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Ethion kills chinch bugs . . . ends destruction to lawns, parks and fairways. Ounce-for-ounce no pesticide outperforms it. Tests show just one application gives outstanding results and provides total control. And Ethion is easy-to-use, safe, economical, long lasting. U.S.D.A.-approved to curb sod webworms, halt mites in Bermuda grass, too. Write or call your supplier today for details.

fmc

TECHNICAL CHEMICALS DEPT., NIAGARA CHEMICALS DIVISION, MIDDLEPORT, NEW YORK

When Writing to Advertisers Please Mention WEEDS AND TURF

John Bean Models Rotomist 100

Growing application and popularity of Rotomist sprayers has led to the addition of another model to the John Bean line, the firm announced recently.

New Model 100 has increased stability through careful balance of tank and trailer, the manufacturer claims. An aircraft-type wheel and control column operate the 100° blower elevation and its hydraulically controlled 360° rotation. Control is thereby greatly eased, according to Bean, and flow of material is regulated by only a foot pedal.

Discharge section features an axial-flow fan and air-straightening vanes, feeding through a Micro-Mist nozzle. Pump has a capacity of 10 gpm, with adjustable pressure up to 400 lbs. A 70 hp. Willys engine is said to turn the 29" blower at 2,600 rpm, producing air velocity of more than 100 mph.

For more information on the new Model 100 John Bean Rotomist, or a list of distributors, write the firm at P.O. Box 9490, Lansing 9, Mich.



New John Bean Rotomist, with an air velocity of more than 100 mph, can rotate a complete 360° with great accuracy and balance, the manufacturer claims.

Ga. Firms, CAs Plan Assn.

More than 60 representatives of herbicide manufacturers, the Georgia Cooperative Extension Service, and contract applicators met recently in Athens, Ga., to discuss plans to create a statewide organization.

Prospective group would work, by educational means, to help reduce the estimated \$87 million annual loss from weeds in Georgia. Temporary officers were appointed for the fledgling group, and include Tom O. Evrard, Diamond Alkali Co., Hampton, Ga., as chairman, and Don Campbell, Swift and Co., Atlanta, secretary. Named to a committee to form suggested by-laws and possible names for the new organization were J. R. Johnson, head of the Extension Agronomy Department; Stark Hand, from Newton-Crouch Co., Griffin; and James Miller, extension agronomist.

T-H Has Ded-Weed Folders

Two new folders on Ded-Weed Brush Killers are available free from their manufacturer, Thompson-Hayward Chemical Co., P. O. Box 768, Kansas City 41, Mo.

Included in these colorful, descriptive brochures are tables giving general recommendations on brush killers most effective for foliage applications on some species of woody plants, as well as control timing relating to different sizes of plants. Dosage recommendations are given for basal, stump, and frill applications.



XL Turf Special 28-7-14

Water-Soluble Fertilizer

Provides better control of growth, texture, and color. Starts to work almost instantly, feeding through the blades and roots of grass. Can be applied at critical periods of growth without burning. Compatible with most common insecticides and fungicides.

For complete information on XL Turf Special and other products for the custom applicator, write:



Nursery, Ornamental Jobs

(from page W-8)

bagworms are causing the damage. Any training program for servicemen must teach the ornamentals as well as the pests. Actually, knowing the host is usually the easiest way of knowing the pest. Each ornamental species has a collection of a dozen or so common diseases, insect and mite pests, and other problems. Thus, knowing the host makes simple the task of determining the problem, be it animal pest, disease, mechanical, or physiological.

Spraymen must sell the idea of an inspection-and-treatment service on a contract basis to be able to really make a go of the ornamental pest control business. Operators must also have contracts with a considerable number of ornamental owners with similar problems. Then one can afford experts on ornamental pest control as servicemen, can establish routes for treating particular pests at the correct season, and can make best use of time and equipment.

Railway Weed Control

(from page W-7)

analyze all factors in the contract before accepting it. (Maybe the rig can be leased.) This is big business, but it can bring big headaches as well as big profits!

Railroads have been known to engage CAs to apply materials using the railway's own equipment. If such an opportunity presents itself, it's a good way to get experience.

Local yard and siding jobs offer another relatively safe means to edge into the market. Less chemicals, smaller equipment, and fewer men are necessary for these projects; consequently there is less risk (of course, there's also less profit).

Since so much of this largescale business is let out on bid, it behooves every operator to have bull's-eye accuracy in cost analysis. A very low bid might get the contract, but fail to show any monetary gains.

Astute CAs who want some railroad business must also familiarize themselves with the labyrinthine purchasing procedures the railways use. America's freight handlers grew into industrial giants long before "systems analysis" and "efficiency experts" came around, and sometimes the old methods still persist.

In short, there is no doubt that CAs are presently making money spraying weeds along thousands of miles of tracks. Since contractors account for nearly half the total weed and brush control done each year, opportunities for profit and service abound. But as with any industrial enterprise of such magnitude, the business must be approached carefully, after great analysis and preparation.

Geigy Has Diazinon Bulletin

A new, 24-page technical bulletin on the uses of diazinon is now available from Geigy Agricultural Chemicals, P.O. Box 430, Yonkers, N.Y.

Included in the guide are toxicology listings, registration charts, tabulations of experiments, and directions and specifications for each of the diazinon formulations Geigy is now producing.

CAs may obtain a free copy of the brochure, titled "Diazinon Technical Bulletin No. 63-1," simply by writing the manufacturer.

FUNGICIDES & HERBICIDES **THIURAM 75** Turf Grass Fungicide for off and Lawn Turfs ---treatment ---and maintenance These specialty products, developed specifically for golf of course and park use, are now available for the treatment and control of fine turf grasses. VICHEM fine turf research in agricultural chemicals has produced such outstanding developments as DSMA-DiSodium Methyl Arsonate; AMA-Ammonium Methyl Arsonate; CPA-Calcium Propyl Arsonate; CALAR- Calcium Acid Methyl Arsonate. ... the finest chemicals to protect your finest turf. FUNGICIDES **HERBICIDES** LIQUIPHENE 10% & · for Crabgrass and weed control 331/3% (PMA) CRAB-E-RAD (Powder) DSMA THIURAM 75 (Thiram 75%) SUPER CRAB-E-RAD (Liquid) AMA VI-CAD (Cadmium Chloride) SUPER CRAB-E-RAD + 2 (Liquid) AMA + 2,4,D THIURAM M (Thiram-Mercury) SUPER CRAB-E-RAD (Calar) CRAB-E-RAD 30 (Liquid) DSMA · for Dallis grass control DAL-E-RAD 100 (Powder) DSMA **Distributor Inquiries Invited** SUPER DAL-E-RAD (Liquid) AMA AL SALIS SUPER DAL-E-RAD + 2 (Liquid) AMA + 2,4,D DAL-E-RAD 30 (Liquid) DSMA VINELAND, NEW JERSEY VINELAND CHEMICAL SALES CORPORATION Manufacturing Plants: Vineland, New Jersey . Palmer, Puerto Rico

When Writing to Advertisers Please Mention WEEDS AND TURF

Stop Boxwood Nematodes

Poor growth, low vigor, yellowing or bronzing of the foliage, and ends of stems dying on boxwood are symptoms of nematode infestation. Nematode-damaged roots will be browning, and many of them will be dead.

Best cure for nematodes, according to John H. Harris, entomologist at North Carolina State College, Raleigh, is to treat boxwood with Nemagon. Follow label directions carefully, he advises.

Leaf minors, small, yellowish maggots which burrow inside leaves, will pupate and emerge on the underside of leaves in late spring. One application of lindane, DDT, or dieldrin should control them, Harris reports. To guarantee control he advises 2-3 sprayings at 2-week intervals, beginning when new growth starts.

Mites, or red spiders, will sometimes accumulate during hot, dry weather. Malathion, applied 3 times at 6-day intervals, should eliminate these pests, Harris believes. The entomologist also recommends Trithion, Kelthane, and Ovotran.



Boom end dye marker by Contree Sales is designed to leave a convenient guide for CAs to follow when spraying. Harmless red dye is used to mark where area has been sprayed.

Dye Marker Insures Even Spray

CAs who want and expect a uniform spray application should use a dye marker as a guide, Howard Rasmussen, of Contree Sales, recommends.

Rasmussen points out that missed areas leave weed and insect problems, while double spraying can frequently cause crop damage, as well as take up valuable time.

A boom sight marker, available from Contree Sales, will eliminate these problems, Rasmussen claims. With a boom sight marker, a harmless red dye is ejected through either end of the nozzle, leaving a convenient guide to follow on the next swath. Marker can be run in a continuous band, or just spotted, as the operator prefers, the firm announced.

Other equipment for the weeds and turf industry from Contree Sales includes a ground-driven granular simazine applicator. Built by the Gandy Co., the applicator spreads bands from 14" to 20" wide, and can be pulled by hand or mounted behind power equipment.

For more information on the products available from Contree Sales, write to P.O. Box 129, Columbus, Wis.





Modern laboratory facilities and personnel of the Vineland Chemical Co. enable the firm to test rapidly new compounds which the company is developing, according to its officials. Seated in the foreground is Norman Kropf. Left to right in the background are researchers Charles Fisher, James Nicholas, and Chief Chemist H. Porter Loomis,

Expanded Laboratory Facilities Spur Vineland Chemical's Growth

Typical of companies which have grown up with the burgeoning weed control and turf maintenance market is Vineland Chemical Co., which is now operating a greatly expanded research laboratory on the firm's campuslike grounds in Vineland, N.J.

Founded in 1948 by Dr. Arthur Schwerdle, a chemist and expert on arsenicals, Vineland reports it has tripled in size in the last five years, and plans continued growth based on "new-idea-oriented" management.

Three years ago, the herbicide and fungicide manufacturing company opened a new plant in Puerto Rico, and has acquired land for further expansion in Malaga, N.J., company spokesmen announced recently.

Vineland's rapid growth into a

major supplier to the turf management industry was spurred by development of several unique, patented compounds, which the firm markets itself, and repackages for other suppliers.

Gustave Hulkower, Vineland's general manager, told Weeds and Turf the company maintains its own maintenance shop on the 30-acre plant site. This "autonomous" maintenance has permitted Vineland to custom-design much of its manufacturing facilities, he added.

Dr. Schwerdle, who is now president of the New Jersey company, spends much of his time developing new chemicals which can be immediately applied to the turf industry, after extensive testing in the new Vineland lab, Hulkower said.

Meeting Dates



Purdue Weed Day, Purdue University, Lafayette, Ind., June 17-18.

3rd Annual Meeting, Fla. Society of Golf Course Superintendents, Jacksonville, June 18-20.

American Society of Landscape Architects Annual Meeting, Penn-Sheraton Hotel, Pitts-burgh, Pa., June 23-26. USDA Field Day for industrial

cooperators. Plant Industry Sta-

- tion, Beltsville, Md., July 10. American Assn. of Nurserymen Annual Convention, Shamrock Hilton Hotel, Texas, July 20-24. Alabama Nurserymen/Southern
- Nurserymen Annual Convention, Hotel Admiral Semmes, Mobile, Aug. 4-6.
- International Shade Tree Confer-

ence, Royal York Hotel, Tor-onto, Ontario, Canada, Aug 4-6. 11th Annual University of Florida Turfgrass Management Conference, University of Florida, Gainsville, Aug. 27-29. Nurserymen and Growers Annual

Short Course, University of Florida, Gainesville, August 28-30.

Midwest Turf Field Day, Purdue University, Lafayette, Ind., Sept. 9 (repeated Sept. 10).

70th Annual Farm Equipment Institute Convention, Roosevelt Hotel, New Orleans, La., Sept. 29-Oct. 2.

Metaldehyde "Safe" Slugkiller

A private research firm in England, after studying the effectiveness and usefulness of the 11 most popular brands of slugkillers in that country, reports that those mixtures containing metaldehyde were generally the best.

"Metaldehyde acts as both a contact poison and as a stomach poison," the group concluded its recommendations, "and for maximum effectiveness, a mixture that encourages slugs to ingest it should be used."



When Writing to Advertisers Please Mention WEEDS AND TURF



Russian knapweed, sometimes called Turkistan thistle, is an extensively rooted perennial which reproduces both by seed and by widespread creeping roots. Found on waste areas, fields, and roadsides, it thrives in semi-arid or dry land environments. Russian knapweed ranges south from the Dakotas to Missouri and west to the Pacific. Arms of its range extend into Texas and Michigan. It is subject to restrictive legislation throughout its distribution, and becomes more abundant and serious further west. Native of southwestern Russia and Asia Minor, it is believed that seeds of this pest were introduced in shipments of alfalfa seed around 1900.

Finely grooved stems (1) may grow to a height of 3 feet. They are densely hairy with some woody tissue, although Russian knapweed is not a true woody plant. Branching is frequent near the plant base.

Lower leaves are larger and more scalloped; they resemble dandelion leaves, except that knapweed is more hairy. They appear to sit directly on the stem, but gradual narrowing of the leaf results in a short petiole (leaf stalk). Topmost leaves are somewhat willow-like, narrow and smooth-edged.

Each branch of a stem bears a single head of flowers. What appears to be a "flower" of Russian knapweed (and also the rest of the family Compositae) is actually a head of many tiny tubular flowers. Each head of flowers is about $\frac{1}{2}$ inch in diameter; colors vary from rose to purple to blue.

Each tiny flower produces one seed (3). It measures $\frac{1}{8}$ inch long and is colored gray-white. Small longitudinal ridges may be seen with magnification.

Creeping roots (4), from which new plants arise, are extensive and sturdy in established stands. New stems are produced from lateral shoots at various depths (2).

Chlorobenzoic acid derivatives such as TBA, sodium chlorate alone or combined with borates, monuron, and fenac are some of the powerful herbicides needed to control this stubborn weed pest.

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)

Turf Bureau Offers Bulletins

Use of organic fertilizers in turf management programs is detailed in 4 bulletins available from the Turf Service Bureau, Milwaukee Sewerage Commission, P.O. Box 2079, Milwaukee 1, Wis., one of the world's largest producers of organic fertilizers.

Bulletin No. WT-1, "The Role of Lime in Turf Management," offers CAs a detailed explanation of the liming process, including a section on plant reaction to lime and significance of this reaction, as well as practical pointers, such as methods of soil testing, and the kinds and rates of lime to apply.

Better bent grasses, especially for golf greens, and improved fairways are covered in Bulletins Nos. WT-2 and WT-3. Information and reports in these two guides will benefit every contract applicator, however, as the turf management aspects will apply to numerous other situations.

A permanent fertilization record and handbook is featured as Bulletin No. WT-4, to enable turfmen to keep detailed and accurate records of treatments.

For a free copy of all four bulletins, write to the Turf Service Bureau, Milwaukee Sewerage Commission, Milorganite Division, P.O. Box 2079, Milwaukee, Wis.

Sod Webworm Controls Given

Small brown spots in lawns, frequently attributed to Japanese beetle infestation, might be due to sod webworm attack, Dr. J. B. Polivka, research entomologist at the Ohio Agricultural Experiment Station, Wooster, cautions CAs.

Brown areas of infested lawns usually contain the larvae, found in a silken web containing chewed grass, he points out. Sod webworms feed on grass leaves just above the crown of the plant.

Materials which will effectively control this pest are Ethion or phorate at a 10-lb.-per-acre rate, Sevin at 8 lbs. per acre, or Di-Syston at 2 lbs. per acre active material, Dr. Polivka reports.

"Applied three times during the summer of 1962, these materials kept trial plots completely free from webworms," the entomologist concluded.



Bindweed treated with Tritac-D in September looks like this the following July. Rate: 51/2 gal./A.

LIQUID TRITAC WEED KILLER NEW ECONOMICAL WAY TO CONTROL BINDWEED

Here's a new liquid herbicide so powerful that four to eight gallons per acre will control bindweed, Canada thistle, leafy spurge, Russian knapweed and other deep-rooted perennial weeds for a season or longer.

Used along highways, fence rows and other noncrop land, Tritac enters the plant through roots and foliage. It kills deep-rooted perennial weeds under a wide range of climatic conditions.

It is noncorrosive, nontoxic to mammals, and is nonflammable.

Two formulations. Tritac for normal conditions and Tritac-D, which contains 2,4-dichlorophenoxyacetic acid, when quick foliage top kill is desired. Both are available, in one-, five- and 30gallon containers through your distributor.

Technical help. Our agronomists will be glad to work with you on your weed control plans. For technical data and the distributor nearest you, please write Hooker Chemical Corporation, 406 Buffalo Avenue, Niagara Falls, N. Y.



AGRICULTURAL CHEMICALS

When Writing to Advertisers Please Mention WEEDS AND TURF

W&T Offers Book Guide on Weed, Turf, Ornamental Pest Control

CAs interested in learning more about books available on weed control, turf maintenance, and ornamentals may now send for a free copy of a guide to these publications from *Weeds and Turf's* Reader Service Department.

Listed are 16 books, including Diseases of Turfgrass, by Houston B. Couch; Weed Control, by A. S. Crafts and W. W. Robbins; and Weed Identification and Control, by Duane Isely.

Each listing includes title, author, publisher and publisher's address, date of publication, number of pages, and cost.

For a free copy of this useful bulletin, write Reader Service Department, *Weeds and Turf*, 1900 Euclid Ave., Cleveland 15, Ohio.

NACA Plans Oct. 27-30 Conclave

30th Annual Meeting of the National Agricultural Chemicals Association will be held at the Homestead Hotel, Hot Springs, Va., Oct. 27-30, according to Parke C. Brinkley, association president. Pagiatentica will start Sunday

Registration will start Sunday,



Retiring head of the Department of Horticulture at Michigan State University, East Lansing, Dr. Harold Tukey, views with his wife an oil portrait of the horticulturist which will hang in the Horticulture Building. More than 150 colleagues and friends joined May 4 at a dinner at MSU to pay tribute to the internationally known authority on plant growth regulators, the use of radioisotopes, and other fields.

Oct. 27. There will be a general session Monday, committee meetings on Tuesday, and a Board of Directors meeting Wednesday.

For more information on the program, or advance registration forms, write H. L. Straube, 1963 program chairman, at Stauffer Chemical Co., 380 Madison Ave., New York 17, N.Y. Two way street. We've written a lot about CAs who are expanding their insecticide and herbicide spraying business to include fertilizing, and now we've just heard from a contract fertilizing company which wants to join in with the weed and insect killers! James G. McClure, who runs Fertilagitator Sales & Service in Vista, Calif., writes that he hopes his firm will soon qualify for this additional service. We have often observed that contract turf service, to be truly valuable, will include a variety of services, and we're glad Jim is helping prove our point!

Trimmings-

Grass is greener? Just had a note from Frank Lichtig of Gramaslindas, Cia., in Bayamon and Dorado, Puerto Rico. Frank, an all-around operator who includes a nursery and sod business with his spraying and turf installation services, writes that he follows W&T closely, and we wonder if his sunny isle doesn't need some closer editorial attention? Business must be booming in PR, if the number of operators who've set up successful businesses there is any indication.

Who's afraid of the Broward Wolf? Water hyacinths, no doubt. A Florida correspondent informs us that Central Broward Drainage District secretary Carl Wolf has designed an ingenious spray rig which is saving his county thousands of dollars while spelling death to weeds in Broward county canals. Wolf drew up the plans for the device himself; it is one-man operated, and can spray 200 gallons of herbicides with little drift hazard. This last advantage stems from an enormous boom which extends out over the canal, and from which an operator can direct pin-pointed sprays that get right to the root of the problem. Our correspondent, Art Griffes of House & Garden Lawn Service in Ft. Lauderdale, spotted a news clipping about Carl's invention and sent it on to us. Art, by the way, is another operator who offers a complete service line to his customers, including turf renovation through mechanical means.

Grain of salt department. Weeds are harder to grow than many other plants, and this is disturbing, says Dr. C. M. Switzer of Ontario Agricultural College, Guelph, Ont. CAs who spend their working days in an all-out battle with the undesirable plants might raise an eyebrow or two in face of this observation, Dr. Switzer says, but it's true. Why bother to grow them at all, you ask? Dr. Switzer is an authority on weed control whose garden is designed to help students identify various species. Tough part is, though, that some weeds really are difficult to raise, and without experimental samples, no doubt it's harder to learn how to control them...at this rate, some researchers might end up going around in vicious circles!

Professor Brown dies. Benjamin A. Brown, professor emeritus of plant science at the University of Connecticut, died April 19, we just learned. Professor Brown, who was 71, was long a leading figure among American agronomists.

WEEDS AND TURF Pest Control, June, 1963

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Penick can supply most of the pesticides you use . . .

to simplify ordering. You get just one invoice to check. And deliveries are always prompt . . . often overnight . . . to minimize your inventory needs and eliminate irksome follow-up calls.

You'll also find our monthly PCO Newsletter a big help in keeping abreast of new developments.

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