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**W-21**

is called *Eumicrosoma benefica* Gahan.

Other natural enemies of chinch bugs are the red-winged blackbird, bobwhite, catbird, brown thrasher, and meadowlark. Bird predation, however, is not dependable as a means of biological control because birds do not eat enough of the bugs to be classed as a major control factor.

#### Chemical Control

Chemicals recommended vary from old standbys to the newest weapons needed to combat resistance which shows up in some populations.

DDT, used on *insularis* in tests conducted at Auburn, Alabama, by Eden and Self in 1960, at 10 lbs. active (equals technical) in either spray or granular form, protected the grass for 4 months. DDT has also given control of *hirtus* in Ohio.

Chlordane can be used at 1¼ lbs. active material per 5000 sq. ft. against *hirtus* in some parts of New England.

Unlike chlordane and dieldrin, which are available as emulsifiable concentrates, powders, and dusts, diazinon has been used on lawns as an emulsifiable concentrate and wettable powder.

Recently Geigy developed a granular diazinon called Spectracide 2 G, which is available this year, for use against lawn insects, especially chinch bugs. It will be applied at the same rate as mentioned below for diazinon.

Diazinon at 7½ ounces active per 5000 sq. ft.; dieldrin at ⅓ lb. active per 5000 sq. ft.; and Sevin at 1 lb. active per 5000 sq. ft. are also recommended against *hirtus* in the Northeast. These chemicals are used in the South also.

Florida, having applied chemicals against chinch bugs for a longer period of time and developed more resistance in them, recommends newer insecticides for use against this most serious lawn pest.

V-C 13 is recommended at a maximum of 3 lbs. active per 5000 sq. ft. Trithion is used at 12 ounces active per 5000 sq. ft., and Ethion is advised at 1 lb. active per 5000 sq. ft. These chemicals are also used in states other than Florida.

Newest addition to the Florida recommendations is Aspon, which

will be used at about 12 oz. active per 5,000 sq. ft. This is marketed by Stauffer.

Regarding the use of parathion, Dr. S. H. Kerr told *Weeds and Turf*, "At one time it [parathion] was about the only effective material spraymen had in some places, but now there are so many other effective materials available that are far less toxic to warm-blooded animals, we feel there is little justification for continuing its use."

Oddly enough, Zytron, Dow's new pre-emergence herbicide for crabgrass control, appeared useful in experimental trials both in Florida and Alabama. It is not yet registered for use against chinch bugs, however.

It should be mentioned that turf fertilization, specifically application of nitrogen, fosters chinch bug development and increases chances that there will be damage.

Often nitrogen is applied when grasses normally slow their growth. The purpose of the nitrogen is to boost growth. This excess nitrogen may work to the disadvantage of the lawn if chinch bugs develop to infestation levels. Moderate fertilization, if any, is advised; keep the nitrogen at a minimum during chinch bug seasons.

#### Application Techniques

Tests from Ohio Experiment Station conducted by Professor Polivka showed that a second treatment of insecticide is necessary to combat the second generation which may be in the egg stage when the first treatment is applied.

First treatment may be made when damage becomes very evident. If the first treatment is made to prevent early injury, Professor Polivka advises, the second treatment should be applied in August.

In areas where chinch bug damage was evident the previous year, it is advisable to apply control materials early in the season, preferably late May or early June, to control the developing first generation.

If a spray is to be applied, it is wise to water the lawn thoroughly before treatment so that the water carrier used for treatment will penetrate better. After treatment, do not water for several days.

If prewatering is not done, up to 30 gallons of water per 1000 sq. ft. may be desired for proper penetration. Nozzles which produce coarse sprays are generally preferred to reduce drift and aid penetration.

If dusts or granules are applied, the lawn should be watered thoroughly a day or so before, so that the soil will be sufficiently supplied with water. It should be allowed to dry out on top, because dry chemicals applied to wet grass may cause a discoloration.

After application of dry material with a calibrated spreader or dependable broadcaster, the lawn should be sprinkled lightly to wash the chemical down around the crown of the grasses where the insects feed. Dry applications should be left unwatered also for several days afterward.

Strive for even distribution of the chemical regardless of the form used. Be certain to read all of the label directions and precautions before application.

Resistance of an insect to a chemical insecticide may crop up where that chemical is used sufficiently to cause selection pressure on the population. A few insects may escape elimination and reproduce, passing on to their offspring the ability to tolerate chemical treatment. The offspring too are "weeded" for the ones not fit to survive in an insecticidal environment, and those left build up populations of resistant insects quickly because they have a high rate of reproduction.

Such has been the case in Florida. DDT had been used in the past to control chinch bugs and other lawn insects. Chinch bugs are now, according to Dr. S. H. Kerr, "evidently resistant to DDT in much of Florida."

In Connecticut, David E. Leonard reports, "spraying occurs only when chinch bugs are a problem, but *hirtus* has become resistant in some places. This has occurred because chinch bugs were exposed to chemicals used for control of grubs and other lawn insects long enough to have developed resistance."

Professor Milton G. Savos told *Weeds and Turf* that resistance to dieldrin, DDT and chlordane was  
(Continued on page W-25)

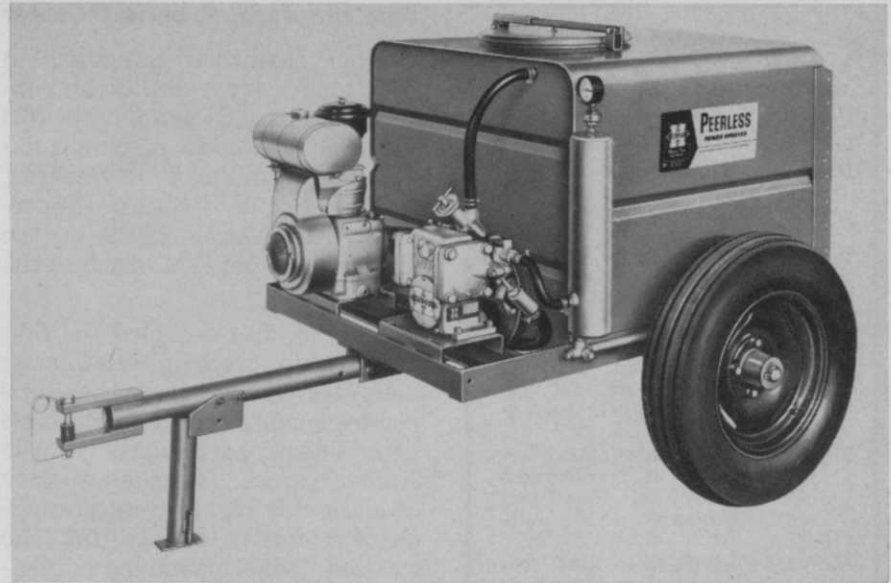
## Hudson Adds Nonlubricating Pump to "Peerless" Sprayers

Drive mechanism of the new "Ten-O-Matic" pump, from H. D. Hudson Manufacturing Co., is enclosed in a transmission chamber which runs in a bath of oil, the firm announces.

New pump thus operates without the use of packings, cups, sliding pistons, or similar wearing parts, and eliminates the need for daily lubrication, Hudson reports. All "Peerless" power sprayers of 10 gpm output will include the "Ten-O-Matic" as standard equipment, a company spokesman revealed.

After a 10 hour break-in period, oil in the transmission is changed only once every 100 hours, or once a season, whichever comes first. All parts of the pump with which chemicals come into contact are made of metals and synthetics of extremely high corrosion resistance, the firm adds.

New pump will maintain constant volume up to 10 gallons per minute at pressures up to 400 lbs. without noticeable dropoff from



Packings, cups, sliding pistons, and similar wearing parts are eliminated in the new "Ten-O-Matic" pump, from H. D. Hudson Manufacturing Co., which has a transmission chamber that runs in a bath of oil, the manufacturer claims.

slippage or leakage, Hudson claims.

Sprayers with the new "Ten-O-Matic" pump come in 150-, 200-, and 300-gallon sizes, Hudson reports, and are available on skids for use on a truck or trailer, on wheels with a hitch for truck or

tractor drawbar, and with front-end casters and hitch for tractor or truck towbar.

For more information on the new pump, write H. D. Hudson Manufacturing Co., 589 East Illinois St., Chicago 11, Ill.

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## Meeting Dates

- International Shade Tree Conference, Western Chapter, Annual Convention, Star Dust Hotel, Las Vegas, Nev., May 12-15.**
- Florida Nurserymen & Growers Assn. Annual Convention, Deauville Hotel, Miami Beach, Fla., May 23-25.**
- South Carolina Nurserymen's Assn. Annual Convention, Clemson House, Clemson Agricultural College, Clemson, S.C., June 9-11.**
- Plains Nurserymen's Assn./New Mexico Assn. of Nurserymen Joint Convention, Cloudercroft Lodge, Cloudercroft, N.M., June 9-11.**
- National Plant Food Institute Annual Conference, Greenbrier Hotel, White Sulphur Springs, W. Va., June 9-12.**
- 3rd Annual Meeting, Fla. Society of Golf Course Superintendents, Jacksonville, June 18-20.**
- American Society of Landscape Architects Annual Meeting, Penn-Sheraton Hotel, Pittsburgh, Pa., June 23-26.**
- USDA Field Day for industrial cooperators. Plant Industry Station, Beltsville, Md., July 10.**
- American Assn. of Nurserymen Annual Convention, Shamrock Hilton Hotel, Texas, July 20-24.**

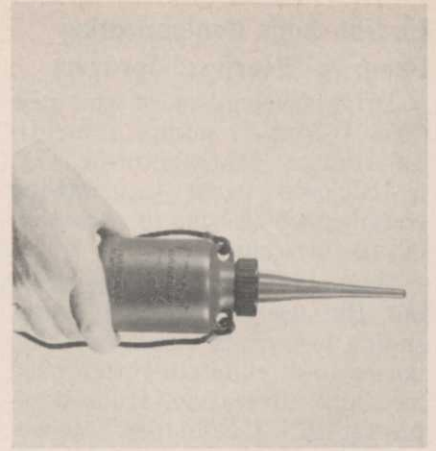
## Tree Wardens, Arborists Confer

More than 300 specialists in park maintenance and brush control examined practices and surveyed up-to-date recommendations at the annual Tree Wardens, Arborists, and Utilities Conference, held March 18-22 at the University of Massachusetts, Amherst.

Pesticide use occupied the first afternoon's program, and most delegates agreed that the anti-pesticide campaigners would have little effect, particularly in the Amherst area. "But the necessity of using only highly trained applicators must constantly be stressed," one attendant emphasized.

Continued cooperation and understanding among telephone and electric companies and municipalities was also covered; municipal tree planting should be functional and esthetically pleasing, but must provide for utmost disease control, the delegates concluded.

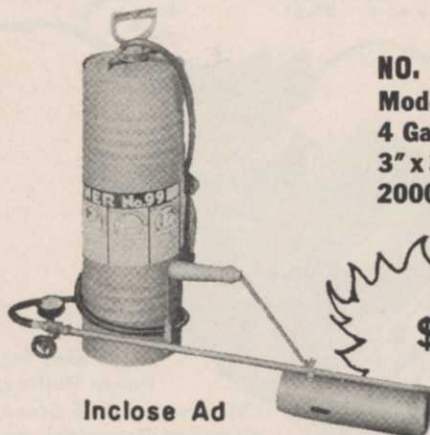
Annual conference is sponsored by the Massachusetts Tree War-



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## Chinch Bugs

(from page W-22)

found in 1960 in Fairfield County (SW Connecticut), and in 1961 in New Haven County (S. Central Conn.).

Localized resistance in Florida to parathion, a highly toxic material, has been found "about residential neighborhoods right on the ocean front, bays, salt water waterways and canals in the southern third of Florida," according to Dr. Kerr.

Although resistance may thwart efforts of CAs in one area, other places are relatively free of resistance and control may be achieved with DDT as has been shown by tests in Ohio and Alabama.

County agents and extension services should be consulted where there is doubt about the ability of insects in an area to resist a particular chemical treatment.

In view of the confusion surrounding the use of the term "chinch bug" for three different insects, we suggest that the adjectives be added to the common names. Hairy chinch bug is the northeastern form; lawn chinch bug is the southern form; and chinch bug remains the pest of wheat and corn. Regardless of the uncertainty of scientific nomenclature, it is helpful to mention one of the scientific names when relating facts about any of the insects concerned.

## Western Weed Conclave Views Turf Maintenance March 20-22

Increased interest in turf management in the western states was demonstrated by all-time high attendance of more than 230 contract applicators and other professionals at the Western Weed Control Conference, held this year in Portland, Ore., March 20-22.

Representatives of academic, extension, regulatory, and commercial fields heard a wide variety of papers, highlighted by a symposium on the deposit and entry of sprayed herbicides into foliage.

Herbert M. Hull, of the Agricultural Research Service, U.S. Department of Agriculture, Tucson, Ariz., was chairman of the research section of this year's program.

L. L. Jansen, from the Crops

Research Division, Agricultural Research Service, USDA, Beltsville, Md., traveled to the Portland meeting to analyze surfactant enhancement of herbicide entry, while T. J. Muzik, Washington State University, Pullman, reported on experiments on the effect of light and temperature on response of plants to 2,4-D.

Application techniques for improving deposits and minimizing drift, plant surfaces and herbicide penetration, and physiology of herbicide transport in plants were

covered by C. R. Kaupke, C. L. Foy, and A. S. Crafts all from the University of California, Davis.

At the conclusion of the conference, a number of delegates attended a tour of the Oregon State University campus and turf research facilities.

Officers elected for the 1965 Conference included J. M. Hodgson, president; Millard Swingle, vice president; and Louis Jensen, secretary. Albuquerque, New Mexico, will be site of the 1965 Conference, *W&T* learned.

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Hitting on a wide range of turf problems at the annual Turf Conference, University of Massachusetts, March 7-8, extension agents from that state who addressed the delegates included (left to right): William J. Bennett, Lewis A. Hodgkinson, H. Thurston Handley, Jr., Herbert C. Fordham, and Dominic A. Marini.

## Estimate '63 Lawn Pest Infestations At Annual U. of Mass. Turf Conference

Continued Japanese beetle infestation, widespread chinch bug and frit fly injury, and more leaf hoppers — these will be the effects of 1962 weather on this year's incidence of insects on golf turf and home lawns — at least in the New England area.

Speaking at the Annual Turf Conference at the University of Massachusetts, March 7-8, Professor John C. Schread of the Connecticut Agricultural Experiment Station at New Haven, told the more than 500 participants that other factors enter into the picture of forecasting insect abundance.

These include parasites, predators, nematodes, bacteria, protozoa and predatory animals.

"Fertilizing from spring to late summer is necessary. A 'non-burning' type high in nitrogen is best for home gardens. A well-fertilized lawn reduces the re-

quirement for water," said County Extension Agent Lewis Hodgkinson in his talk on maintenance and equipment.

Rolling can be harmful or helpful, but best done in the spring on shallow-rooted lawns such as new lawns or lawns with little topsoil, he added.

"There's no short-cut or cheap way out in establishing a good lawn," declared Prof. Herbert C. Fordham, Massachusetts Extension horticulturist in discussing lawn construction and insect problems. "Drainage, quality of topsoil, insect control and proper watering are the 'plusses' that must go into a good lawn."

### "Which Fertilizer to Use?"

William Bennett, regional extension agent in horticulture, told delegates that type of fertilizer to use is a frequent problem facing CAs. "What to use? How much? When?" he asked.

Balance in fertilizing is fundamental for a healthier and denser turf. Each fertilizer is good if used according to its characteristics and within limitations, he continued. Different types of fertilizer include the inorganic sources such as commercial fertilizers, 10-10-10, 5-10-5, etc.; natural organic fertilizers typified by sewage sludge, bean meals; synthetic organic sources such as urea-formaldehyde; and finally, a combination of organic and inorganic such as 10-6-4, 1-5-5 and 8-6-4, Bennett enumerated.

A combination of organic and inorganic sources of fertilizer probably is best for home lawns in general. "Based on 3 lbs. of nitro-

gen per thousand square feet per year, applied at rate of 1 lb. of nitrogen per application, best times to fertilize would be about April 1, May 15, and September 1," Bennett concluded.

Confusion and ignorance regarding lawn products such as fertilizers, seed, weedkillers, and management practices are the main problems today, Dominic Marini, county extension agent, emphasized in a discussion of weeds and diseases.

In the Cape Cod area, heavy fog and high humidity are conducive to diseases, especially on heavy turf, he noted. Alternating three fungicides at 2 or 3 week intervals usually gives good control. Crabgrass, toadstools, grubs, and beetles are prime offenders in the pest field.

Role of urea-formaldehyde fertilizers (methylene ureas) was discussed by two separate speakers, H. Thurston Handley, Jr., and Herbert C. Fordham. Both extension horticulturists arrived at the same conclusion: ureaform is an excellent nitrogen product that can be applied twice a year to dry turf to supply nitrogen for a growing season without fear of burning. Part of the nitrogen will break down rapidly for quick results and the remainder gradually for long-term feeding of turf.

Labor-management relations, golf course maintenance and problems, land usage, and plantings were other topics covered during the two-day conference.

### Chlordane Controls Billbugs

Chlordane, applied at a rate of 2.5 lbs. of actual material per acre, has been found an effective control of merion bluegrass billbugs, scientists at the Ohio Experiment Station, Wooster, report.

Merion bluegrass, a relatively new variety of lawn grass, has been tested in nitrogen fertilization plots at the Station when brown spots were first noticed. Inspection showed the crowns of the plants destroyed by larvae of the bluegrass billbug, an uncommon pest in Ohio.

Dieldrin and heptachlor, when applied at 3 lbs. per acre, were also effective control measures for the billbugs, the turfmen reported.



Among top turf men from Massachusetts at the Turf Conference were Eliot F. Rogers (left), president of the Massachusetts Turf Council, and J. Richard Beattie, cooperative extension associate director.

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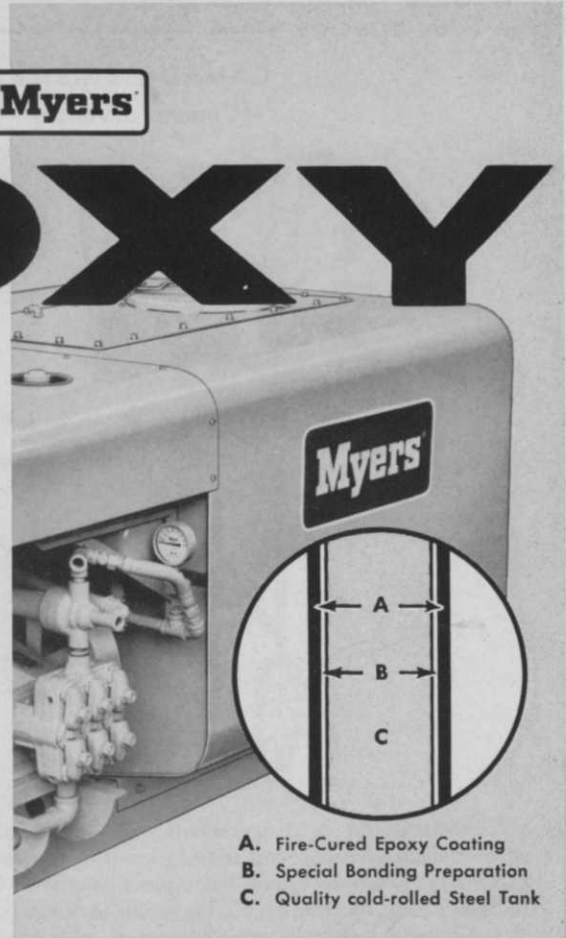
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**CANADA THISTLE**  
(*Cirsium arvense*)



Canada thistle is a perennial which reproduces by seed and by sprouts from underground rootstocks. This aggressive and difficult-to-eradicate weed is found throughout southern Canada and northern United States. Its range extends south to Virginia and west to Calif.

A Canada thistle may be confused with other thistles such as bull thistle, *Cirsium vulgare*, or tall thistle, *C. altissimum*. A characteristic which will separate them is the size of the flower head. A Canada thistle head is less than  $\frac{3}{4}$  inch in diameter (usually about the size of the tip of a pointed finger). Heads of most other thistles are much larger. Also, tall thistle has no hair on its stem; bull and Canada thistles do. Canada thistle has a lavender flower, while bull thistle has a darker purple flower. Since Canada thistle arises from creeping roots, erect stems are often found crowded in twos and threes, whereas the other two species have single stems with taproots.

Stems of Canada thistle are erect, grooved, and branched only on top (A). Leaves have scalloped, prickly edges typical of thistles.

Flower heads of Canada thistle are more numerous than on many other species. Each flower is less than  $\frac{3}{4}$  inch in diameter and not spiny. Canada thistle is dioecious ("two houses"), which means that male and female flowers are borne on separate plants. Flowers on staminate or male plants are oblong, whereas those on seed-bearing plants are more ovoid, lengthening somewhat at maturity.

Seeds (B) are  $\frac{3}{16}$  inch long with a circular rib at one end to which is attached the tannish feathery down (C) which carries the seed on the wind.

Creeping stems and roots send up new plants intermittently (D, E). Roots may be several feet deep and are connected horizontally (F). It is this root growth pattern which makes Canada thistle so difficult to eradicate.

Where soil sterilization is not desired, 2,4-D in the amine form (because it kills tops slowly and permits herbicide movement to roots), or MCPA are useful control chemicals if applied to actively growing plants in the late vegetative to early bud stages of growth.

Soil-applied herbicides, such as sodium chlorate or chlorate-borate-monuron combinations and 2,3,6-TBA, will control Canada thistle. Repeated treatments of amino triazole as a translocated herbicide will also kill this troublesome weed.

Prepared in cooperation with Crops Research Division, Agricultural Research Service, United States Department of Agriculture, Beltsville, Maryland.

(DRAWINGS FROM NORTH CENTRAL REGIONAL PUBLICATION NO. 36, USDA EXTENSION SERVICE)

**Stauffer Has New Insecticide, Aspon, for Chinch Bugs**

Aspon, a new insecticide from Stauffer Chemical Co., is reported to be a highly effective lawn chinch bug control.

Initial kill in test areas has been 95% or better within 48 hours, according to Stauffer, and control frequently lasts 60-90 days or more. Moreover, the firm continues, even chinch bugs highly resistant to other insecticides, such as DDT, are controlled with Aspon.

Aspon, chemically tetra-n-propylthionopyrophosphate, is applied to lawns in water dilution, and will not have any harmful effect on turf grass, although it is slightly toxic to mammals, Stauffer points out.

After being tested in Florida for two years, Aspon is now on that state's recommended list for lawn chinch bug control.

For more information on the new insecticide, write to Stauffer Chemical Co., 380 Madison Ave., New York 17, N.Y.

**Control Scales with Oil Spray**

Scale insects should be controlled before they have an opportunity to attack ornamentals, and shade trees, according to William Hantsbarger, extension entomologist at Colorado State University.

"Apply a dormant spray before the trees break into buds," Hantsbarger recommends, using about a 4% solution. All parts of the tree must be completely covered to be effective, he added.

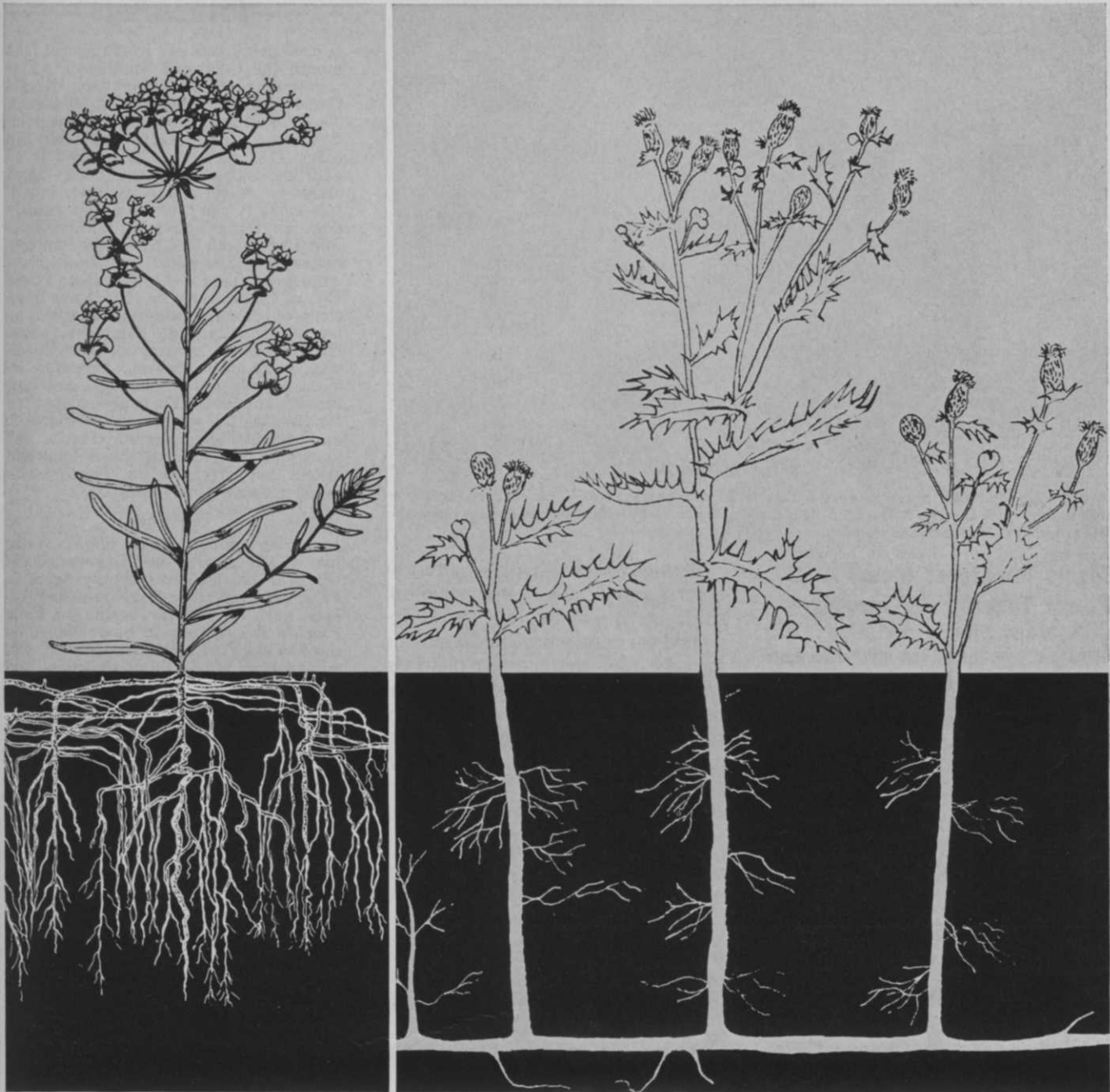
**Chemagro Reports on Dyrene**

Results of tests on Dyrene, a turf fungicide from Chemagro Corp., developed for dollar and leaf spot, melting out and rust, are available in a new booklet published by that firm.

Bound into an 8-page brochure, the reports show how grounds superintendents in New York, Massachusetts, and Michigan successfully used Dyrene; application rates and schedules are discussed as well.

Copies are available by writing to Chemagro Corp., P.O. Box 4913, Kansas City, Mo., and asking for bulletin DY6-163.





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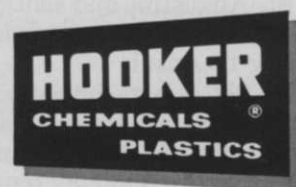
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rate in drums of 50 and 100 lb. net. Available through agricultural chemical distributors.

**Technical aid.** Our full-time agronomists can help you with weed-control plans and advise on handling, storing, and using sodium chlorate.

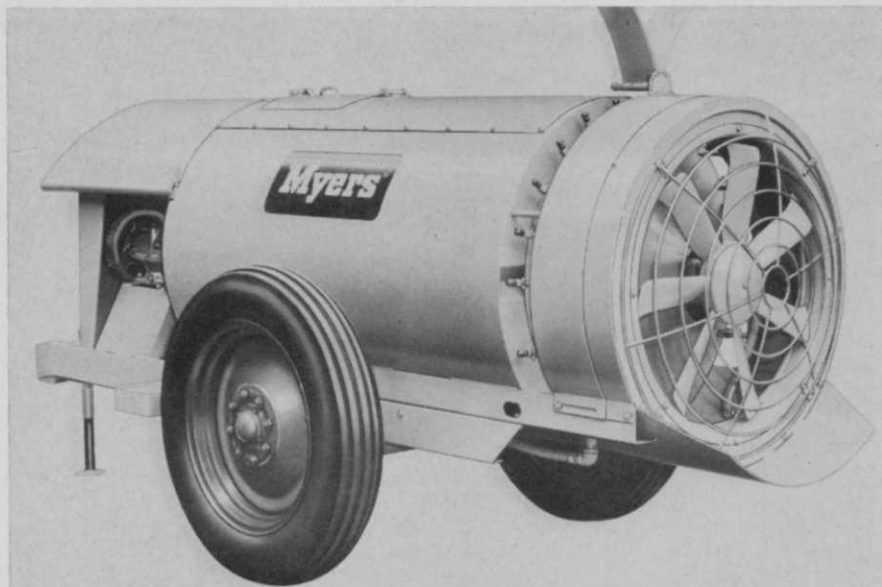
For descriptive folder, or name of the Hooker distributor nearest you, please write Hooker Chemical Corporation, 405 Buffalo Avenue, Niagara Falls, N. Y. Sales Offices: Boston, Buffalo, Chicago, Detroit, Los Angeles, New York, Niagara Falls, Philadelphia, Tacoma. In Canada: Hooker Chemicals Limited, North Vancouver, B. C.



AGRICULTURAL CHEMICALS

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W-29



A hinged hood panel provides easy access to the new power take-off air sprayer recently introduced by the F. E. Myers & Bro. Co., Ashland, Ohio. Round spray tank is designed with a removable top to facilitate inspection and cleaning.

### Myers Introduces Model A-32 Power Take-Off Air Sprayer

A new, power take-off air sprayer, designed to provide fast and economical production in a wide variety of spray applications, has been introduced by the F. E. Myers & Bro. Co., Ashland, Ohio.

Called the A-32, the new model is available in either 300- or 400-gallon tank sizes, and comes equipped with Myers 6125 spray pump, said to operate at pressures up to 800 lbs.

### Ansul Chemical Co. Introduces New Post-Emergent Herbicides

Two new post-emergent herbicides from Ansul Chemical Co. have recently been marketed by that firm.

Ansar 157 monoammonium methanearsonate, which has been tested under two separate formulations, A-12 and A-12-M, is claimed effective in controlling crabgrass, dallis grass, and nut grass in established turf. Recommended treatment is 1½ to 2 lbs. per acre.

Bermuda, blue grass, dichondra, and zoysia grasses are tolerant, while St. Augustine and centipede are susceptible to this compound, according to Ansul.

Ansar 184 is a technical grade product containing the equivalent of 100% disodium methylarsonate hexahydrate, the company reports.

Herbicidal activity on grassy

Straight-through drive shaft is incorporated, and power take-off shaft is the ball-spline type, designed for minimum thrust on the sprayer and the tractor bearings while the shaft is turning, a company spokesman reveals. Spray tank, as well as all blower parts on the new A-32, are protected against corrosion by Myers' epoxy coating, the firm reports.

For more information on the new sprayer, write the company in Ashland, Ohio.

weeds and relative safety from a toxicity point of view are two of its outstanding characteristics, Ansul spokesmen claim.

Ansar 184 acts primarily as a foliage-absorbed agent, and the observed symptom of herbicidal activity is a gradual chlorosis of the leaves 2 to 4 days after application, the firm reveals.

Brochures are available on both herbicides. Interested CAs may write the firm, at Marinette, Wis., for a free copy of the pamphlet on Ansar 157 or on Ansar 184.

### Tobacco Fumigating Covered

Correct techniques to fumigate tobacco seed beds are detailed in a new pamphlet published by the Great Lakes Chemical Corp. Importance of properly preparing and fumigating seed bed soil are stressed in the folder, available by writing the firm at 206 South St., West Lafayette, Ind.

O good grief, here she comes again! Last month the Columbia Broadcasting System put another spotlight on Rachel Carson and her antipesticide obsessions. The hour-long program, which was relatively fair in its presentation, surely had many CAs groaning "When will it all end?" *Silent Spring* has been talked about as much as the weather, but in this case, it can't be said that nobody does anything about it. Witness a recent issue of an electric utility company house organ. The paper, *West Penn News*, employee paper for the West Penn Power Co., of Greensburg, Pa., lists some questions which employees may be asked, by fearful if unknowing neighbors, about chemical brush control along rights-of-way. And the answers, prepared by West Penn's Fred Ashbaugh, are fast, factual, and facile. We congratulate Fred for pointing the way for his personnel to answer outsiders queries. (Fred's well known in the industry as a long and ardent supporter of the Northeastern Weed Control Conference.)

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*Long day's journey into blight.* We've just heard about Florida nematologist Gil Whitton, assistant county agent in Pinellas County, and the gruelling 12-hour days he puts in working on *Your Florida Lawn*, soon to be published by the Florida Turf Grass Association. Gil, an expert on top dressing, thatching, and verticutting, wheels through this formidable schedule apparently fortified by his ever-present black cigar, and bottomless cup of black coffee. These Florida scientists just aren't prone to lie in the sun, it seems to us, when there's turf blight to be eliminated!

\* \* \*

*Under (and over) his thumb.* We just had a nice letter from D. Parker-Sproule (part of which appears in the *Letters* column on page W-6) who runs Thumb Weed Spraying Service in Harbor Beach, Mich. Mr. Parker-Sproule is of Canadian origin, and has a most varied background in weed and general pest control. For example, he once took an expansion-minded pest control firm in Toronto, which had nine branches, and turned it into a bonafide weed control company, which later received contracts ranging from military camps to private estates to entire cities! The versatile Canadian also operated in Sarnia, Ont., where he guided what he calls modestly and simply "a large operation." This "operation" was apparently a major one, because the firm added industrial plant site weed control contracts to its books, along with lawn spraying jobs, and again, contracts for weed and turf work for complete cities. What made Mr. Parker-Sproule forsake all this for Michigan's Thumb? You guessed it! "I was finally sold on coming to the state of Michigan to join my wife," he writes candidly.

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*Our busy suppliers.* Just learned that Geigy's George R. Ferguson (he's president of the herbicide/insecticide firm) addressed a Rutgers University gathering recently about the need for more technically trained, research-oriented scientists for industry. Most CAs, whose expanding businesses keep them constantly on the go, will probably agree that this industry, in particular, has lucrative, challenging positions for young chemists, botanists, and horticulturists.