New York 1, N.Y. For 35¢, CAs can purchase "Handbook on Insects of Flowers and Shrubs," U.S. Department of Agriculture, Washington 25, D.C. A new book, *Scientific Guide to Pest Control Operations*, is available from *Pest Control*.

With this backlog of information, the next step is to learn through actual experience. "Applicators will learn that regardless of how much knowledge and experience they gain," Garner observes, "things go wrong and plants are damaged. There are several ways to reduce this damage."

First, Garner suggests establishing a small experimental plot where the operator can try out insecticides and fungicides. Or, he can arrange with some grower who is willing for him to use his plantings. This experience will help to establish confidence in the operator for handling the control measures.

Another idea is to try the controls on one shrub or a small part of the lawn, then return later to observe results. Keep records on these for future reference.

Spray Early or Late in Day

Conditions outside the control of the operator may cause damage. For example, if plants lack water, foliage is more easily burned. Midday is not as good a time to spray as the early or late hours.

"Plant damage is a part of the business," Garner insists. "Be prepared to replace an occasional plant. Make cost estimates to cover this expense over an average period."

Another point to remember in control of plant insects is that it will often be necessary to make repeat applications. There are few one-shot treatments. Have an understanding with the owner regarding these additional treatments and the cost.

CAs can make arrangements with a noncompeting nurseryman for any needed replacements and at the same time learn much from him about plant disease and insect controls. He will be a good source of referral business since he is interested in satisfactory service and good livability of his shrubs and trees. Sometimes the nurseryman may be providing this service, but would rather give it up to devote his time to his nursery business.

By now the aggressive CA will be ready to take on some jobs. Keep detailed information on each contract. Include the conditions, the kind and costs of insecticides or fungicides to do the job, the time of year, the results, and charges. This information will be valuable when a similar job comes up. It could save losses in making estimates.

Disease Control Logical Adjunct

Learning how to control diseases in plants may be difficult. The homeowner, usually unable to distinguish between insect damage and disease damage, will expect contractors to treat for either. However, methods for learning plant disease control are similar to those for learning control of insects. One can learn where plant diseases can be diagnosed from state universities, although this service is limited in many states. It may be difficult to keep disease specimens.

Garner gives 5 essentials to be observed for controlling ornamental pests:

1. Use the best equipment you can buy to apply the insecticides and fungicides.
2. Select the right control measures.
3. Apply the controls in the proper manner.
4. Start control measures before serious damage occurs. This may not always be possible if homeowners delay, but the CA with contracts for regular care can avoid these situations.
5. Repeat applications must be made in 7 to 10 days for certain pests such as scales, white flies, and spider mites.

In time CAs will learn some short cuts such as combination sprays that will save time and

money. These combinations can control a variety of insects.

Once established, there are several ways to obtain new business. Nurserymen can be helpful by referring their customers, unless they offer a similar service. Newspaper advertising, radio spots, direct mail to new homeowners and to selected mailing lists are helpful. One operator gives demonstrations on television.

Another operator who has an established business in pest controls on ornamental shrubs, lawns, and trees has collected a file of color slides showing various activities of his work. He shows these to garden clubs, womens' clubs and other organizations who ask him to give a program showing how to control insects in their ornamentals. While giving self-help ideas, he is also indirectly reminding them that his work is pest control. This brings him considerable business.

Future possibilities in this work are unlimited. Harlan E. Smith, plant pathologist for Texas A & M College, points to the many opportunities in controlling plant diseases and the lack of qualified people to handle the work.

"Trends now point to graduating students from colleges and universities who are fully trained to handle every kind of trouble in plants," Smith predicts. "These people would be as capable of attending to every need of plants as the veterinarian is of animals. We are arousing interest in this need and students are becoming interested. In addition to entomology and plant pathology, students who desire to qualify themselves for this work should also learn agricultural chemicals. These would include herbicides, insecticides, fungicides, and nematocides. Then, there should be additional training in plant physiology and soils."

Contract applicators who are presently training themselves in these fields will continue their search for efficient business and finance management. And this will be good. These young fellows who graduate with skilled training in the sciences of pest control work won't have business experience. They will want to go to work for you.

Close Attention to Spray Tools

Is Key to Economical Operation

Weed-spraying equipment has to be shipshape to achieve an efficient job. It is obviously important for CAs to formulate carefully and diagnose thoroughly the infestation to be treated, but these precautions are of no avail if machinery isn't properly cared for.

Sprayers usually have about nine essential parts: sprayer tank, measuring device for tank, filler hole for tank, pump, filter between tank and boom, by-pass valve, pressure gauge, boom, and nozzle.

Here are some pointers, from the Saskatchewan Department of Agriculture, which give CAs some short cuts to economy and efficiency:

Tank. Aluminum or galvanized tanks of 150 to 200 gallons have been found quite satisfactory for certain big jobs. CAs who use a tractor-mounted tank may want to stick to 80 or 90 gallons. These recommendations are for large projects (like golf courses or highway medians) where the application is similar to agricultural work. (In the USA, many prefer tanks of larger capacity.)

Measuring devices. For a money-saver, measuring devices can be as basic as an ordinary stick calibrated in gallons. These sticks can be homemade by pouring a specified amount of chemical into the tank, and marking the measuring stick accordingly.

Filler hole. This hole should be some 8 inches across, big enough to sweep sediment from the corner of the tank. Frequently there is a screen over this hole to remove impurities from fluids poured in.

Pump. Most common types of sprayers for pumps are the gear-type and the machine with nylon rollers. Preference is for the latter, because the gear-type tends to wear faster and lose pressure. Suspended material tends to wear a gear pump.

Capacity of most pumps in widespread use is 5-10 gal/min.

It's also convenient to have a clean-out valve in the bottom of the tank so cleaning is rapid and easy. A sump collects material for

easy disposal. It is best to have the outlet slightly above the bottom of the tank so sediment doesn't fill up the drain hole.

Filters. Chemical should be filtered between tank and boom.

By-pass valve. This device both holds pressure of chemical evenly on the boom and passes excess material back into the tank again. This returning fluid flows back into the tank and keeps chemical mixed up in the water.

Pressure gauge. This is the last mechanism solutions pass through before going to the boom, and is the gauge used to determine pressure in the boom. A handy shut-off valve should be attached so the flow of material can be turned off from the tractor or from the cab of the truck. The suck-back shut-off valve is best.

Boom. Booms should be easy to raise and lower, and should have a good range of height. It's essential the boom is just high enough so spray patterns overlap. With 20-inch nozzle spacings, this is usually 21-23 inches above the ground to be sprayed.

A sturdy boom prevents uneven spray patterns which may result when booms whip back and forth. It is desirable to keep the boom from bobbing up and down because if the boom is too low, there is no spray overlap, and if too high, too much overlap. A stiff brace will help hold the boom steady.

It's easy to see how a swinging boom can cause an uneven spray pattern. If the vehicle is traveling 4 miles an hour and the boom is swinging forward at 4 miles an hour, the net effect is a boom traveling 8 miles an hour.

Conversely, a boom that swings back 4 miles an hour at the same vehicle speed gives a net boom speed of 0 miles an hour, and an uneven spray pattern results.

Most booms have a clean-out valve at the end. Water should be pumped through the boom before it is used to flush out sediment. Hose connections should, of course, be tight so spray cannot escape.

Nozzles. Common nozzles for

weed control chemicals have 80 to 100 mesh screens to keep small bits of chemical from plugging up the nozzle tip.

Nozzles send out a fan-shaped spray. When nozzles are placed at a 5° angle on the boom, sprays run parallel without any turbulence. Each nozzle is designed to put out a specific amount of chemical per minute.

Worn nozzles can be costly because too much chemical is applied to the area. If these nozzles spray more than 10% over the recommended rate, replace tips.

Rate of spray of each nozzle can be checked by running water through the sprayers. The amount of material any type nozzle should apply at a given pressure is listed in the manufacturer's specifications. In one minute, the cup should fill to the recommended rate. Then measure the rate of the next nozzle and so on through the entire sprayer. Badly worn nozzles should have their tips replaced.

WEEDS and TURF

PEST CONTROL

A SECTION OF PEST CONTROL MAGAZINE

Published Monthly by
TRADE MAGAZINES, INC.
1900 Euclid Avenue
Cleveland 15, Ohio

JAMES A. NELSON
Publisher

CHARLES D. WEBB
Section Editor

R. J. HOFFER
Circulation Manager

Advertising Representatives

National Headquarters
1900 Euclid Avenue
Cleveland 15, Ohio
Phone: Area Code: 216 + 771-4169

New York City
Billingslea & Ficke
420 Lexington Avenue
Phone: Area Code: 212 + LExington 2-3667

Single Copies: 35 cents

Annual Rate for
12 Monthly Issues: \$3.00

Contents © Trade Magazines, Inc., 1962



Guide to Suppliers of Weed & Turf Chemicals

Weeds and Turf presents below the first Guide to Suppliers of vegetation control chemicals for use by Contract Applicators in urban/industrial areas. There is a mixture of common and trade-marked names (indicated by an asterisk*). This has been unavoidable since usage and recommendations of researchers refer to a particular chemical by one or the other, depending upon the newness of the compound, whether its common name is easier to

use, or industry acceptance. There will also be some differences of opinion over the inclusion or omission of certain chemicals under particular use categories. Here again confusion exists among reference sources. We have made our choices on the basis of most frequent mention in our surveys which preceded this compilation. Readers' comments and suggestions are invited to help us improve future editions. Keep this year's Guide handy for frequent use.

Advertisers in *Weeds and Turf* are listed in boldface type.

HERBICIDES

SOIL STERILANTS

ARSENIC

American Fluoride Corp.
Chipman Chemical Co., Inc.
Garden Products Co.
General Chemical Div., ACC
M. W. Hardy & Co., Inc.
Industrial Materials Co.
Los Angeles Chemical Co.
Mineral Fertilizer Co.
Patterson Chemical Co., Inc.
Southern Mill Creek Products Co.
Utility Chemical Co.
Wilbur-Ellis Co.
Woodbury Chemical Co.

ATRAZINE*

American Fluoride Corp.
Brayton Chemicals, Inc.
Chapman Chemical Co.
Continental Chemiste Corp.
Doggett-Pfeil Co.
E-Z Flo Chemical Co.
Geigy Agricultural Chemicals
Hub States Chemical & Equipment Co.
Los Angeles Chemical Co.
Mercury Chemical Co., Inc.
Miller Chemical & Fertilizer Corp.
Miller Products Co.
Mineral Fertilizer Co.
Nalco Chemical Co.
Patterson Chemical Co., Inc.
Prentiss Drug & Chemical Co., Inc.
Pyrrole Chemical Corp.
Residex Corp.
Riverdale Chemical Co.
Rockland Chemical Co., Inc.
Southern Mill Creek Products Co.
Taylor Chemical Co.
Thompson-Hayward Chemical Co.
United Chemetrics
Wilbur-Ellis Co.
Woodbury Chemical Co.

BORON

Diamond Alkali Co.
Fort Pitt Chemical Co.
Los Angeles Chemical Co.
Miller Chemical & Fertilizer Corp.
Patterson Chemical Co., Inc.
United Chemetrics
Utility Chemical Co.
Wilbur-Ellis Co.
Woodbury Chemical Co.

CALCIUM CHLORIDE

Brayton Chemicals, Inc.
Dow Chemical Co.

Faesy & Besthoff, Inc.
Fort Pitt Chemical Co.
General Chemical Div., ACC
M. W. Hardy & Co., Inc.
Los Angeles Chemical Co.
Miller Chemical & Fertilizer Corp.
Newton Chemical & Supply Co.
Patterson Chemical Co., Inc.
Southern Mill Creek Products Co.
Taylor Chemical Co.
Thompson-Hayward Chemical Co.
Utility Chemical Co.
Woodbury Chemical Co.

CHLOREA*

Chipman Chemical Co., Inc.
Doggett-Pfeil Co.
E-Z Flo Chemical Co.
Thompson-Hayward Chemical Co.

DALAPON

Brayton Chemicals, Inc.
Chapman Chemical Co.
Dow Chemical Co.
E-Z Flo Chemical Co.
Hoosier Solvents & Chemical Corp.
Hopkins Chemical Co.
Hub States Chemical & Equipment Co.
Los Angeles Chemical Co.
Miller Chemical & Fertilizer Corp.
Nalco Chemical Co.
Patterson Chemical Co., Inc.
Residex Corp.
Riverdale Chemical Co.
Southern Mill Creek Products Co.
Taylor Chemical Co.
Thompson-Hayward Chemical Co.
United Chemetrics
Wilbur-Ellis Co.
Woodbury Chemical Co.

DIURON

Brayton Chemicals, Inc.
Chapman Chemical Co.
E. I. duPont de Nemours & Co.
E-Z Flo Chemical Co.
Hayes-Sammons Chemical Co.
Hoosier Solvents & Chemical Corp.
Los Angeles Chemical Co.
Miller Chemical & Fertilizer Corp.
Nalco Chemical Co.
Patterson Chemical Co., Inc.
Residex Corp.
Southern Mill Creek Products Co.
Taylor Chemical Co.

ERBON

Brayton Chemicals, Inc.
Dow Chemical Co.
E-Z Flo Chemical Co.
Los Angeles Chemical Co.
Nalco Chemical Co.
Wilbur-Ellis Co.

MONURON

Brayton Chemicals, Inc.
Chapman Chemical Co.
Destruxol Corp.
Diamond Alkali Co.
E. I. duPont de Nemours & Co.
E-Z Flo Chemical Co.
General Chemical Div., ACC
Hayes-Sammons Chemical Co.
Hoosier Solvents & Chemical Corp.
Los Angeles Chemical Co.
Miller Chemical & Fertilizer Corp.
Nalco Chemical Co.
Patterson Chemical Co., Inc.
Residex Corp.
Southern Mill Creek Products Co.
Thompson Chemical Corp.
Wilbur-Ellis Co.

SIMAZINE*

Agricultural Chemicals, Inc.
American Fluoride Corp.
Barada & Page Co.
Brayton Chemicals, Inc.
Chapman Chemical Co.
Continental Chemiste Corp.
Doggett-Pfeil Co.
E-Z Flo Chemical Co.
Flag Sulfur & Chemical Co.
Florida Agricultural Supply Co.
Fresno Agricultural Chemical Co.
Geigy Agricultural Chemicals
Hub States Chemical & Equipment Co.
Lebanon Chemical Corp.
O. E. Linck Co., Inc.
Los Angeles Chemical Co.
Mercury Chemical Co., Inc.
Miller Chemical & Fertilizer Corp.
Miller Products Co.
Mineral Fertilizer Co.
Nalco Chemical Co.
Niagara Chemical Div., FMC
Patterson Chemical Co., Inc.
Pest Control Equipment Co.
Prentiss Drug & Chemical Co., Inc.
Private Brands, Inc.
Pyrrole Chemical Corp.
Residex Corp.
Riverdale Chemical Co.
G. S. Robins & Co.
Rockland Chemical Co., Inc.
Southern Mill Creek Products Co.
Taylor Chemical Co.
Thompson-Hayward Chemical Co.
Triangle Chemical Co.
United Chemetrics
Wilbur-Ellis Co.
Woodbury Chemical Co.
Woolfolk Chemical Works, Ltd.
York Chemical Co., Inc.

SODIUM ARSENITE

Acme Quality Paints, Inc.
American Fluoride Corp.

Geigy

industrial WEED CONTROL is profitable business

with
SIMAZINE or ATRAZINE
HERBICIDES

Industrial weed eradication is a fast growing market. Custom application of herbicides is widespread, and the practice is growing. Industries and municipalities have become increasingly aware of weed problems, and are seeking ways to effectively eliminate this nuisance and potential fire hazard.

Many PCO's depend upon Simazine and Atrazine, Geigy's outstanding herbicides, for industrial weed control.

These herbicides can be used to eliminate almost all vegetation. One timely application, according to label directions, controls annual and perennial weeds for a full season or more. Simazine and Atrazine are safe to humans and animals, non-irritating to skin, non-flammable, non-corrosive and dependable in the results they provide.



INDUSTRIAL WEED CONTROL MARKETS

Roads, paths, industrial plants, sidings, race tracks, parking lots, around billboards, tennis courts, playgrounds, drive-in-theatres, firebreaks, fence rows, utilities, lumber yards, oil tanks, water works, and many, many other sites in your service area.

**For free 12 page, full-color brochure on
Industrial Weed Control, address Department PC-10.**



ORIGINATORS OF DDT INSECTICIDES

GEIGY AGRICULTURAL CHEMICALS • Division of Geigy Chemical Corporation • Saw Mill River Road, Ardsley, New York

When Writing to Advertisers Please Mention WEEDS AND TURF section

W-7

American Liquid Fertilizer Co.
 Black Leaf Products Co.
 Brayton Chemicals, Inc.
 Brulin & Co., Inc.
 California Chemical Co., Ortho Div.
 California Farm Supply Co.
 Chapman Chemical Co.
 Chipman Chemical Co., Inc.
 Conray Products Co.
 Doggett-Pfeil Co.
 E-Z Flo Chemical Co.
 Faesy & Besthoff, Inc.
 Garden Products Co.
 General Chemical Div., ACC
 James Good, Inc.
 Hopkins Agricultural Chemical Co.
 Hub States Chemical & Equipment Co.
 Industrial Materials Co.
 Los Angeles Chemical Co.
 Miller Chemical & Fertilizer Co.
 Miller Products Co.
 New York Scientific Supply Co.
 Niagara Chemical Div., FMC
 Nott Manufacturing Co.
 Patterson Chemical Co., Inc.
 Pearson-Ferguson Chemical Co., Inc.
 Pennsalt Chemicals Corp.
 B. G. Pratt Co.
 Reade Manufacturing Co.
 Residex Corp.
 Riverdale Chemical Co.
 Rockland Chemical Co., Inc.
 Southern Mill Creek Products Co.
 C. W. Staples, Inc.
 Taylor Chemical Co.
 Thompson-Hayward Chemical Co.
 Triangle Chemical Co.
 U. S. Sanitary Specialties Corp.
 Utility Chemical Co.
 Wilbur-Ellis Co.
 Woodbury Chemical Co.
 Woolfolk Chemical Works, Ltd.

SODIUM CHLORATE

Agricultural Chemicals, Inc.
 American Potash & Chemical Co.
 Baird Chemical Corp.
 Barada & Page Co.
 Braun-Knecht-Heimann Co.
 Brayton Chemicals, Inc.
 Browning Chemical Corp.
 California Chemical Co., Ortho Div.
 Chipman Chemical Co., Inc.
 City Chemical Corp.
 Conray Products Co.
 Doggett-Pfeil Co.
 Enequist Chemical Co.
 Fisher Scientific Co.
 Fresno Agricultural Chemical Co.
 General Chemical Div., ACC
 M. W. Hardy & Co., Inc.
 Harshaw Chemical Co.
 Hayes-Sammons Chemical Co.
 Heico, Inc.
 J. F. Henry Chemical Co., Inc.
 Hooker Chemical Corp.
 Los Angeles Chemical Co.
 Mutchler Chemical Co., Inc.
 Nalco Chemical Co.
 New York Scientific Supply Co.
 Patterson Chemical Co., Inc.
 Pennsalt Chemicals Corp.
 G. S. Robins & Co.
 Robinson Brothers Chemicals, Inc.
 Shepard Div. of Samincorp
 J. U. Starkweather Co., Inc.
 Stauffer Chemical Co.
 Taylor Chemical Co.
 Thompson-Hayward Chemical Co.
 United Chemetries
 Utility Chemical Co.
 Wilbur-Ellis Co.
 Woodbury Chemical Co.

ADVERTISERS

IN THIS MONTH'S WEEDS & TURF
 ARE LISTED IN BOLD FACE

TCA

Amchem Products, Inc.
 Barada & Page Co.
 Braun-Knecht-Heimann Co.
 Brayton Chemicals, Inc.
 California Chemical Co., Ortho Div.
 Chipman Chemical Co., Inc.
 Consolidated Industrial &
 Agricultural Chemicals, Inc.
 Dow Chemical Co.
 E. I. duPont de Nemours & Co.
 E-Z Flo Chemical Co.
 General Chemical Div., ACC
 Lobel Chemical Corp.
 Los Angeles Chemical Co.
 Mineral Fertilizer Co.
 Nalco Chemical Co.
 Patterson Chemical Co., Inc.
 Pennsalt Chemicals Corp.
 Residex Corp.
 Riverdale Chemical Co.
 Robeco Chemicals, Inc.
 G. S. Robins & Co.
 Taylor Chemical Co.
 Thompson-Hayward Chemical Co.
 United Chemetries
 Wilbur-Ellis Co.
 Woodbury Chemical Co.

VACATE*

Diamond Alkali Co.

PRE-EMERGENT

(Selective)

AMIBEN*

Amchem Products, Inc.
 Brayton Chemicals, Inc.
 E-Z Flo Chemical Co.
 Taylor Chemical Co.
 Woodbury Chemical Co.

BANDANE*

Mercury Chemical Co., Inc.
 Prentiss Drug & Chemical Co., Inc.
 Residex Corp.
 Riverdale Chemical Co.
 Velsicol Chemical Corp.
 Woodbury Chemical Co.

CALCIUM PROPYL ARSONATE

W. A. Cleary Corp.
 Doggett-Pfeil Co.
 Vineland Chemical Co.

CDA

E-Z Flo Chemical Co.
 Monsanto Chemical Co.
 Riverdale Chemical Co.
 Thompson-Hayward Chemical Co.

CHLORDANE

See Insecticides

CIPC

Brayton Chemicals, Inc.
 California Chemical Co., Ortho Div.
 E-Z Flo Chemical Co.
 Fresno Agricultural Chemical Co.
 Hayes-Sammons Chemical Co.
 Lobel Chemical Corp.
 Miller Chemical & Fertilizer Corp.
 Niagara Chemical Div., FMC
 Patterson Chemical Co., Inc.
 Pittsburgh Plate Glass, Chem. Div.
 Riverdale Chemical Co.
 Stauffer Chemical Co.
 Taylor Chemical Co.
 Thompson-Hayward Chemical Co.
 Wilbur-Ellis Co.
 Woodbury Chemical Co.
 Woolfolk Chemical Works, Ltd.

DACTHAL*

Brayton Chemicals, Inc.
 Chipman Chemical Co., Inc.
 Diamond Alkali Co.
 Doggett-Pfeil Co.
 E-Z Flo Chemical Co.
 Miller Chemical & Fertilizer Corp.
 Mineral Fertilizer Co.
 Riverdale Chemical Co.
 Rockland Chemical Co., Inc.
 Southern Mill Creek Products Co.
 Taylor Chemical Co.
 Wilbur-Ellis Co.
 Woodbury Chemical Co.

DMTT

Taylor Chemical Co.

NPA

American Oil Co.
 General Chemical Div., ACC
 Naugatuck Chemical
 Niagara Chemical Div., FMC
 Pennsalt Chemicals Corp.
 Stauffer Chemical Co.
 Taylor Chemical Co.

PCP

American Fluoride Corp.
 Barada & Page Co.
 Braun-Knecht-Heimann Co.
 Brayton Chemicals, Inc.
 Browning Chemical Corp.
 Chapman Chemical Co.
 City Chemical Corp.
 Cole & DeGraf
 Conray Products Co.
 DeMert & Dougherty, Inc.
 Dow Chemical Co.
 Eastern Seaboard Supply Co.
 B. R. Elk & Co.
 Fisher Scientific Co.
 Fort Pitt Chemical Co.
 Fresno Agricultural Chemical Co.
 Frontier Chemical Co.
 Hewes Gotham Co.
 Hoosier Solvents & Chemicals Corp.
 Howe & French, Inc.
 Hub States Chemical & Equipment Co.
 Lobel Chemical Corp.
 Lorenz Chemical Co.
 Los Angeles Chemical Co.
 Michlin Chemical Corp.
 Miller Chemical & Fertilizer Corp.
 Mineral Fertilizer Co.
 Nalco Chemical Co.
 Ohio Solvents & Chemicals Co.
 Pennsalt Chemicals Corp.
 Private Brands, Inc.
 Reichold Chemical Co.
 Riverdale Chemical Co.
 G. S. Robins & Co.
 Steidle Chemical Co.
 Stauffer Chemical Co.
 Taylor Chemical Co.
 Thompson-Hayward Chemical Co.
 Triangle Chemical Co.
 United Chemetries
 Wolverine Solvents & Chemicals Co.
 Woodbury Chemical Co.
 York Chemical Co., Inc.

SESONE*

Amchem Products, Inc.
 Brayton Chemicals, Inc.
 E-Z Flo Chemical Co.
 Florida Agricultural Supply Co.
 Lebanon Chemical Corp.
 Miller Chemical & Fertilizer Corp.
 Miller Products Co.
 Patterson Chemical Co., Inc.
 G. S. Robins & Co.
 Taylor Chemical Co.
 Thompson-Hayward Chemical Co.
 Union Carbide Chemicals Co.
 United Chemetries
 Woodbury Chemical Co.

VACATE



WEEDS

This new, fast way with VACATE... Diamond's new nonselective herbicide for dry application

This is it. The herbicide you hoped would come. The weed and grass killer that lasts more than one year. A patented feature of this killer is the chemically combined water which makes it dust free. It can be applied *any time* (most economical results are from spring or late fall spreading). It is easy to handle—requires no mixing, hauling water, or using expensive equipment.

This is Diamond's new VACATE, and it has many physical advantages over previous formulations for battling weeds and grass. VACATE offers economy of application and efficiency in performance.

VACATE can be used anywhere a weed- and grass-free

area is desirable. It controls all vegetation. Normal rainfall starts action—a total accumulated rainfall of an inch is ample. And it is safe . . . noncorrosive, nonflammable, and nontoxic. You ought to know the whole story. Write Diamond Alkali Company, 300 Union Commerce Building, Cleveland 14, Ohio.



VACATE is one of the

**Diamond
Chemicals**

When Writing to Advertisers Please Mention WEEDS AND TURF section

W-9

**Selective Pre-Emergent
Herbicides (Cont.)**

TRICALCIUM ARSENATE

Chipman Chemical Co., Inc.
General Chemical Div., ACC
Los Angeles Chemical Co.
Patterson Chemical Co., Inc.
Pennsalt Chemicals Corp.
Vineland Chemical Co.

TRIFLURALIN

American Liquid Fertilizer Co.
Brayton Chemicals, Inc.
Dow Chemical Co.
E-Z Flo Chemical Co.
Miller Chemical & Fertilizer Corp.
Residex Corp.
Riverdale Chemical Co.
Thompson-Hayward Chemical Co.
Woodbury Chemical Co.

ZYTRON*

Dow Chemical Co.

**POST-EMERGENT
(Selective & Non-Selective)**

AMITROLE*

Amchem Products, Inc.
American Cyanamid Co.
Brayton Chemicals, Inc.
E-Z Flo Chemical Co.
Los Angeles Chemical Co.
Nalco Chemical Co.
Residex Corp.
Riverdale Chemical Co.
Southern Mill Creek Products Co.
United Chemetrics
Wilbur-Ellis Co.

AMMONIUM METHYL ARSONATE

American Liquid Fertilizer Co.
Ansul Chemical Co.
Black Leaf Products Co.
Brayton Chemicals, Inc.
W. A. Cleary Corp.
Doggett-Pfeil Co.
Southern Mill Creek Products Co.
Vineland Chemical Co.

AMMONIUM SULFAMATE

Barada & Page Co.
Braun-Knecht-Heimann Co.
Brayton Chemicals, Inc.
E. I. duPont de Nemours & Co.
E-Z Flo Chemical Co.
Eastern Seaboard Supply Corp.
Fresno Agricultural Chemical Co.
Hoosier Solvents & Chemical Corp.
Howe & French, Inc.
Kaufholz & Co.
Los Angeles Chemical Co.
Miller Chemical & Fertilizer Corp.
Nalco Chemical Co.
Patterson Chemical Co., Inc.
Residex Corp.
G. S. Robins & Co.
Southern Mill Creek Products Co.
Wilbur-Ellis Co.

AMMONIUM THIOCYANATE

J. T. Baker Chemical Co.
Eastern Seaboard Supply Corp.
Mallinckrodt Chemical Works
Sinclair Mineral & Chemical Co.
Utility Chemical Co.

ARSENIC ACID

Barada & Page Co.
Braun-Knecht-Heimann Co.
California Chemical Co., Ortho Div.

Chemical Affiliates, Inc.
Chipman Chemical Co., Inc.
Commercial Chemicals Co.
Delta Chemical Works, Inc.
Fisher Scientific Co.
Garden Products Co.
General Chemical Div., ACC
Hayes-Sammons Chemical Co.
International Commodities Corp.
Los Angeles Chemical Co.
Miller Chemical & Fertilizer Corp.
Niagara Chemical Div., FMC
Pennsalt Chemicals Corp.
G. S. Robins & Co.
Schnee-Morehead Development Corp.
Thompson-Hayward Chemical Co.
Woolfolk Chemical Works, Ltd.

ATRAZINE*

See Soil Sterilants

BORON

See Soil Sterilants

CACODYLIC ACID

Ansul Chemical Co.
New York Quinine & Chemical Works
Patterson Chemical Co., Inc.

CALCIUM ACID METHYL ARSONATE

American Liquid Fertilizer Co.
Brayton Chemicals, Inc.
Chapman Chemical Co.
W. A. Cleary Corp.
Doggett-Pfeil Co.
Rockland Chemical Co., Inc.
Vineland Chemical Co.

CALCIUM PROPYL ARSONATE

See Pre-Emergent Herbicides

DMA

Ansul Chemical Co.
Chapman Chemical Co.
W. A. Cleary Corp.
Continental Chemiste Corp.
Hayes-Sammons Chemical Co.
Miller Chemical & Fertilizer Corp.
Patterson Chemical Co., Inc.
Riverdale Chemical Co.
Taylor Chemical Co.
Thompson-Hayward Chemical Co.
Vineland Chemical Co.
Woodbury Chemical Co.

ENDOTHAL*

Brayton Chemicals, Inc.
Doggett-Pfeil Co.
E-Z Flo Chemical Co.
Pennsalt Chemicals Corp.
Southern Mill Creek Products Co.
Wilbur-Ellis Co.

EPTC (EPTAM*)

Brayton Chemicals, Inc.
E-Z Flo Chemical Co.
Mineral Fertilizer Co.
Patterson Chemical Co., Inc.
Stauffer Chemical Co.
Taylor Chemical Co.

FENAC

Nalco Chemical Co.
Thompson-Hayward Chemical Co.
Wilbur-Ellis Co.
Woodbury Chemical Co.

HEXACHLOROACETONE

General Chemical Div., ACC

MONURON

See Soil Sterilants

NEBURON

Brayton Chemicals, Inc.
Chapman Chemical Co.
E. I. duPont de Nemours & Co.

E-Z Flo Chemical Co.
Los Angeles Chemical Co.
Nalco Chemical Co.
Residex Corp.
Southern Mill Creek Products Co.
Wilbur-Ellis Co.

PHENYL MERCURIC ACETATE

American Liquid Fertilizer Co.
California Chemical Co., Ortho Div.
W. A. Cleary Corp.
Doggett-Pfeil Co.
E-Z Flo Chemical Co.
Eastern Seaboard Supply Corp.
Eastern States Farmers' Exchange
Faesy & Besthoff, Inc.
General Chemical Div., ACC
Guard Chemical Co., Inc.
Mallinckrodt Chemical Works
Nott Manufacturing Corp.
Stecker Chemicals, Inc.
Vineland Chemical Co.
Wood Ridge Chemical Corp.
Woodbury Chemical Co.

PROPAZINE*

Brayton Chemicals, Inc.
Chapman Chemical Co.
E-Z Flo Chemical Co.
Geigy Agricultural Chemicals
Mercury Chemical Co., Inc.
Nalco Chemical Co.
Patterson Chemical Co., Inc.
Prentiss Drug & Chemical Co., Inc.
Residex Corp.
Southern Mill Creek Products Co.
Thompson-Hayward Chemical Co.
Wilbur-Ellis Co.
Woodbury Chemical Co.

SILVEX

Acme Quality Paints, Inc.
Amchem Products, Inc.
Black Leaf Products Co.
Brayton Chemicals, Inc.
California Chemical Co., Ortho Div.
Chipman Chemical Co., Inc.
Diamond Alkali Co.
Doggett-Pfeil Co.
Dow Chemical Co.
E-Z Flo Chemical Co.
Hayes-Sammons Chemical Co.
Hercules Powder Co., Reasor-Hill Div.
Los Angeles Chemical Co.
Miller Chemical & Fertilizer Corp.
Miller Products Co.
Nalco Chemical Co.
Patterson Chemical Co., Inc.
Residex Corp.
Riverdale Chemical Co.
Rockland Chemical Co., Inc.
Southern Mill Creek Products Co.
Thompson Chemical Corp.
Thompson-Hayward Chemical Co.
United Chemetrics
Wilbur-Ellis Co.
Woodbury Chemical Co.

TILLAM

Stauffer Chemical Co.

2,4-D

Amchem Products, Inc.
American Liquid Fertilizer Co.
Black Leaf Products Co.
Brayton Chemicals, Inc.
California Chemical Co., Ortho Div.
Chemagro Corp.
Chipman Chemical Co., Inc.
City Chemical Corp.
W. A. Cleary Corp.
Continental Chemiste Corp.
Diamond Alkali Co.
Doggett-Pfeil Co.
Dow Chemical Co.
E-Z Flo Chemical Co.
Eastern Seaboard Supply Corp.