WEEDS and TURF

NOVEMBER
1964

The grass-roots magazine of vegetation maintenance and control

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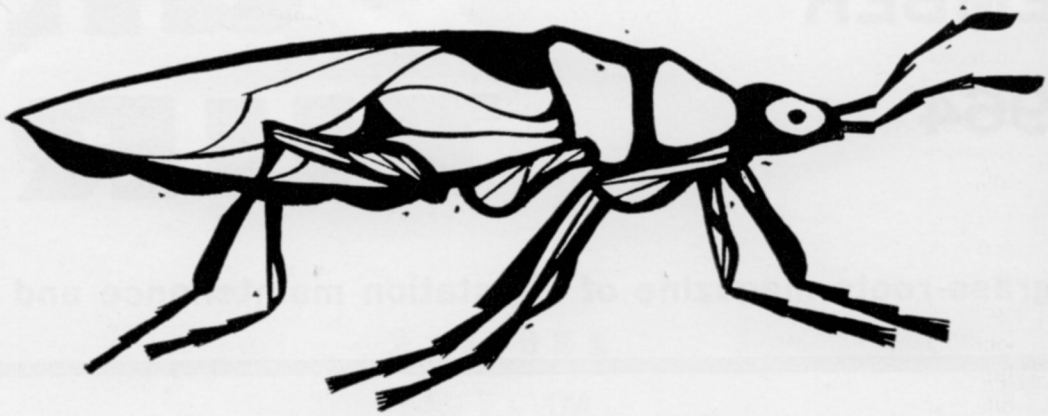

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WEEDS and TURF

November 1964 **Volume 3, No. 11**

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Setting a Good Example

Elsewhere in this issue is a story about a new film on safe use of pesticides produced by the Ortho Division of California Chemical Co. Films on safety in pesticide handling aren't uncommon, but this venture is particularly praiseworthy, since it is, in Ortho spokesmen's words, "a non-commercial venture."

Products in the picture are referred to as "Brand X," and the producer has even offered to supply prints of the film to other manufacturers at cost. These firms can then affix their individual film leaders to identify the safety-preaching movie with their own operations.

This is setting a good example in a big way. Films such as these, which benefit the entire industry, from producer to custom applicator to customer, are costly to produce. It would be easy to capitalize on the impact of the picture with frequent references to this or that safety precaution the producing company carries out when it manufactures pesticides.

But, in addition to the immediate value this endeavor possesses intrinsically, it is worthwhile to reflect on the lesson posed here. We have sometimes heard of weed, turf, and tree maintenance companies which were reluctant to share company secrets at conferences, or which refuse to engage in free exchange of ideas with other firms, supposedly in fear of relinquishing a competitive edge of one kind or another.

This kind of thinking, while perhaps somewhat advantageous in the immediate instance, is suicidal in the long run. The future of the vegetation maintenance and control business rests in ever-increasing competence and professionalism. Whoever heard, for example, of a doctor who refused to discuss his medical discoveries because he feared he might lose a patient to one of his colleagues?

It may seem trite to say "Professional is as professional does," but this is one of those truisms which bears constant repeating.

Applicators should be eager to share talents with fellow businessmen just as one often wishes to share problems. Only in the thorough exchange of technical know-how and proficiency can be found the united front which vegetation control professionals must present to the public and to the lawmakers.

Only in taking the long-range view will your company continue to flourish. The future of the industry is by definition the future of every company which makes up that industry.

WEEDS AND TURF is the national monthly magazine of urban/industrial vegetation maintenance, including turf management, weed and brush control, and tree care. Readers include "contract applicators," arborists, nurserymen, and supervisory personnel with highway departments, railways, utilities, golf courses, and similar areas where vegetation must be enhanced or controlled. While the editors welcome contributions by qualified freelance writers, unsolicited manuscripts, unaccompanied by stamped, self-addressed envelopes, cannot be returned.

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Effects of Excess Rain On Turf Management

Dr. Watson

By J. R. WATSON, JR.
Director, Agronomy Division
Toro Manufacturing Corporation
Minneapolis, Minnesota

THE ANNUAL distribution of rainfall plays a major role in turfgrass care and management. The ideal situation, with regard to annual rainfall, would be periodic rains of a gentle-soaking nature. Seldom, if ever, does Mother Nature cooperate to this extent. The average annual rainfall for a given area may remain more or less constant, but the distribution, as well as the intensity, varies from year to year and particularly from season to season.

It is the seasonal variation in intensity and distribution that creates problems for the turfgrass manager. He must continually adjust his management practices to fit the prevailing weather conditions. The techniques employed to counteract the adversities of weather, whether they be drought or excessive rainfall, will influence, to a large extent, the quality of turfgrass produced—especially golf course turfgrass. There will be certain conditions brought on by adverse weather over which the manager will have no control; there will be others which will create no special problem, providing adequate materials, equipment, and facilities are available.

In many instances, however, the turf pro will be able to counteract the adversities and prevent serious damage. Careful planning and programming based on the facilities available to him, as well as a knowledge of the special features and conditions on the course, will enable turf specialists to produce satisfactory turfgrass in spite of adverse weather conditions.

Excess moisture may be defined as that moisture which is applied in excess of the actual needs of the particular crop or plant being grown. Basically, the amount of water needed or used is a function of the environment in which the plant is growing. Environment is used in its broadest sense and means climate and soil.

Over the years, a number of investigators have worked to determine just how much moisture is required by various plants. Research on estimating evapotranspiration has been in progress since the heat effect method was developed by C. R. Hedke in 1924. In 1940, C. W. Thorthwaite developed a method based on climatic data. This method was simplified by Harry F. Blaney and Wayne D. Criddle in 1945, and was further adjusted to reflect turfgrass needs by the Soil Conservation Service in 1960.

When the potential evapotranspiration is subtracted from rainfall, the result indicates the *average* excess or deficit for a given period of time.

Tables I-III, calculated by the Commercial Research Department of Toro Manufacturing Corporation, present data for three locations in Iowa.

Excessive rainfall may be

classified into two categories: (1) frequent rains—mostly of low to medium intensity, and (2) floods —whether arising from prolonged rainfall or from heavy, intense rains of a relatively short duration. For convenience, the problems associated with these two conditions may be discussed from the standpoint of the effect they have on soil and growth.

Drainage Problems

Soil. The most obvious condition created by excess rainfall is that associated with drainage—both surface and internal. Surface drainage is the most rapid and effective means of removing excess water. When the soil is saturated from continuous rainfall and the topography is such that water does not move off rapidly, then the excess water will accumulate in the low areas. If the water remains "ponded" for too long a period, turfgrass may be destroyed. The length of time that water may remain ponded without killing the grass depends upon the temperature and the species of grass. High temperatures will cause severe damage in a very short period of time; whereas if the temperatures are cool, the grass will survive for a longer period. *Poa annua* appears to be quite susceptible to damage from ponded water, while bentgrass is more tolerant.

Surface runoff may cause washouts and severe erosion, especially on newly seeded areas or on steep slopes with thin cover. Floods, particularly along rivers and streams, often leave heavy deposits of silt which may destroy the turf and leave layers that will create future problems. Heavy silt deposits often must be removed in order to restore the flooded area for play.

Heavy, slowly permeable soils, when subjected to frequent and prolonged rainfall, become saturated and may remain at or near this level of soil moisture for extended periods. Under such conditions there will be a deficiency of oxygen and buildup of reduced compounds which are

(Continued on page 16)

Table I: Precipitation—Evapotranspiration, Dubuque, Iowa

Month	Average Potential Evapotranspiration	Average Precipitation	Deficit or Surplus
January	...	1.83	1.83
February	...	1.40	1.40
March	.46	2.76	2.30
April	1.79	3.08	1.29
May	3.65	4.22	.57
June	5.50	4.21	−1.29
July	6.56	3.51	−3.05
August	5.64	3.73	−1.91
September	3.42	3.74	.32
October	1.77	2.74	.97
November	.45	2.59	2.14
December	...	1.90	1.90
Total	29.24	35.71	+6.47

1. Rainfall is based on 30-year average. (1930-1961)
2. Potential evapotranspiration calculated from modified Blaney-Criddle formula. See: Blaney, Harry F.; "Climate As An Index of Irrigation Needs" in the Yearbook of Agriculture, 1955, entitled *Water*.
3. Consumptive coefficients for lawngrass as developed by the Soil Conservation Service in 1960—reported in a paper entitled "A Method For Estimating Irrigation Water Requirements Of Lawns" Presented by Quackenbush, T. H.; and Phelan, J. T.; 1963 Meeting of the American Society of Agronomy at Denver, Colorado.

Table II: Precipitation—Evapotranspiration, Des Moines, Iowa

Month	Average Potential Evapotranspiration	Average Precipitation	Deficit or Surplus
January	...	1.30	1.30
February	...	1.10	1.10
March	.62	2.09	1.47
April	2.10	2.53	.43
May	4.28	4.07	− .21
June	6.16	4.71	−1.45
July	7.46	3.06	−4.40
August	6.42	3.67	−2.75
September	3.99	2.88	−1.11
October	2.15	2.06	− .09
November	.58	1.76	1.18
December	...	1.14	1.14
Total	33.76	30.37	−3.39

1. Rainfall is based on 30-year average. (1930-1961)
2. Potential evapotranspiration calculated from modified Blaney-Criddle formula. See: Blaney, Harry F.; "Climate As An Index of Irrigation Needs" in the Yearbook of Agriculture, 1955, entitled *Water*.
3. Consumptive coefficients for lawngrass as developed by the Soil Conservation Service in 1960—reported in a paper entitled "A Method For Estimating Irrigation Water Requirements Of Lawns" Presented by Quackenbush, T. H.; and Phelan, J. T.; 1963 Meeting of the American Society of Agronomy at Denver, Colorado.

Table III: Precipitation—Evapotranspiration, Sioux City, Iowa

Month	Average Potential Evapotranspiration	Average Precipitation	Deficit or Surplus
January	...	.78	.78
February	...	.89	.89
March	.56	1.46	.90
April	2.00	2.25	.25
May	4.12	3.23	− .89
June	6.09	4.33	−1.76
July	7.28	3.11	−4.17
August	6.27	2.66	−3.61
September	3.82	2.74	−1.08
October	1.97	1.42	− .55
November	.28	1.16	.88
December	...	.74	.74
Total	32.39	24.77	−7.62

1. Rainfall is based on 30-year average. (1930-1961)
2. Potential evapotranspiration calculated from modified Blaney-Criddle formula. See: Blaney, Harry F.; "Climate As An Index of Irrigation Needs" in the Yearbook of Agriculture, 1955, entitled *Water*.
3. Consumptive coefficients for lawngrass as developed by the Soil Conservation Service in 1960—reported in a paper entitled "A Method For Estimating Irrigation Water Requirements Of Lawns" Presented by Quackenbush, T. H.; and Phelan, J. T.; 1963 Meeting of the American Society of Agronomy at Denver, Colorado.

Turfgrass Portraits V:

Bermudagrass

By DR. ROBERT W. SCHERY

Director, The Lawn Institute

Marysville, Ohio

This is the fifth in a series of nine articles on the basic traits and maintenance procedures for common turfgrasses. Next month author Schery discusses Zoysias.

BERMUDAGRASS is as successfully ubiquitous in the warmer regions as is Kentucky bluegrass farther north. And its origins and interrelationships are equally complicated. Bailey lists "Europe and Asia" as place of origin, but most authors do not care to be even that definite, describing *Cynodon* (the bermudagrass genus) merely as native to warmer regions of the world. There is reason to suppose that early introductions into the United States were from Europe via the Atlantic islands; otherwise why "bermuda" and "bahama" grass for *C. dactylon?* Genetic source of many lawn varieties is Africa. Of course so widespread and aggressive a grass has received many common names, including the derogatory "wiregrass" familiar along the eastern seaboard. Even the generic name, *Cynodon,* lacks priority, but has been conserved (over *Capriola*) by international agreement.

No wonder that from among this worldwide complex of species, hybrids, varietal selections, and ecotypes, a welter of bermudagrass possibilities faces the lawnsman. And no wonder universities concerned with bermuda breeding have hundreds of selections under observation, in such dissimilar climates as Florida, Kansas, and Arizona. But perhaps the richest source of improved bermudagrasses has been the Coastal Plain Experiment Station, Tifton, Ga.

Bermudagrasses can be grouped as the heterogeneous "common," volunteering widely, and available as seed; and a series of finer-textured, denser varieties, many of them hybrids, which must be propagated from living shoots because they are either sterile or do not come true from seed. The latter are for the finer-kept lawns and golf courses; the former for more casually kept turfs, where economy is a consideration.

All bermudagrasses love warm climates, doing well in the United States from Southern California to the Piedmont of the Carolinas. Sunturf and U-3 are fairly winter-hardy from eastern Kansas into the Ohio Valley. Even more reliably hardy selections are promised out of Kansas research (in recent winters much U-3 has been killed in latitudes as far north as Missouri).

In the Deep South,—viz. southern Florida and the humid Gulf Coast,—bermuda does passingly well, but usually takes a back seat to other southern grasses better adapted or more easily cared for. Thus bermuda domain is most strikingly the "upper South," centering from middle Georgia to eastern Oklahoma, and the lower elevations of the Southwest.

Growth Pattern

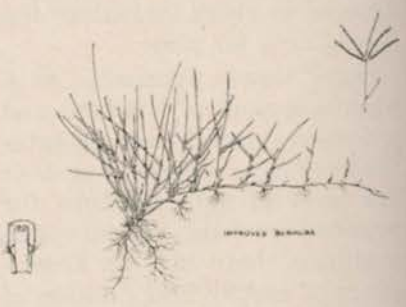
True to its southern personality, bermudagrass grows only in warmer weather. Indeed, it seems never too warm for bermuda, if water and fertility are adequate. But at the approach of frost, October in most of its homeland, bermuda slows, turns off-color (eventually to a dreary brown), not to revive again until about April. Aside from sometimes winterkilling, dormant bermuda restrains winter weeds poorly. These make the brown lawn even less attractive because of the contrasting splotches of green. That is why bermuda turfs are winterseeded to fescue-bluegrass mixtures, as described in Portrait IV (WT, Oct., pg. 16).

But in warm weather bermuda growth is insatiable. It spreads rampantly by both runners and rhizomes. That is at once a virtue and a fault. Such vigor makes a thick lawn in a hurry, squeezes weeds, and brings quick recuperation. Also it means that mowing must be uncomfortably frequent (twice per week, or more often on a golf green), and that a lot of fertilizing and watering are needed to keep bermuda looking well. A bermuda turf, especially of the select varieties, is not for low-maintenance swards.

Maintenance

Overriding is bermuda's abhorrence of shade; it will not grow under trees. Other than that, and the winter dormancy spoken of, its weaknesses are few and moderate. Appearance is attractively fine textured and deep colored. It is widely tolerant of soil. It is moderately resistant to drought, salt air, and wear. It is not frost tolerant, but recovers quickly when warm weather returns. It mows neatly, is not unduly susceptible to disease or insects. But most varieties are quite a bother in invading flower beds and borders.

Fertilization of well-kept turfs is recommended every four or five weeks, at 1 lb. elemental nitrogen/M, using a complete fertilizer at least occasionally. Natural vigor and this stimulation make frequent mowing mandatory, in most instances best accomplished with a reel mower set ½-1½ inches. Water-



Diagramatic drawing of a bermudagrass plant.

ing should fit soil and climate, keeping in mind that a "high-living" grass such as bermuda needs plenty of drink, especially on the sandy coastal plain.

What To Watch Out For

In the Southeast, sting and lance nematodes are becoming increasingly troublesome. Soil treatment with a nematocide often gives much improved turf. In the Southwest, the Eriophyid mite *(Aceria)* has become quite a pest; injury can be reduced by diazinon spray combined with fertilization. Arizona also has some spiral nematode trouble.

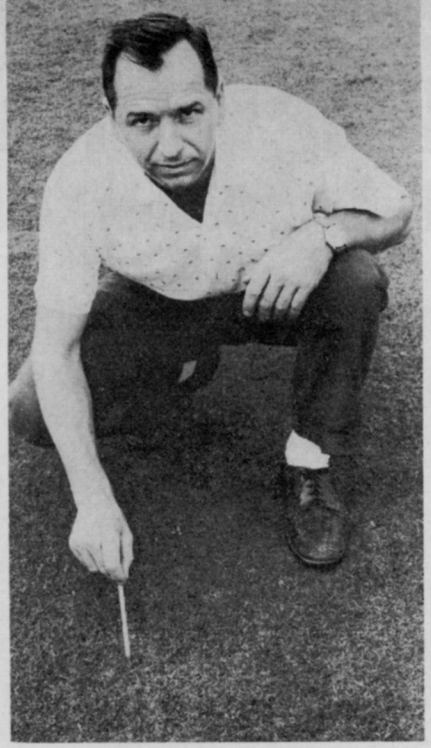
The upper Midwest has experienced severe winter loss from an uncertain ill called "spring deadspot." Patches of bermuda die much like snow mold on bent, and runners will not recolonize the blemishes. Dieldrin, an insecticide, helps thwart the trouble, and Mallinckrodt now has a preventive.

Many diseases that bother other grasses attack bermuda, including *Helminthosporium* (summer blight is *H. cynodontis*), *Sclerotinia* dollarspot, and *Rhizoctonia* brown patch. Webworms frequently damage bermuda. And it is only natural for so vigorous a grass to thatch quickly.

Most bermudagrasses are tolerant of selective herbicides, fungicides, and insecticides. Tifgreen is a little sensitive to 2,4-D, and Texturf 10 discolors from chlorinated hydrocarbons, but both recover quickly. Banvel-D may cause blemishing, and Trifluralin has damaged bermuda. Most preemergence herbicides afford no difficulty, nor usually do even Simazine and Atrazine if applied when the grass is dormant. Arsonates may temporarily discolor some varieties. Of course, grass killers such as Dalapon, Vapam, and methyl bromide should be avoided.

Propagation

Seeding is simplest and most economical, but of course only applicable to the genetically mixed "common." Seed that has been dehulled sprouts quickly. It is usually sown at 2 lbs. or less/M. Unhulled seed requires more time to soak up moisture, but, if sowed amply ahead of need, is as adequate as dehulled seed. It is often sowed 3 lbs./M.



Striations in putting green bermudagrass made by vertical mowing are pointed out by Dr. Evert Burt, Plantation Experiment Station, Ft. Lauderdale, Fla.

The named varieties must be propagated from living starts,—plugs (biscuits of sod), sprigs (individual stems), or stolons (chopped stems,—scattered, top-dressed, and watered: if kept moist, bermuda roots readily). Quantity for planting varies with how quickly sod is demanded. Plugs and sprigs planted 6 inches apart will be quicker to fill than the same starts planted on 12-inch centers (but of course more than twice as much planting material is required). Stolons may be planted as lightly as one or as heavily as six bushel/M.

Varieties:

Common—Unselected *C. dactylon.* Attractive if well kept, but somewhat more open and coarser than named varieties. U-3 seed must be regarded as "common," since genetic reassortment results in turf not identical with parent U-3.

U-3—A denser, more cold-tolerant selection than the general run of common, widely planted in middle latitudes for golf course fairways. Wears well, is drought tolerant, but spreads more slowly than many varieties. In severe winters, it kills appreciably in the transition belt, and recently it has been injured by spring deadspot.

Sunturf—This is a purported natural hybrid between *C. dactylon* and *C. transvaalensis* (named *C. magennisii*), introduced from South Africa. A sterile triploid hybrid, it produces few seedheads. Like U-3 it is denser and more attractive than common. It is reasonably tolerant of cold, and remains green a little longer in autumn than do most bermudas. Runners stay mostly above ground, so that control at borders is easier than with varieties which rhizome strongly. Sunturf does suffer somewhat from rust.

Tifgreen (Tifton 328)—The most widely planted grass for golf greens in the South. Like Sunturf, a sterile triploid hybrid between *C. dactylon* and *C. transvaalensis.* An excellent fine-textured grass that has dominated low-clipped bermuda usage. Somewhat sensitive to 2,4-D and certain other herbicides, and to webworm, but fairly disease- and cold-resistant.

Tiflawn (Tifton 57)—A tough hybrid suited well to lawn and athletic turf, very vigorous, deep green, resistant to insects and disease. Moderately cold-tolerant and drought-resistant.

Tifway (Tifton 419)—A chance triploid hybrid of *C. dactylon* and *C. transvaalensis,* of fine texture and deep color, resisting cold discoloration, with a "stiffer" consistency than most bermudas and hence recommended for golf course fairways. Spreads rapidly.

Other Familiar Varieties—Ormond is a presumed natural hybrid found at Ormond Beach, widely planted in the deep South, quick-growing, of good color, but not too disease- or cold-resistant, mostly used for lawns and fairways. Everglades is similar. "Texturf" selections are from the Texas Experiment Station, with Texturf 10 receiving fair usage for lawns and athletic fields in the Southwest. Tiffine is an early Tifton hybrid of fine texture, not now widely used.

For a thorough review of bermuda selections, see Agricultural Handbook 270, USDA, "Evaluation of Bermudagrass Varieties," by Juska and Hanson, August 1964, Superintendent of Documents, Washington, D.C.

Intelligent Tree Planting Will Determine America's Future Beauty, Minn. Treemen Hear

200 Delegates to 3rd Annual U. of Minn. Course Learn Step-by-Step Program for Tree Selection When Landscaping

"The future beauty of America will in great part depend on the way we plant the landscape and integrate country with city through plantings," Donald B. White told an audience of nearly 200 attending the third annual Shade Tree Maintenance Short Course on the University of Minnesota's St. Paul Campus Sept. 14 and 15.

White is Associate Professor of the University of Minnesota's Department of Horticultural Science, specializing in ornamental horticulture and turf management. He spoke to an audience composed of nurserymen, arborists, and others professionally engaged in tree maintenance in homes, parks, and public grounds.

All the elements of the town-and-country scape can be harmonized through the use of trees, which tie the whole landscape together, White said.

The horticulturist challenged his audience to become acquainted with a wide diversity of shade trees—to be familiar with all those that are adapted to the area—in order to select them intelligently. He outlined three important steps preparatory to selecting trees for any site:

1. Determine the need for a shade tree by recognition of the required function.

For example, is the tree to be used to provide shade, frame the house or a building, control wind, provide a background or beauty interest? Since trees are a functional element in the landscape, choose them to fulfill the necessary function.

2. Make a complete evaluation of the ecology of the site: the space available, the soil type, moisture, drainage, climate of the total environment, exposure. Is the location in town or country? In what part of town? What are the esthetics of the site?

3. Make a physical evaluation of the area to be planted.

Determine the size and shape of the tree needed, the desirable growth rate, the texture, color, seasonal interest desired, as well as other esthetic factors.

After you have fulfilled these steps, you can begin the process of selecting your trees, White said. Determine whether they should be deciduous or evergreen and whether they are adapted to the particular environment.

Always ask yourself if the trees you select will create unity in the planting and overall area involved. But, White reiterated, it is impossible to select trees for public or private grounds intelligently without a knowledge of a great diversity of shade trees.

The Ash as a Street Tree

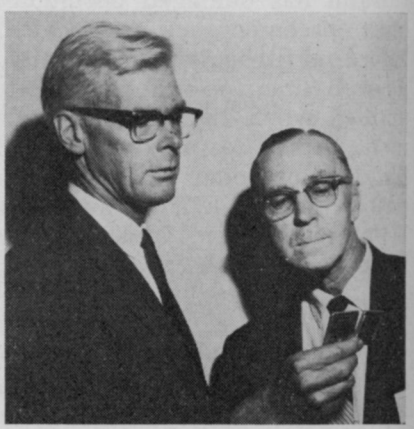
In an appraisal of the ash as a street tree and a substitute for the boulevard elm, Lawrence Bachman of Bachman's, Inc., Minneapolis, listed these assets of the ash: rapid growth rate; upright symmetrical growth habit; lacy leaf pattern, permitting filtered sunlight; strong crotches and branch structure; fibrous root system, yet not competing with adjacent vegetation or causing heaving of walks.

The ash "will not produce the high arching branches which have literally bridged over many of our streets and boulevards as the elm has done, but I feel it will provide a uniform wall of green on each side of our roads," Bachman said. Because the trees grow symmetrically of their own accord, less pruning would be needed over their life span. The relatively few disease problems which affect the ash would mean less spraying and preventive maintenance.

Among newer ash varieties are the Summit ash and the Marshalls ash. Yellow-leafed varieties are now being offered, and a red-leafed variety, particularly striking in the fall, will soon be available. Bachman recommended growing only seedless varieties of the ash and offering the budded male selections for sale to customers.

Unreasonable Demands On Street Trees

"When I stop to think what we ask of a tree when we use it as a street or boulevard tree, I shudder to recommend any at all," Bachman declared. "We really throw every obstacle in the world at these poor trees. Smoke, other air pollutants, mechanical injuries, a disrupted water table, highly compacted soil, lack of organic matter in the soil, limited root space, reflected heat from buildings, roads and walks, lack of water, use of salt on roads and walks, plus the usual infestations of insects and infection of roots by soil inhabitants and on and on. It is a wonder they grow at all. I almost



A discussion of the best of the maples was a highlight of this year's Minnesota course. Albert Johnson (left) used slides to point out maple characteristics to A. B. Stitt, forester for Northern States Power Co.

think I'm doing the ash a disservice by recommending it to be put through such rigors, but I honestly believe the ash will respond to such miserable torture as well as any other variety we can grow," the nurseryman concluded.

Other Trees Recommended for Boulevards and Streets

L. C. Snyder, head of the Department of Horticultural Science, Albert Johnson, associate scientist, and Robert Mullin, instructor in horticultural science, University of Minnesota, recommended a variety of other trees as possibilities for street and boulevard plantings and as replacements for the elm. Here is the list of trees recommended by the short course speakers:

Large Shade Trees—35 or more feet tall

Ash
- Green (*Fraxinus pennsylvanica*) & cultivars 'Summit' & 'Marshall Seedless'
- White (*Fraxinus americana*)
- Blue (*Fraxinus quadrangulata*)

Lindens or Basswood
- American (*Tilia americana*)
- Littleleaf (*Tilia cordata*)
- Redmont (*Tilia x cuchlora 'Redmont'*)

Maples
- Sugar (*Acer saccharm*) & cultivars 'Newton Sentry,' 'Temple Upright'
- Red (*Acer rubrum*) & cultivars 'Schlesinger'
- Norway (*Acer platanoides*) & cultivars 'Schwedler,' 'Crimson King'
- Silver (*Acer saccharinum*) & cultivars 'Weirs Cutleaf'

Miscellaneous
- Black Cherry (*Prunus serotina*)
- Honeylocust (*Gleditsia triacanthos*) & varieties 'Sunburst,' 'Skyline'
- Kentucky Coffeetree (*Gymnocladus dioica*)
- Oaks
  - White (*Quercus alba*)
  - Eastern Pin (*Quercus palustris*)
  - Swamp White (*Quercus bicolor*)
- Hackberry (*Celtis occidentalis*)
- Shellbark Hickory (*Carya laciniosa*)

Medium and Small Trees—Under 35 Feet

Maples
- Amur (*Acer ginnala*)
- Tatarian (*Acer tatarica*)

Mountain Ash
- Densehead or Korean (*Sorbus alnifolia*)
- Showy (*Sorbus decora*)
- European (*Sorbus europaea*)

Birch
- Paper (*Betula papyrifera*)
- River (*Betula nigra*)

Japanese Tree Lilac (*Syringa amurensis japonica*)
Ironwood (*Ostrya virginiana*)
Amur Corktree (*Phellodendron amurensis*)
Blue Beech (*Carpinus caroliniana*)
Hawthorns
- Toba (*Crataegus 'Toba'*) (*Crataegus crus-galli*)

Flowering Crabapples
- Siberian (*Malus baccata*)
- Cultivars—Red Splendor, Radiant, Vanguard, Flame.

Preconference study session gave delegates and speakers a chance to exchange questions. Here, left to right, Wayne Willmeng (Grand Forks, N.D., park board); Wisconsin Department of Agriculture Plant Pathologist Dr. George Hofstad; and Minnesota extension horticulturist C. G. Hard talked about Dutch elm disease. Dr. Hard was chairman of the annual tree course.

Insect Problems Foreseen

John Lofgren, University of Minnesota extension entomologist, warned that a number of insect problems can be expected in 1965 as a result of environmental conditions.

The weakening of shade trees by the drought makes it easier for bark beetles and borers to get a foothold. Unless dead trees from severe windstorms are cleaned up, Lofgren warned, they will be a source of infestation.

Dutch Elm Disease

Minnesota did not see a large increase in Dutch elm disease in 1964, Donald M. Coe, director of the Division of Plant Industry, Minnesota Department of Agriculture, reported. Although 47 new cases were found in Monticello, only three additional trees over last year were found infested in St. Paul and four in Minneapolis.

"Although we're thankful we didn't have a real blowup, don't close your eyes and say it can't happen here," Coe cautioned. He reminded the audience that sanitation, removal of dead trees, and spraying for beetles are essentials in the control of Dutch elm disease.

The Shade Tree Maintenance Short Course was sponsored by the University of Minnesota's Department of Horticultural Science and the Agricultural Extension Service.

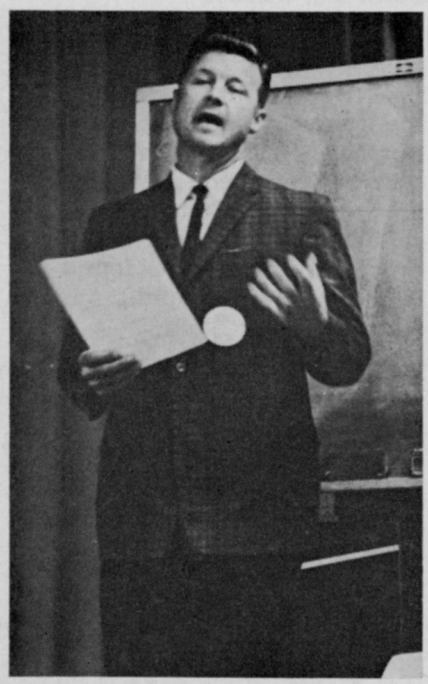
Increased Professionalism, Better Trade Organization Foretold at Northwest Spraymen's Conference Sept. 25-26

"More professionalism and hyperspecificity is the coming thing." This opening remark by Dr. Virgil Freed, head of the Department of Agricultural Chemistry, Oregon State University, spelled out in a few words the complexion of the Northwest Sprayers conference recently hosted by the Pesticide Sprayers Association, Inc. of Portland, Ore. Site for the Sept. 25-26 meeting was Portland's Thunderbird Motel.

Attentive to the general theme, "Our Future with Pesticides," chemical applicators operating in Oregon and Washington had the opportunity to learn much of the views of the spraying business taken by state and federal authorities, the layman, businessmen and chemical suppliers, as well as top research personnel.

From the start, a smooth-flowing, well-organized program gave sprayers something to think about. The opening bell was sounded by an "icebreaker" session in which the need for regional and national organizations was expressed. It was pointed out that professional status is not achieved by individuals each going his way, but rather by individuals working together to a common end, thus creating a favorable public image as well as increasing the working stature of the applicator. The recognition of this need for better organization resulted in setting a meeting date for the purpose of taking the initial steps for formation of a Northwest regional association and discussing logical moves toward becoming a part of a national group.

Close attention from this sizeable group speaks clearly for the success of the Northwest Spraymen's conference.



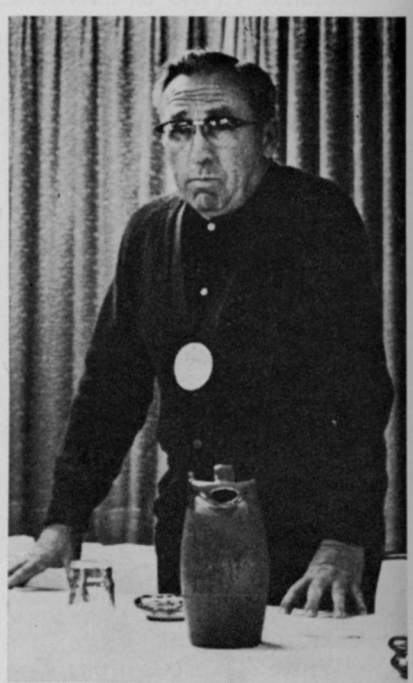
Welcoming words and an explanation of the program came from William Owen, president of the host group, Pesticide Sprayers Assn., Inc. (Portland, Ore.).

Frank B. Stewart, Executive Vice-President and general manager of Miller Products Co., Portland, Ore., who also serves as president of the Western Agricultural Chemical Assn., touched on a subject so near to all in agricultural chemical work when he said, "Food faddists and their ilk can scare us into bad legislation thereby destroying our wonderful way of life".

In presenting his story, Stewart also reminded the group that the modern complex chemicals require more skill in use, making mandatory honesty, responsibility and ability on the part of a spray applicator. Stewart's concluding statement precisely pointed out "Yes, you have a future with pesticides *if* you are professional."

Which Way Professionalism?

Speaking as chief chemist for the Oregon Dept. of Agriculture, and one intimately associated with legislation concerning ap-



Need for better regional organization among spraymen was expressed by Jack Daniels, president of the Washington Assn. of Ground Sprayers (Seattle).

plicators, J. D. Patterson asked the question, "What is a professional applicator? Legislators want to know—you need to know." Since it is obvious that legislation will play an important part in the future of both pesticides and pesticide applicators, "it follows that we need to do serious thinking about our own place in this industry."

Patterson went on to point out that the influence we as applicators bring to bear toward needed legislation will determine our operating climate; therefore, the need for our efforts is obvious.

The homeowner's view of spray applicators perhaps was the most surprising eye opener of the convention. Mrs. Nat Schoen of Vancouver, Wash., home gardener and sweepstakes rose grower, and the only woman ever elected to serve as president of The American Rose Society, told the convention that sprayers had failed to let people know of their work and what they had to offer the home gardener. Mrs. Schoen pointed out that sprayers should avail themselves of more opportunities to appear before garden clubs, civic organizations, and homeowner organizations with constructive presentations aimed at better gardening with professional help.

Mrs. Schoen: "Let people know what you have for them." This past president of the American Rose Society thinks contract syraymen will became increasingly important to the home gardener.

Watch Your Costs!

The sprayer's zeal for good work and increasing his business can cause him to overlook the fact that he is a businessman in every sense of the word. George Goforth, vice president of the First National Bank of Oregon, and manager of their industrial branch in Portland, discussed the ever-present need for attention to dollars-and-cents handling. "The man who does not know his cost of doing business today is lost."

Goforth also pointed out that sound business practice is the same for both the large and the small businessman. He stressed the need for adequate operating capital, complete accounting procedures, market analysis, and careful attention to management, all of which can be had through the use of good accountants, good attorneys, and good bankers. Proper attention to details "not only makes profit but will show adequate returns on invested capital," a point so often overlooked by the small businessman.

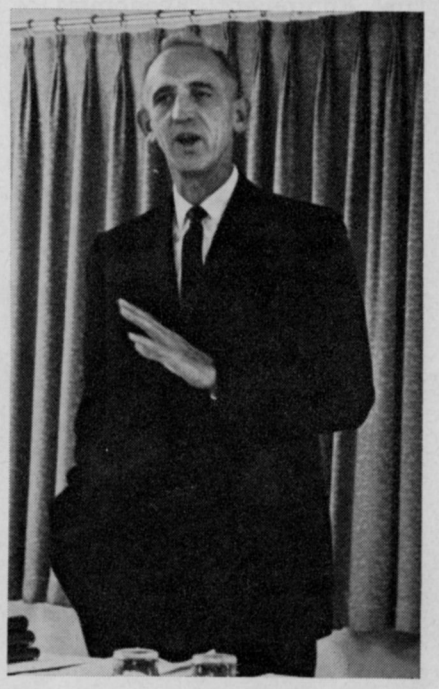
What's in store for the unthinking or careless applicator? Trouble! Stuart W. Turner, consulting agronomist, San Francisco, bandied no words in pointing out the involvements resulting from application of agricultural chemicals without adequate knowledge of federal, state, and local regulations concerning their use.

"Demands for new and more stringent regulations are the result of damage to crops, ornamentals, and other desirable plants." The professional applicator, through careful attention to labeling and recommendations for use, not only avoids lawsuits and lost business, but also does his share to hold down resultant restrictive legislation that seems naturally to follow damage claims. In Turner's opinion, the professional applicator gives careful attention to detail in all phases of his operation, thereby reflecting credit to the industry and favorably complimenting the buildup of a healthy public image.

A very important asset to any small businessman is his wife, who sometimes is also his secretary and bookkeeper, phone answerer, and girl Friday. With this in mind the very efficient

(Continued on page 19)

"What is zero tolerance? We now measure to six parts per billion!" commented Dr. Leon Terriere, Professor of Biochemistry and Entomology at Oregon State University.



Stewart: "Yes, you have a future in pesticides—if you are a professional."

Tips on Spring Dead Spot, Fertilizer Advice on Tap At Fifth Univ. of Missouri Lawn and Turf Conference

By DAVE MILLER, Assistant Agricultural Editor, University of Missouri, Columbia

"Fungicide put into the watering system may be one of the coming ways of treating spring dead spot in bermudagrass," according to Stan Frederiksen, Mallinckrodt Chemical Co.

Frederiksen, speaking at the fifth annual Lawn and Turf Conference at the University of Missouri, Columbia, Sept. 23-24, reported on fungicides that have shown good control of "spring dead spot."

Frederiksen said dead spot can be conquered by good maintenance practices, and treatment with fungicide, using exact treatment techniques. "The damage is caused in the fall. Nothing can be done when you see the spots in the spring. The time to prevent the disease is in August, September, or October," the Mallinckrodt turf expert affirmed.

During the day-and-a-half conference, speakers covered such topics as What Does a Soil Test Mean; Management Problems with Warm Season Grasses in Missouri; Care and Repair of Turf Equipment; Economics of Turf Disease Control; Fraudulent Fertilizers; and the Value of Proper Moisture Environment for Healthy Turf.

Early registrants Glenn N. Morris (left) and Jack Deck looked forward to an exciting program. Deck represents Collier Chemical Co.

James Latham, agronomist with the Milwaukee Sewerage Commission, noted that part of the reason bermudagrass sometimes grows poorly in Missouri is that not enough fertilizer was used in establishing it.

"Golf course turf planting is no time to save money," Latham said. "You are reducing the use of the grass by a month, and likewise losing a month's revenue.

"Berumuda thrives on aeration," Latham continued, "and weed problems are reduced by aeration."

R. F. Eldred, Toro Manufacturing Co. reminded the group of the importance of selecting the right machine for the job you have to do.

You should consider usage of machine; your location; type of grass to be cut; size of area and terrain; degree of maintenance you can give; manpower, and time available.

He recommended a training period for operators before they run any machine, and definite checks every morning, with maintenance through the day as needed, and close familiarity with the operator's manual. In addition, a well-planned maintenance program of cleaning, painting, regular checks, and proper storage is needed. "A well maintained machine is a safe machine," he said.

Highly cultured golf course turf was of interest to all turf management personnel at the University of Missouri conference.

Carry Enough Fungicide

Peter Wildermuth, Mallinckrodt Chemical Works, began the afternoon program with a reminder that "turf pros should carry enough material (for disease control) to take care of any

emergency." His theory is that if a disease hits one place it will also be somewhere else, creating a demand and possibly a scarcity of disease-fighting chemicals when they're most needed in an area.

He noted that in buying chemicals, several things should be considered: usage . . . amounts, etc., frequency of application, and how many diseases a product controls.

"Lawn Seed Sweepstakes" was the title of a talk by Dr. Robert W. Schery, director, The Lawn Institute, Marysville, Ohio. He noted that "what operators do has as much influence as what is planted," inferring the great influence management has on all grasses.

In discussing seed purity, Dr. Schery said, "The major difficulty is defining a weed. A weed to you might not be one to me. Many a pest in a field crop is of no consequence in a mowed turf, yet must be considered 'noxious' and appear unnecessarily alarming on the label.

"But other weeds can prove harmful in the lawn, though they escape mention in the laws because they are not agricultural pests.

"As to varieties," Schery stated, "most are good, at least for certain purposes or regions. Else they wouldn't have been selected, propagated, and brought to market.

In summing up, Dr. Schery said, "There's perhaps more to be accomplished in tending lawns correctly than in searching out new varieties. But with all seed you can know that the mechanical aspects of quality are tops."

Gypsum Bad for Midwest

George Smith, Chairman of the Department of Soils at the University of Missouri, talked briefly about fertilizers, and the need to beware of such things as "secret ingredients, or claims that are not backed up by scientific evidence." He stated that there is no place for gypsum on midwest soils.

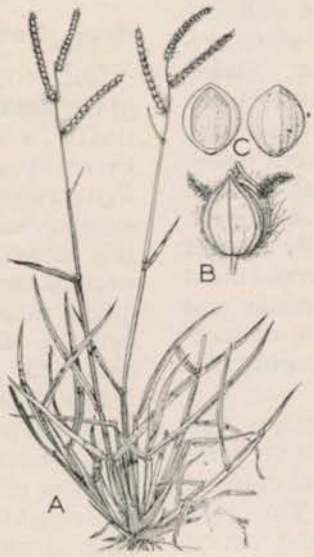
In tours of University of Missouri weed control plots, led by

(Continued on page 19)

Know Your Species

DALLISGRASS

(Paspalum dilatatum)



Dallisgrass (A) is a tall perennial grass which grows from a bunchy, knotted base. In the Southeast and irrigated Southwest where it thrives, it can grow 5 feet high. Although it is a perennial, it reproduces only by seeds formed each year. Individual plants survive year to year, however. It is found in moist soil, along roadsides, in fields, and meadows. It is a particular problem on lawns.

Alternating leaf blades are flat, 2 to 6 inches long. Three to five flower-bearing spikes top off the mainstem. The spikes are 1 to 3 inches long; they are also alternate. The small spikelets (B) or flowering parts grow only on one side of the spike branch.

Tiny flowers, ⅛ inch long, sit directly on the stem. At times the spike appears to have a purplish cast because of the purple-colored stigmas (female flower parts) which protrude from the individual flowers.

Dallisgrass produces a smooth, shiny, yellowish grain (C), which is just under ⅛ inch long.

Selective control on turf has been developed for Dallisgrass. Disodium monomethylarsonate (DMA) broadcast repeatedly over the turf achieves satisfactory control. Manufacturers' recommended rates for such treatment must be carefully followed. Such overall treatments have to be repeated because of the light rate which is necessary for use on desirable turf.

Spot treatments with higher concentrations of DMA or AMA (ammonium methyl arsonate) will eliminate Dallisgrass faster. Treatment must be closely limited to the small areas because injury to adjacent desirable turf may occur if the turf is sprayed. Reseeding of the killed areas should follow before any other undesirable weeds invade the vacancies.

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

(DRAWING FROM UNIVERSITY OF ARIZONA AGRICULTURAL EXTENSION CIRCULAR 265, TUCSON)

Effects of Excess Rain on Turf Management

(from page 7)

toxic to turfgrass. More will be said about this situation later.

Both desiccation and wilt are more likely to occur when internal drainage is poor. Sometimes in the summer it may become necessary to syringe the turf frequently to prevent loss—in spite of the fact that the soil may be at or near the saturation point. This is especially true if temperatures or wind movement is high. In the late winter and early spring, desiccation of turfgrass areas may be prevented by applying water.

One of the more serious and direct effects of excessive rainfall on soil is structural deterioration (compaction). This may result from the beating action of the raindrops, or from the traffic—both player and equipment—to which the area is subjected. Soil displacement—permanent rutting and footprinting—is likely to occur if the wet soil is subjected to traffic during these periods.

Spike Disking Helpful

Spike disking of greens during the summer months will do much to offset some of these adverse effects. Spiking is recommended over aeration during the summer because of the reduced growth activity of cool season grasses during the summer.

Growth. The prevailing temperature and the fertility level of the soil also must be considered in a discussion of the effects of excess rainfall on growth activity.

Prolonged rainfall will tend to extend the springlike growth of turfgrass if the temperatures are moderate. Such conditions result in a soft, succulent turfgrass that is easily damaged by traffic (has poor wearability) and which is more susceptible to attacks by disease and insects. These factors weaken the permanent turfgrasses and open them up for weed invasion. Sudden "hot spells" during such periods intensify these situations and may prove disastrous. In very early spring, a sudden cold snap with snow or freezing rain may result in substantial loss of turfgrass. A recent example of this is the New England area in the spring of 1963.

Heavy Traffic Harmful

Golf courses and other turfgrass areas subjected to heavy traffic will suffer to a greater extent than those subjected to light traffic. Under conditions of excessive rainfall or moisture, this situation may cause an abnormal loss of turfgrass. Obviously, such soils would be poorly aerated. Because of the important role of aeration and the effect it has on root function and plant growth, a brief review may be in order.

Roots growing in well-aerated (adequate-oxygen) soils are long, light colored, and well supplied with root hairs. These roots have a longer portion covered with root hairs; hence, a longer portion over which absorption of water and nutrients may occur. Roots growing in poorly aerated (low-oxygen) soils are short, thick, and dark, and have less than the normal number of root hairs.

Absorption of ions (plant food nutrients) by roots is one of the most important physiological functions of living plants. It represents the connecting link between soil conditions and plant growth. Failure to obtain normal plant development in poorly aerated soils is related to restricted ion uptake by roots.

Inadequate aeration decreases the intake of water by plants directly through its effect on absorption, and indirectly by reducing root growth. Reduction of water uptake occurs only at relatively high carbon dioxide concentrations, and even then its effect is reduced by presence of oxygen; hence, carbon dioxide is of minor significance in water economy, *except in those cases where roots are growing in waterlogged soils in the presence of large amounts of readily decomposable organic matter.*

In the absence of adequate oxygen, anaerobic reactions predominate and large amounts of reduced soil constituents are built up. Among reactions most strongly influenced by changes in aeration are those involving manganese and iron. Iron chlorosis is usually quite prevalent under such conditions and the spraying of iron sulfate or related iron compounds during such times will be most beneficial.

Bad Aeration Hurts Seeds

Germination of seed is strongly affected by the concentration of oxygen and carbon dioxide. A faulty aeration condition is one of the primary causes of poor germination, and often occurs in soils having poor structure or excessive water content.

Root growth at various levels of oxygen is strongly influenced by temperature. Experiments have shown that at an oxygen concentration of 3% and at temperatures of 64 and 86 degrees, root growth is inhibited; whereas at an oxygen concentration of 10%, root growth is normal at 64 but reduced at 86 degrees. This indicates that at the higher temperature, 10% oxygen is deficient. Further work has shown that: (1) at oxygen concentrations of less than 1% roots lose weight; (2) concentrations from 5% to 10% are necessary for the growth of existing root tips; and (3) oxygen concentrations greater than 12% are required for root initiation.

Within the temperature limits for root growth, the greater the temperature of the soil, the higher must be the concentration of oxygen in the soil atmosphere for normal root growth. Canon attributes this relationship to decreasing solubility of oxygen in the soil solution with increased temperature. *Although this may be a factor, the effect of increasing temperature on respirational demands of the roots for oxygen certainly plays an important part.*

From the standpoint of disease incidence, it is well to remember that in addition to creating conditions more conducive to disease development, the effectiveness of fungicides may be reduced by

heavy rainfall. More frequent applications may be necessary and the use of a wetting or "sticking" agent is recommended. Algae and fairy ring activity may be greater.

The frequency of fertilizer applications, especially of nitrogen, will have to be increased to offset that utilized for the additional growth as well as that lost by leaching.

Annual weed growth, especially grasses—such as crab, barnyard, pigeon, foxtail, etc., as well as clover, chickweed and knotweed—will be much greater during wet, rainy seasons. Chemical treatment of these weeds with the appropriate herbicide will aid materially in controlling their increase.

It must be remembered, of course, that chemicals are only a tool, and that unless the basic cause for turf deterioration (with subsequent weed invasion) is corrected, the elimination of weeds with chemicals will be of little permanent value.

Sidewalk Salt Threat to Lawns

Heavy use of salt on sidewalks to remove snow and ice may damage lawns and shrubs, says C. M. Drage, Colorado State University extension horticulturist. He suggests minimum use of salt and care in its application near grass and shrubs.

Drage explains that although plants are dormant during the winter, roots are still active. Salt solutions draining or swept off melting walkways may penetrate the soil around grass and shrub roots. This salt concentration in the soil around the roots results in the roots losing large amounts of water to equalize salt concentration.

This phenomenon is the result of osmosis, the horticulturist explains. Water already existing in plant or grass roots will move out through root membranes in order to dilute and equalize the salt concentration in the soil. Without necessary water in the root system, the plant dies or is damaged, Drage concludes.

North Central Weed Control Conference Meets Dec. 14-16

"Pesticides in Our Environment" will be the main subject for panel discussion when the North Central Weed Control Conference meets Dec. 14-16, in Kellogg Center, East Lansing, Mich.

Dr. Delbert D. Hemphill, Department of Horticulture, University of Missouri, Columbia, president of the conference, will address the group at its opening session.

Other topics to be presented turfmen are: New Products From Industry, Application Methods and Equipment, Industrial Areas, Aquatic Weeds, Horticulture, and New and Problem Weeds.

Program of the meeting and other information can be obtained from the program chairman, John D. Furrer, Department of Agronomy, University of Nebraska, Lincoln, Neb.

Southern Weed Conference Set for Dallas, Jan. 19-21

Further progress in the already highly developed science of weed control is the goal of the 1965 Southern Weed Conference, scheduled for the Hotel Adolphus, Dallas, Texas, Jan. 19-21.

Approximately 800 research, education, and technical development workers are expected. They represent state and federal agencies, private chemical and equipment companies, railroads, utility companies, municipalities, aerial applicator associations, and other organizations. Delegates will exchange information on better ways to control weeds in lawns; on farms, industrial sites, and rights-of-way; and in parks, waterways, and other areas.

This is the 18th annual meeting of the Conference, and the first time it is convening in Texas. Other states represented include Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, and Virginia.

Officials of the conference are Dr. R. E. Frans, University of Arkansas, Fayetteville, president; Dr. Dale E. Wolf, E. I. du Pont de Nemours, Atlanta, vice president; and Henry Andrews, University of Tennessee, Knoxville, secretary-treasurer.

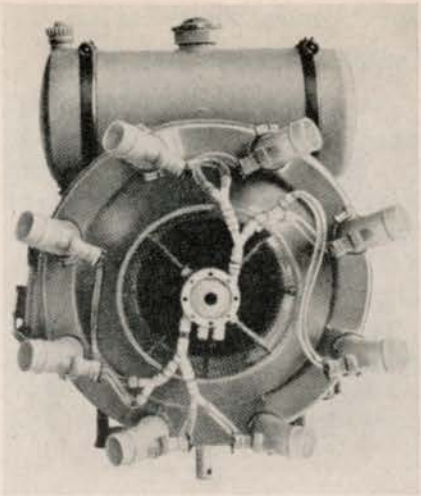
Dr. A. D. Worsham of North Carolina State College, Raleigh, will be in charge of the 3-day program. T. J. Paulson of Amchem Products, Inc., Ft. Worth, will handle local arrangements. For details, write Dr. Worsham at N.C. State.

New Solo for Custom Sprayers

A brand-new spray unit especially built for contract applicators has just been introduced by Solo Industries.

The new unit, according to Solo General Manager A. J. Mook, has its own 9½-horsepower engine and can be used with a tank of any size to suit the individual's requirements.

Solo says the "Super Custom," as the unit is called, can be used for concentrated spray or regular dilutions. It can be mounted on any kind of carrier.



Solo's new Super-Custom is specially designed for custom applicators.

For details, write Mook at Solo Industries, P.O. Box 128, Woodside, New York 11377.

Brown Needles on Evergreens Natural Shedding Process

Arborvitae, spruces, or pines with a definite brown discoloration are experiencing a natural shedding process. Evergreens, like other woody plants, make new growth and new foliage each year. Unlike deciduous plants, they do not shed all their foliage each fall.

Evergreens do, however, shed some foliage each fall—the foliage that is the oldest. Some evergreens, depending on the species, retain two year's growth and drop the three-year-old needles; other species retain three-year foliage and drop the four-year-old needles. Thus, each fall some needles turn brown and eventually drop.

This type of drop can be easily distinguished. The browning occurs throughout the plant and on all plants of the same species in the same locale. Also, only the oldest or innermost leaves or needles are affected. These evergreens are not in any danger of dying.

If evergreens show discoloration of the newer growth at the tips of branches, then further checks should be made.

Pines, hemlocks, or spruces on lawns will undoubtedly have an accumulation of dropped needles beneath these trees. These needles should be raked from the lawn as they will exclude sunlight from the grass. Evergreen needles are also acid and as such are detrimental to good grass growth.

Needles, slow to decay, make a good mulch. Their acidity makes them ideal for mulching rhododendrons, blueberry, and other plants preferring an acid soil.

Meeting Dates

Washington State U. Workshop—Retest for 1965 License, auditorium, Puget Sound Power & Light Co., Bellevue, Nov. 17-19.

Northwest Chemical Applicators Assn. Annual Conference, Chinook Hotel, Yakima, Wash., Nov. 30-Dec. 1.

Washington State U. Workshop—Retest for 1965 License, Chinook Hotel, Yakima, Dec. 2-4.

National Weed Committee of Canada, Western Section Meeting, Royal Alexandria Hotel, Winnipeg, Dec. 1-3.

North Central Weed Conference, Inc., Meeting, Kellogg Center, Michigan State University, East Lansing, Mich., Dec. 14-16.

Northeastern Weed Conference, Hotel Astor, New York City, Jan. 6-8.

17th Annual California Weed Conference, Hacienda Motel, Fresno, Jan. 19-21.

Southern Weed Conference, Annual Meeting, Hotel Adolphus, Dallas, Tex., Jan. 19-21.

Midwest Regional Turf Foundation Meeting, Purdue University Memorial Center, Lafayette, Ind., March 1-3.

35th Annual Michigan Turfgrass Conference, Kellogg Center, Michigan State University, East Lansing, March 11-12.

Southeastern Turfgrass Conference, Tifton, Ga., April 12-14.

Pesticide Safety Is Subject Of New Film by Ortho

A new film, titled "Prescription for Safety," has been released by California Chemical Co. as part of the chemical industry's program to emphasize the need to follow precautions found on product labels.

A noncommercial concept, the film features "Brand X" chemicals. According to L. F. Czufin, Calchem's advertising and public relations manager, any agricultural chemical company can adapt this safety film for its use and distribution by adding a film "leader" and "trailer" containing its firm's introduction and signature. Prints are being made available at cost.

The 18-minute film stresses commonsense practices portrayed by the lead character through a workday made safe by the proper mixing, application, and storing of pesticides. Destruction of chemical containers, hygienic care, and protective clothing are among the subjects treated.

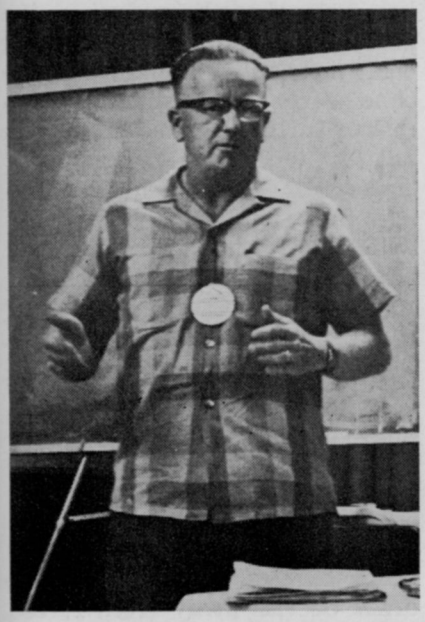
The film may be obtained on free loan from the company by writing to L. F. Czufin, California Chemical Co., 571 Market St., San Francisco 20, Calif.

Northwest Conference

(From page 13)

wives of the Pesticide Sprayers Assn. members of the Portland group planned an interesting two-day program for the "ladybugs" attending the conference.

The realistic views presented by the speakers during the convention were reflected by the many serious conversations during the social hour and banquet that marked a successful end to the meetings. A definite air of responsibility and rededication prevailed—even into the fun and laughter that was a part of the closing program. As one guest said, "for the professional applicator, the future with pesticides can indeed be bright if we will just make it so."



More organizational suggestions were offered by Don Rasmussen, immediate past president of the Oregon Ground Sprayers Assn.

Missouri Turf Conference

(From page 15)

Delbert Hemphill, Professor of Horticulture at the University of Missouri, the group inspected results of herbicide testing. Hemphill pointed out that the University has had outstanding results with Tupersan for preemergence control of crabgrass in spring-seeded bluegrass and red fescue plantings. These turf grasses show high tolerance to this chemical even though it is applied immediately after seeding, according to Hemphill.

The second day of the Lawn and Turf Conference began with the large group dividing into two groups. One group was interested in lawns, parks, institutional grounds, athletic fields, etc., and discussed problems peculiar to them, while the second group was composed of people interested primarily in golf courses.

Each group held a problem-solving clinic, panelists being Earl Hornbuckle, Kansas City, and Charles Denny, Webster Groves, and members of the University of Missouri staff, for the first group; and for the golf group, James Latham, Tom Mascaro, Ed Shoemaker, and staff of the University of Missouri.

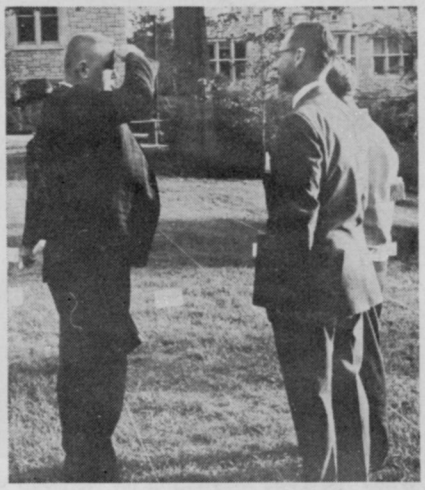
Said to develop pressures up to 100 psi, this knapsack-type sprayer is manually operated.

Manually Operated Sprayer Introduced by Root-Lowell

A lightweight, manually operated sprayer, said to develop pressures up to 100 psi, was recently introduced by the Root-Lowell Corp. Named the Spraymore Model 1773, this unit has a ventilated back for added comfort when carried as a knapsack.

Easy stroking of the pump handle actuates a dasher-type agitator said to keep sediment-bearing solutions correctly mixed during use. Discharge equipment includes a 5-ft. hose, rotatable shutoff, and 24-inch brass spray extension. A fully rotatable nozzle is adjustable to all spray patterns.

Interested spraymen can obtain complete details from Root-Lowell Corp., Lowell, Mich., 49331.



Weed control plots at the University of Missouri attracted delegates as U staffer Delbert Hemphill (right) explained experiments to touring group.

Black Spot, Powdery Mildew Defoliate Roses in Fall

Nurserymen who noted that some roses suffered severe defoliation in late summer, may suspect black spot and powdery mildew as the cause, suggests Claude L. King, Extension Plant Pathologist at the Kansas State University.

The black spot fungus infects leaves during moist weather or even in dry periods if the plants are irrigated. Infection causes dark spots on the leaves which then turn yellow and drop.

Powdery mildew affects climbing roses and other types growing in shaded areas. King says this disease appears as a light, whitish, powdery growth over affected areas on leaves and buds. Buds and affected leaves are distorted by the fungus growth.

King suggests a regular spray schedule using maneb or captan for black spot, although these chemicals are not successful in controling powdery mildew. Another fungicide, folpet, will give good control of black spot and is fairly effective for powdery mildew.

Where powdery mildew is a problem, King likes to add Actidione PM, capryl, karathane or sulfur, to maneb, captan, and to folpet, for maximum effectiveness. Avoid burning the foliage by applying chemicals when temperatures are below 90 degrees. Use of a spreader-sticker in these sprays is recommended when treating roses for powdery mildew.

Rutgers Field Day Redated

An extended drought made it necessary to postpone the Rutgers University turf equipment and products field day which was scheduled for last Oct. 10.

Dr. Henry W. Indyk, Extension Specialist in Turf Management at the College of Agriculture, Rutgers University, said this decision was made after consultation with an advisory committee composed of industry representatives and other college specialists.

The university is planning this event for next spring, and will announce dates later in *W&T*.

Oregon Entomologist Warns Of Timber Beetle Attack

Northwest stands of timber will be subjected to a massive attack next March or April by the Douglas fir bark beetle, says Dr. J. A. Rudinsky, Professor of Forest Entomology at Oregon State College, Corvallis.

Unless checked, the insect could destroy from three to six billion board feet of standing timber—enough to build a quarter to half million average-sized homes.

He said the Douglas fir beetle has been breeding during the past cool summer under ideal conditions and will emerge sometime early next spring. Rudinsky further added that the beetles will number some 12 times as many as in 1963 following the Columbus Day storm which left blown-down timber highly vulnerable.

Control methods are lacking, Rudinsky continued. The beetles burrow under the tree's bark, out of reach of insecticides.

Scientists are working to duplicate a substance which is secreted by the female when she touches the inner wood of a tree. The substance, which attracts other beetles, could be used to draw beetles away from forests rather than towards them, Rudinsky believes.

When the 1965 meeting of the Northeast Weed Control Conference takes place in New York City, January 6-8, these officers of the organization will be directing the course of events. They are, left to right: Dr. John A. Meade, secretary-treasurer, University of Maryland; Dr. Robert A. Peters, president, University of Connecticut; and Dr. G. D. Hill, vice president, the du Pont Company. The meeting is set for NYC's Hotel Astor.

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Many Factors Determine Insecticide Residue in Soil

Hazards from chemicals that remain in the soil after insecticide treatment depend on the kind of chemical and a number of soil conditions, a University of Wisconsin scientist told an audience of the American Chemical Society which met in Chicago Sept. 4.

Residues from some insecticides disappear much faster than others, and many chemicals break down to harmless forms under moist soil conditions, according to E. P. Lichtenstein, opening speaker at a special symposium on Environmental Health Aspects of Pesticide Residues.

The chlorinated hydrocarbons persist longest in the soil. DDT, aldrin, and heptachlor are some of the common chlorinated hydrocarbons. The organophosphorous group disappears fast from the soil, but there's a big difference among chemicals of this group, as well as in the pathways of disappearance.

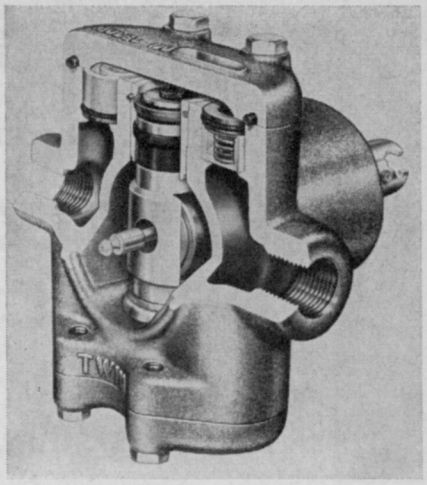
All insecticides break down to harmless residues faster when soils are moist. Water, under certain conditions, breaks the chemical apart. Water also creates ideal conditions for soil microbes to attack and reduce some chemicals to harmless forms. Yeast, in the soil for example, changes parathion to nontoxic aminoparathion.

Harmful chemical residues break down faster in warm soils, Lichtenstein said, adding that type of soil makes a difference, too. Generally, insecticides stay longer in peat and muck soils than in loose, sandy soils, although in muck soils of high organic content the residues are tied up in such a way that they are less toxic than they would be in sandy soil.

Cropping and tillage practices also affect chemical residues, the researcher continued. Under a cover crop like alfalfa, insecticides stay in the soil longer. When soils are cultivated often, residues disappear faster.

Aldrin residues were lowest in an experiment where it was applied to the soil in an emulsion form, and highest when the chemical was applied in granules and mixed into the plow layer.

Lichtenstein also found that yearly applications of a chemical left more of it in the soil than the same amount applied once only.



An improved method of protecting pump bearings and a guided piston assembly are main features of the new 5300 Small-Twin piston pump, a product of Hypro Engineering, Inc. A nylon shield rotates with the shaft to repel liquid from the bearings as the pump shaft rotates. The guided piston assembly utilizes a self-lubricating Teflon seal ring with rubber O-ring which functions as a suction seal for the pump. This relieves the necessity of having the piston cup maintain vacuum in the pump. The pump mounts directly on small motor. Details are available to those who write the company at 700 39th Ave. N.E., Minneapolis, Minn. 55421.

Airplane Spray Distribution Is Subject of USDA Brochure

A brochure giving a detailed study of spray distribution patterns as applied from a high-wing monoplane was recently released by the Agricultural Research Service, U. S. Department of Agriculture.

Illustrated with in-flight photographs, the brochure gives results of experiments made with various types of spray applications. Graphs and charts are also included in the 8-page research report.

Titled "Spray-Distribution Patterns From Low Level Applications With a High-Wing Monoplane," (ARS 42-99, Aug. 1964), the brochure is available to those who write to Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C.

Trimmings

A Real Firecracker. One of the busiest custom spray operators in the country these days is William Owen, president of the Pesticide Sprayers Association of Portland (Oregon). We had a chance to chat with him recently about the regional sprayers meeting his group sponsored in Portland last month. Apparently the meeting came off successfully, which is no surprise to us judging from the amount of hard work and careful planning that went into the affair. One of the most effective items in the multistage advance publicity program Owens and his cohorts devised was a cylindrical mailing piece resembling a firecracker or stick of explosive (complete with fuse) inside of which were several flyers describing the meeting, and a return postcard on which to indicate attendance at the Portland conference. At first we wondered if some of our good readers in Oregon disagreed with our editorial policies and were answering in no uncertain terms, but a quick, if uneasy, inspection of the "dynamite" showed it to be merely a clever attention getter. Hats off to Owens and his Portland friends.

* * *

Hansling, with Care. *Celebrating its 64th year in tree care currently is P. Hansling & Son, an arborist company allied with Hartford Forestry Co. in Hartford, Conn. The Hansling's have a post card-sized mailing piece with a clever quote from family member Ruby C. Hansling, which reads: "Remember your own trees; they are but tree people strayed from the forest." This folksy observation should appeal to homeowners who are fond of old established shade trees on their property, and would help build an interest in the Hansling organization.*

* * *

Ringing a Bell. A nice piece of publicity for an Ohio weed and brush control company appeared recently in the *Ohio Bell Voice*. Company in the spotlight was Chemi-Trol Chemical Co. of Gibsonburg. Chemi-Trol president Fred Karlovetz now has 54 trucks in operation and has sprayed 3,000,000 miles of roadside since the company was founded in 1946. The firm, an aggressive and modern business enterprise, now operates in Ohio, Michigan, Indiana, Kentucky, and Pennsylvania. Prexy Karlovetz says the company also does some railroad work. A real success story from a recognized industry leader in custom application.

* * *

Cup Runneth Over. *Very much in evidence at the recent sprayer's conference in Portland, Ore., (page 12) was Barbara McNeilan, wife of Oregon county agent Ray A. McNeilan. Barbara made sure delegates had full coffee cups during frequent breaks in the successful meeting. Reports are the entire ladies program was a tremendous success, so that perhaps even more of the "better halves" will be tempted to join in next year!*

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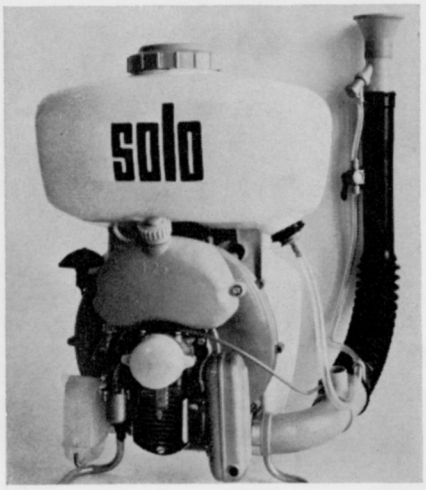

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left: the Solo Mistblower
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above: Solo Chain Saw 70-A
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