easy turf and weed control—

with a famous

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**THE R.5 FONTAN FOR HEAVY DUTY**
**WEIGHT 37 LBS.**

A self-contained unit, the Fontan has jets to interchange for misting or spraying, another attachment to interchange for dusting. Designed for versatility, dependability and safety, the Fontan has metal frame and padded straps for comfortable operation.

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**WEIGHT 24 LBS.**

A torch interchanged with the spray head and nozzle converts either Fontan into a flame thrower for weed killing, snow removal, burning off paint, heating tar for roofs and street repairs, and numerous similar tasks.

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The Fontan adjusts to allow low-volume spraying with less dilute liquid and a higher concentration of Malathion or other chemical. Both Fontans offer complete portability, choice of droplet size, easy maintenance, safe fuel injection, corrosion-resistant plated parts.

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When Writing to Advertisers Please Mention WEEDS AND TURF
Turf Weeds and Pesticide Tests Top Off
Wisconsin Co-op Conference Jan. 8-9

A review session of turf weed control, and insight into the problems of pesticide manufacture from an expert who appeared before the Ribicoff pesticide safety committee hearings, were highlights of the 18th Annual Wisconsin Pesticide Conference with Industry in Madison, January 8-9, at the Park Motor Inn.

The conference is an annual joint venture of the Wisconsin College of Agriculture and Extension Service and the State Department of Agriculture.

"Crabgrass is probably the most serious weed facing Wisconsin homeowners," Robert Newman, extension specialist from the Department of Horticulture, asserted in his talk on "Turf Weed Control." "This pest is the result of poor management, not the cause of poor lawns."

"Once cultural deficiencies, such as low fertility, poor drainage, soil compaction, and improper mowing are corrected, then one can think about applying herbicides to combat the weeds," Newman outlined.

He explained that pre-emergence herbicides have shown the most consistent results for crabgrass control. Tops on the list of recommended materials are Velscicol's Bandane, Stauffer's Betasan, Diamond's Daclhal, and Dow's Zytron. A major concern with pre-emergence control chemicals is their effect on bluegrass which is used extensively for Wisconsin lawns. Other chemicals which will eliminate crabgrass but may injure bluegrass turf are calcium arsenate, and Treflan.

Post-emergence chemicals which are in use include the arsenicals, AMA and DMA, and phenylmercuric acetate, but Newman said, "These have never given us as effective control as the pre-emergence materials."

Amines are advised for the control of broadleaved weeds in turf. Silvex amines may damage bentgrass and merion blue, but control broadleaved weeds which 2,4-D will not. Banvel D amine and 2,4,5-T amine are likewise effective systemic herbicides for broadleaved weed control.

Grassy perennials, such as quackgrass and tall fescue, will not withstand spot treatments of dalapon, amitrol, or cacodylic acid. Spot treatments must be made because no effective selective controls have been developed yet. Areas treated with spot grasskillers have to be reseeded or resodded, Newman concluded.

Dr. John P. Frawley, Toxicologist for the Hercules Powder Company, Wilmington, Del., elaborated on his testimony before the Senate Pesticide Committee hearings on the subject of pre-market development screening and testing. Delegates were impressed by the 2 million dollar figure Hercules spends to research a product such as Delnav, their recent insecticide-miticide.

"We prefer to utilize outside consultants for various phases of our program," Dr. Frawley told the group as he outlined the research institutes and universities which have done toxicology research work for Hercules.

"A better system [of evaluation] should and will evolve from increased knowledge and understanding of chemical and biological relationships and not from emotionally motivated or politically compromising legislation," Dr. Frawley concluded.

Strange Bermudagrass Disease Being Researched at U. of Ark.

A mysterious new turf disease has appeared on Bermudagrass in several southern states and researchers at the University of Arkansas, Fayetteville, have set about to discover its cause, so reports the extension magazine "Arkansas Farm Research" for Nov.-Dec., 1963.

According to Dr. J. L. Dale, associate plant pathologist, and his graduate assistant, Carlos Diaz, the disease, called "spring dead spot" is not like any other turf disease and has been increasing each year in Arkansas.

Each spring affected lawns show larger dead spots than the year before. During the summer runners of healthy grass partially fill in the dead area, but the Bermudagrass does not reestablish itself in the diseased area. Other grasses instead, such as crabgrass and bluegrass fill the spots and do not appear to be affected.

Most Bermudagrass varieties are affected but the U-3 variety is most severely affected. Strangely, the authors report, Bermudagrass which has received better than average care and maintenance is hit hardest and most often.

The cause of this turf condition is not yet known. So far the researchers have discovered that it does not appear to have any connection with pH, fertility, or organic content of the soil, nor do insects or nematodes appear to enter in as a causative factor.

New lawn and garden hose-end sprayer from Chapin Manufacturing Works, Inc., Batavia, New York, has on-the-spot cleaning, without extra tools. Additional refinements include thumb-action on-off water pressure control above pistol grip and 6 gallon wettable powder or liquid insecticide or fungicide jar.
## TURF DISEASE CONTROL

<table>
<thead>
<tr>
<th>VELSI COL &quot;2-1&quot; MERCURIC FUNGICIDE</th>
<th>Controls brown patch, dollar spot, and snow mold. New formulation has greater wettability, more stability in suspension and less foaming action than any other comparable product.</th>
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</thead>
<tbody>
<tr>
<td>VELSI COL EMMI .8-EC MERCURIC FUNGICIDE</td>
<td>Controls brown patch and dollar spot in St. Augustine, Bermuda, and Zoysia grasses. An emulsifiable concentrate that mixes fast, does not need constant agitation, and leaves no sediment in spray tanks.</td>
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</tbody>
</table>

## WEED CONTROL

| VELSI COL BANVEL D 4S | Banvel D 4S gives excellent control of knotweed, common chickweed, clover, red sorrel, mouse-ear chickweed, stitchwort, dog fennel, chicory, curly dock, and many other hard-to-kill perennial broad-leaf weeds. |

## SOIL FUMIGATION

| VELSI COL PESTMASTER SOIL FUMIGANT-1 | Soil Fumigant-1 contains methyl bromide with 2% chloropicrin. It will remove weeds, weed seeds and obnoxious grasses in an old golf green, or in the soil before new grass is planted. Economical, easy-to-apply, fast acting. |

## PRE-EMERGENCE CRABGRASS CONTROL

| CHLORDANE BANDEANE | Chlordane provides exceptionally effective pre-emergence crabgrass control, and complete protection against damaging soil insects. Bandane is a newer pre-emergence control, notable for effective control plus safety to seedling grass and established turf. It also kills ants, grubs, and other insects. |

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Know Your Species

ST. JOHNSWORT
(Hypericum perforatum)

St. Johnswort (1) is also known as Klamath weed and goatweed. This pest, native to Europe and first reported in Pennsylvania in 1793, is a perennial which reproduces both by seed and by sprouting of shallow, short runners.

It is a poisonous weed to livestock and a threat to productive rangelands. St. Johnswort is found along roadsides, and in fields where the soil is dry, sandy, or gravelly. Found from Newfoundland west to British Columbia, St. Johnswort spreads southward as climate permits. It is a very serious pest in the Pacific Northwest and California, and it is on the noxious weed list of many states.

Stems (2) are erect and may reach a height of 5 feet, and are slender and smooth (not hairy) with two ridges on either side. They are woody near the base, becoming more herbaceous with height.

Leaves, with characteristically translucent dots which give the appearance of perforations when held up to light, are opposite each other on the stem, and narrowly oblong. They sit directly on the stem, have no petiole, and are smooth edged.

Yellow, 5-petaled flowers (3) about 1 inch across bloom in late summer. They are borne at the ends of terminal branches which all reach the same height. This type of flat-topped flower cluster is called a cyme (pronounced sime). Each flower petal has a row of small black dots along its margin. Numerous seeds are produced by each flower (4). Each seed (5) is 1 mm. long with tapered ends and covered with dots. Seeds feel resinous to touch and are glossy dark brown.

Branched roots extend several feet deep. New plants are borne from joints of shallow rootstocks which grow out from the crown.

St. Johnswort has been successfully controlled by leaf eating beetles, Chrysolina spp., released in some parts of the West. The leaf beetle, found in Europe and imported to Australia, was later brought from Australia to western U. S. in the 1930s and '40s. Other parasites, including a gall fly, and a root borer, have contributed to a lesser extent to biological control of St. Johnswort.

Chemically, St. Johnswort can be controlled with borax compounds, alone or in combination with other, more powerful soil-applied herbicides. Borax destroys the extensive perennial root system. Ammonium sulfamate has also been used successfully in Washington state to control this weed.

Prepared in cooperation with Crops Research Division, Agricultural Research Service, United States Department of Agriculture, Beltsville, Maryland.
(DRAWING FROM NORTH CENTRAL REGIONAL PUBLICATION NO. 36, USDA EXTENSION SERVICE)

Turf Disease Control Improved By New Velsicol Fungicide

A new formulation for turf disease control has been announced by Velsicol Chemical Corp.

Called Velsicol 2-1, the mercuric fungicide is said to overcome several basic handling problems such as getting the fungicide into suspension, maintaining a stable suspension, and avoiding heavy residues of mercury compounds in application equipment.

Excessive foaming is also alleviated by Velsicol 2-1, the producers say.

Brown patch, snow mold, and dollar spot have responded well to the new product, it is reported. Mercury content is at 73.2%.

For more details on the new turf product, write Velsicol Chemical Corp., 341 East Ohio St., Chicago, Ill.

U.S. Borax Acquires Reade's Weed Control Plants, Equipment

U.S. Borax & Chemical Corp. announced recently that it has taken over all herbicide formulating plants and applicating equipment of the Reade Mfg. Co. of Jersey City, N. J.

The action was described as a marketing expansion move into the field of contract application of vegetation control chemicals for railroads.

J. F. Corkill, U.S. Borax Marketing Vice President, said his firm has supplied track spray formulations to some of the country's transcontinental railroads for a number of years from its own plants, and will now be able to render for the first time a complete nationwide service.

Silvex Controls Chickweed

“Chickweed killers containing silvex have given excellent control in North Dakota,” Harry Graves, horticulturist at North Dakota State University Extension Service, reports.

“Where chickweed has been present in lawns for a few to several years, several sprayings will be required to kill the thousands of seedlings,” Graves concludes.
make a killing with TRITAC™

Profit from this powerful new herbicide for control of bindweed, Canada thistle, Russian knapweed, hoary cress, leafy spurge

Bindweed on May 23, 1963, just before Tritac treatment looks like this on August 14, 1963. Rate: 15 lb. (7 1/2 gal.)/A.

You can effectively custom-treat an acre for a season or more with as little as four to eight gallons of Tritac.

Used along highways, fence rows and other noncrop land, it controls certain deep-rooted perennial weeds under a wide range of climatic conditions.

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Both Tritac and Tritac-D are noncorrosive and low in toxicity to mammals. The liquid formulation is low in flammability and the granular formulation is nonflammable.

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HOOKER CHEMICAL CORPORATION
402 Buffalo Avenue, Niagara Falls, New York 14302  AGRICULTURAL CHEMICALS
Nematode Control
(from page 14)

or polyethylene plastic cover. Chloropicrin is a tear gas and should be used with caution also.

Before any fumigation, operators should see that the area to be treated receives plenty of water so that all seeds in the soil will be in the process of germination. Fumigants are most effective on growing organisms.

Post-plant Control Methods

Post-plant or established stand control is a newer innovation, not previously possible until the development of specifically nematocidal chemicals which would not kill desirable turf-grasses.

Two chemicals have been developed to control nematodes in mature turf.

The first is V-C 13, chemically known as O,2,4-dichlorophenyl O,0-diethyl phosphorothioate. Virginia-Carolina Chemical Company is the producer.

V-C 13 is a contact nematocide; the manufacturer claims no fumigating action. It is applied as a drench to pre-sprinkled turf at a rate of 1 gallon of 75% active ingredient formulation to 3,000 sq. ft. in 80 gallons of water carrier. For use on bentgrasses, apply ½ gallon to 3,000 sq. ft. Two applications spaced 2 weeks apart are advised for best results. Virginia-Carolina suggests drenching soil with sufficient water to carry the chemical deeper into soil. Action of the nematocide can be expected to give 6 months’ control, the manufacturer says.

Normal precautions should be taken with V-C 13, an organophosphorus compound. Use a respirator to avoid breathing mist, and employ a coarse spray to prevent mist formation. If chemical is spilled, wash it off immediately, and do not permit chemical to remain on clothing. One should always wash up after chemical application regardless of whether any chemical has been noticeably spilled.

The second chemical is 1,2-dibromo-3-chloropropane, DBCP, for short. It is marketed by Shell Chemical Company under the trade name “Nemagon,” and by The Dow Chemical Company as “Fumazone.”

Applicators can dilute 2 pints of 70% emulsifiable concentrate (one of several formulations) in 200 to 300 gallons of water and apply to 1,000 sq. ft. This application will be equal to 5 gallons technical material per acre.

Prior to treatment, it is recommended that the turf be watered and possibly spiked or aerated to aid penetration. Immediately apply enough water to the treated area to wash the nematocide down through the thatch and into the root zone where the nematodes are active.

To work with DBCP, operators should have natural rubber gloves and boots to wear when measuring, transferring, or spraying chemical, because DBCP will cause reddening or irritation of the skin. Manufacturers also suggest applicators do not breathe vapors when mixing and applying; wear an approved respirator to protect both lungs and eyes.

DBCP is only slightly more toxic to man than V-C 13. In all cases, with all products mentioned, the label of the product should be read and studied before any application.

Neither V-C 13 nor DBCP is said to be toxic to turfgrasses when used according to directions. DBCP should not, however, be used within the dripline of desirable plants such as dwarf palm or crysanthemums.

Nematode service by CAs will increase as more homeowners become aware of nematodes, and as more becomes known about the organisms and chemicals for their control. CAs who wish to offer nematode control should engage in a study program using texts, research reports, and promotional and technical literature from manufacturers. Extra knowledge will place the aggressive CA in a more competitive position as the demand for nematode control increases.

Next month:
The Bermudagrass Mite
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Verti-cut®

Conventional lawn mowers do not cut lateral grass growth. Thatch and mat develop to harbor disease and prevent water, chemicals, and fertilizer penetration. The vertical cutting blades of the VG-1 West Point Landscape Verti-cut® slice into the turf to remove thatch and excess lateral growth. Set deeper, the Landscape Verti-cut will groove into the soil to remove mat or prepare a seed bed.
Prune in Winter Months to Avoid Oak Wilt Disease

Pruning in winter avoids the danger of oak wilt disease, since the cuts will be dry by the time growth starts in the spring, according to Herbert Johnson, extension plant pathologist at the University of Minnesota.

Johnson explains that pruning during the growing season is a major cause of new tree infections, as only through a fresh injury may spores infect healthy oaks.

Fungus spores form under the bark of infected trees a few weeks after the trees have died, and push the bark out. Insects then may get to these spore mats through cracks in the bark, and the disease is spread.

Oak wilt fungus can also spread through root grafts, but it can be stopped if roots between infected and healthy trees are cut soon enough.
As an added service to our readers, classified advertisements will be accepted for publication beginning with the current issue. Categories include Position Wanted, Help Wanted, For Sale, and Wanted to Buy. All copy subject to approval by our editorial and advertising departments. The small charges for these ads are meant only to cover expenses, since the advertising is an aid to readers who wish to resolve individual business problems and projects. Ads for March will be accepted through Feb. 10th. Thereafter, all copy must be received by the 5th of month preceding. Rates: "Position Wanted" 5¢ per word, all other classifications, 10¢ per word. Minimum charge $2. Address Classified Department, Weeds and Turf magazine, 1900 Euclid Ave., Cleveland, Ohio 44115.

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USDA Approves Zytron for
Chinch Bug, Lawn Weed Control

Zytron herbicide, the active ingredient in Dow Crab Grass Killer, has received approval from the U.S. Department of Agriculture for control of 12 additional undesirable plants and chinch bugs.

Current listing of undesirable plants controlled by Zytron includes green and yellow foxtail, crowfoot grass, stinkgrass, barnyard grass, goosegrass, wood sorrel, spurge, purslane, pigweed, smooth or common chickweed, mustard, and lambsquarter. Early spring application is recommended for the control of these species.

For control of chinch bugs the recommended application rate is 7 to 10 lbs. per acre of turf with repeat applications every 60 days, or as needed.


AQUATIC WEED KILLERS

AQUATHOL® controls many species of submerged weeds. Kills weeds on contact . . . can be used in large area or spot treatments. Treated water may be used for watering turf immediately; after 24 hours for swimming; after 7 days for domestic purposes, irrigation, sprays, and livestock.

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