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Turfgrass Portraits I:

Kentucky Bluegrass

●

By DR. ROBERT W. SCHERY

Director, The Lawn Institute
Marysville, Ohio

●

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

KENTUCKY bluegrass may have been brought to the Midwest before 1700 by French missionaries. Some claim it was "introduced" into Kentucky, where it acquired its present familiar name in the early 1800's, by Harrison's Kentucky volunteers returning from the battle of Tippecanoe. It's a good guess that today more Kentucky bluegrass clothes America's suburbs than there are corn plants in the Corn Belt. Why this spectacular success?

A combination of traits is responsible, in all of which Kentucky bluegrass rates near the top. Bluegrass spreads by underground stems (rhizomes), and thus is not an offensive thatch-former as are most stoloniferous grasses. It is soft of texture, aristocratic in stance, its arching culms graceful, the bluish-green color luxuriant in the lawn. Kentucky bluegrass is widely adapted, can survive under differing conditions, in distant regions. It is strongly recuperative, revives well after drought, wear, scalping, or disease. Its maintenance is not demanding. It mows neatly (except for a brief span

when seedheads form). It is self-sufficient without being transgressive—pleasantly ladylike at flower bed borders compared to quack or bermuda. And it is durable under pesticide treatment, enabling selective clean-out of most pests in a bluegrass turf.

Growth Pattern

Autumn, with its warmish soils, bright days (but crisp nights), gentle October rains, is very much bluegrass' cup-of-tea. Food reserves build then. Sod thickens with the formation of many fat side shoots (tillers). But, responding to shortening day length, growth is low; mowing is not uncomfortably increased, no matter how much the lawn is fertilized. There is some increase underground right through winter. Come spring, bluegrass is resplendent even before the trees leaf out. Rhizomes spread and tillers fill. Soon the main culms initiate seedheads, are destined to turn stiff, and become a bit of a nuisance for the mowman.

A touch of shabbiness follows seeding season. Each stem that initiated a seedhead withers, and summer finds bluegrass thinning. New tillers won't become robust where summers are hot, and are sometimes not really adequate until autumn. Summer is a trying season for bluegrass, energy often being dissipated faster than photosynthesis can replenish it. It does little good to force bluegrass with fertilizer in hot weather; indeed, too abundant nitrogen then may lead to "disease," and rather complete debilitation.

Adaptation and Preferences

Kentucky bluegrass obviously benefits from a more northerly climate. South of Tennessee or the Texas Panhandle, mountain

elevations excepted, there is just too much hot weather for bluegrass. Perhaps the winters are insufficiently cold, too. Except in the shade, it mostly passes out in summer.

As with any plant, bluegrass performs best in rich, friable soils, well drained and retentive. But it's widely tolerant. A lot of good bluegrass grows on clay almost boggy in spring. It can be perpetuated on sands, if fertilized enough and watered occasionally. It looks starved on infertile soils, but generally persists. It relishes neutral, limy soil, but tolerates acidity. One thing bluegrass does resent is close mowing, scalping; set the mower 1½ inches high, maybe more in middle latitudes. Water? — bluegrass can "sit out" drought, revive when conditions turn favorable. Indeed, there are indications that summer drought is therapeutic to bluegrass (perhaps because competing vegetation is injured more and recuperates less well). But for continuously green sward, irrigate bluegrass whenever it turns blue with incipient wilting and is no longer resilient enough to "wash out" footprints.

Propagation

Bluegrass tenacity, and ability to spread by rhizomes, permit its propagation by plugs (biscuits of sod), or by sod itself. But seeding is simpler, more economical. There is excellent seed production in this country, with a long and honorable history. Between 20 and 30 million pounds of Kentucky bluegrass seed is sowed annually to America's fine turfs. In each pound there are approximately two million seeds—clean, plump, of at least 85% purity and 75% germination (accepted trade standards; most bluegrass is essentially weed-free; the non-seed fraction, "inert," is mostly

Weeds and Turf is proud to present the first in a series of profiles of common American turfgrasses by Dr. Robert Schery of The Lawn Institute. Dr. Schery, a frequent *W&T* contributor and world-renowned authority on the subject, covers history, characteristics, and maintenance methods for each species, so that turf professionals may use each installment as a "working manual" and as a training aid for maintenance crews.

chaff and hulls, impractical to winnow away in the cleaning operations because there would be loss of viable seed too).

Recommended seeding rate, usually in mixture with fine fescue, is 2-3 lbs./M, 20 or more potential plants per square inch. On good seedbeds, loose and crumbly, even lighter rates are possible—provided so little seed can be spread evenly (use a good spreader). Watered as needed, and mulched to conserve moisture, bluegrass sprouts in as little as five days in warm weather. Where warmth or humidity are less than ideal, several weeks may pass before bluegrass is very much evident. Bluegrass sprouts best, as it grows fastest, in a 65-80° temperature range.

What To Watch Out For

Trouble can beset Kentucky bluegrass when weather gets warm, especially if the grass is succulent from nitrogen. Disease gets blamed for its demise, but "soft" bluegrass can't stand up to 100° temperature anyway. So go light on summer feedings where hot days aren't at least counterbalanced by cool nights.

Leaf spot (*Helminthosporium*) may be rampant in the cool of spring. If the grass is not oversucculent, and is mowed reasonably high, chances are the disease will not extend to the foot rot stage, with appreciable loss of turf. The lawn can be sprayed with one of the excellent general-purpose fungicides*. Bluegrass is quite tolerant of fungicides if applied correctly.

Sometimes insects attack. Sod webworm, the larva of the lawn moth, has been serious in the Midwest in recent years. It can be controlled by drenching insecticide into the crowns (where the webworm makes its burrow). Chlorinated hydrocarbons (aldrin, chlordane, dieldrin, DDT, heptachlor, toxaphene, etc.) have worked well through the years, but webworm populations seem building up resistance. Lawnsmen may have to

turn to the phosphatics such as Diazinon, Ethion, and Trithion, or to safe general insecticides such as Malathion and Sevin. The same is true with chinchbug, though this is not the serious pest with bluegrass that it is with st. augustine in the South.

Grubs in the soil may do damage; one cure is a long-lasting insecticide such as chlordane or dieldrin drenched into the soil. Fortunately, recent cold, dry winters have reduced the once prevalent Japanese beetle over much of the Northeast.

Varieties

Adventive Kentucky bluegrass, termed "natural" or "common," represents a mixture of hereditary combinations that have survived in a diversity of environments since colonial times. "Survival of the fittest" assures that these are well adapted to their particular niches. Seed harvested from natural stands, especially in Kentucky (where the gene pool is perhaps the broadest), ends up in the seed bag as many "natural selections," suitable to as wide a variety of ecological situations as occur in the seed fields. This covers most of the varying conditions apt to be found in the average lawn. Moreover, tests have proven that so broad and flexible is Kentucky bluegrass heredity, that seed from one region adapts readily to another location even though a thousand miles removed. This striking adaptiveness of natural Kentucky bluegrass is an advantage shared by few species.

Even so, man wishes to select from this wealth of natural types certain forms he fancies, or which behave in a singular way. Because Kentucky bluegrass is largely apomictic (nonsexual; i.e. most seed does not require sexual fertilization, but represents exactly the parent plant), almost any bluegrass plant can be perpetuated as a pure line. It is no wonder that there have been numerous Kentucky bluegrass releases, and many selections under test. It is equally no surprise that few exceed natural Kentucky bluegrass, selected



A complete natural Kentucky bluegrass plant which was yanked from the soil in mid-spring. Notice the spreading rhizomes underground (one at pencil point), the clusters of trilliers, and the seedheads on older culms.

and proved by nature, in more than a few respects.

The first commercially important selection was Merion, noticed as an attractive patch on the Merion Golf Course near Philadelphia. Merion has received much publicity and acclaim; it is noteworthy for its comparatively low growth, density, color, and resistance to leaf spot disease. But no variety has a corner on all desirable traits; Merion does rust (and catches other diseases), demands heavier fertilization, and (because of tight growth) tends to thatch quicker than most bluegrasses.

Park is another established variety, noteworthy for heavy seed that sprouts readily. Park results from the interplanting of a dozen natural bluegrass selections made by the University of Minnesota. It contains a good measure of the genetic variability that is natural to Kentucky bluegrass.

Other American selections include Arboretum, a "southern" bluegrass population from Missouri; Delta, from Canada, a good seed yielder; Newport, from a west coast of Oregon clone (out of which came C-1), dense and vigorous in autumn but tending to peter out; Windsor resembling Merion a little, too new to be reported on.

*Acti-dione-thiram, Captan, Dyrene, Kromad, Maneb, PMAS (not on Merion), Tersan OM, Thiram, Zineb, etc. are recommended for leaf spot and most other diseases.

Field Demonstrations, Sunny Weather, Added Exhibits Spur 3rd Annual Fla. Turf-Grass Trade Show to Success

Sunny spring weather, approximately 400 registrants, and an increased number of field demonstrations and exhibits combined to insure a successful Third Annual Florida Turf-Grass Trade Show, April 30-May 2.

Sponsored by the Florida Turf-Grass Association in cooperation with the Horticultural Spraymen's Association of Florida and the Florida Society of Golf Superintendents, the Show was held at the University of Florida Experiment Station Plantation Field Laboratory, Fort Lauderdale and the Seville Hotel on Miami Beach.

Opening day's program at the Field Laboratory began with morning tours of the turf research areas. Separate tours were conducted for specialized interest groups, such as the Horticultural Spraymen, Garden Supply Dealers, Golf Superintendents and others, thus giving each group a common ground of discussion at each stop on the guided tours.

Check Weeds, Insects, Diseases

Stations were established along the way to pinpoint the research being conducted at the laboratory in weed control, in-

by **WALTER D. ANDERSON**

Executive Secretary
Florida Turf-Grass Association
Jacksonville



Homeowners' clinic sought to answer turf questions from the public. County Agent Lew Watson (left) conferred with FT-GA Director James E. Ousley, Jr., on a diseased turf sample.

sect, disease and nematode treatment, and overseeding tests.

Demonstrations of a broad range of turf equipment and products were carried on throughout the afternoon under an arrangement in which the registrants moved from demonstration to demonstration during a three-hour period. In this way each demonstrator was able to give simultaneous and continuous showings of his product throughout the period.

With approximately a dozen

and a half of the exhibitors demonstrating, the areas were divided into two sections: the first for major, large equipment and the second for small equipment and product displays.

In addition to the equipment shown in prior years, such as tractors, shredders, spraying rigs, varying sizes and types of mowers, additional demonstrations were conducted for the first time by sprinkler manufacturers and fertilizer companies.

Show 70 Exhibits

The Show moved to Miami Beach in the evening for the first and highly successful evening opening of exhibit booths at the Seville Hotel, during which several hundred of the registrants toured the 60 industry exhibits and 10 educational exhibits.

Friday morning's program was completed by the three-hour Small Business Clinic designed, as in the past, to assist the FT-GA members in the increasingly effective operation of their businesses.

Delegates Get Bank Loan Tips

In reviewing "Banking Services for the Small Businessman," Frank Dieringer, Vice President, Commercial Loan Department, First National Bank of Miami, analyzed in detail the methods employed by a bank in considering applications for credit.

Dieringer indicated that the loan department of any bank generally pays the way for the other services provided, and thus all banks are looking for opportunities to maintain an active, growing loan business. In this light, he said, "credit applications are generally considered from the viewpoints of your suppliers' information on your bill-paying habits, your own personal knowledge and ability, and the reputation and personality of the business applicant."

Reviewing other banking serv-



Top-ranking turf experts from the Sunshine State welcomed the annual show as an opportunity to renew old acquaintances. Left to right are Dr. Gene C. Nutter, FT-GA president; FT-GA Director Francis Branan, president of the Florida Agriculture Council; Charlie P. Johnson, past president of the Horticultural Sprayman's Association of Florida; Norwood Glover, president of the Florida Seedsmen and Garden Supply Dealers; and Dr. Evert O. Burt, Assistant Turf Technologist, Plantation Field Laboratory, and show co-chairman.

ices, Dieringer also strongly urged the registrants to make full use of the consultative services of financial experts in their own banks for logical planning of both personal and business finances.

Wage-Hour Laws Studied

Moving into a more detailed section of the Business Clinic, the subjects of "Workmen's Compensation and You" and "Wage-Hour Legislation and the Small Businessman" were discussed by Virgil Lynch of John Z. Fletcher and Associates, Miami, and Kenneth Morefield,

as introductory material for a study of the current laws on the subject.

Morefield reviewed all aspects of the subject with emphasis on the sections dealing with exemptions from the law, minimum wage changes since 1961, over-time computation rates and schedules, exempt employees, and child labor regulations.

Delegates Quiz Pros

Following the individual speakers, a lengthy question and answer session was joined in by the registrants with all of the speakers, after which the exhibit



Equipment demonstrations highlighted the annual Florida Turf-Grass Conference, which this year drew 60 industrial exhibits. Machines like this Ford tractor, and the mowing and seeding attachments it is designed to pull, were moved into convention hall of the conference hotel so delegates could inspect the devices close at hand.

Manager, Florida Flower Association, respectively.

Lynch outlined the fundamental theories and programs of workmen's compensation, outlining for the registrants "how to save money on buying the most insurance." He spoke with particular reference to the 20 Associations in Florida having self-insurers' funds, all of which, he said, are designed "to protect a businessman from going bankrupt because of excessive claims."

History of wage-hour legislation was presented by Morefield

hall was opened for the remainder of the day.

While many of the turf professionals stayed over until Saturday for further talks with exhibitors, Saturday was again a day for the public to be admitted free of charge to the exhibits. Running simultaneously with the opening of the displays was a six-hour lawn clinic made up of industry suppliers, research and extension personnel, and other leading turf authorities from across the state, all prepared to answer whatever questions were presented by the public.

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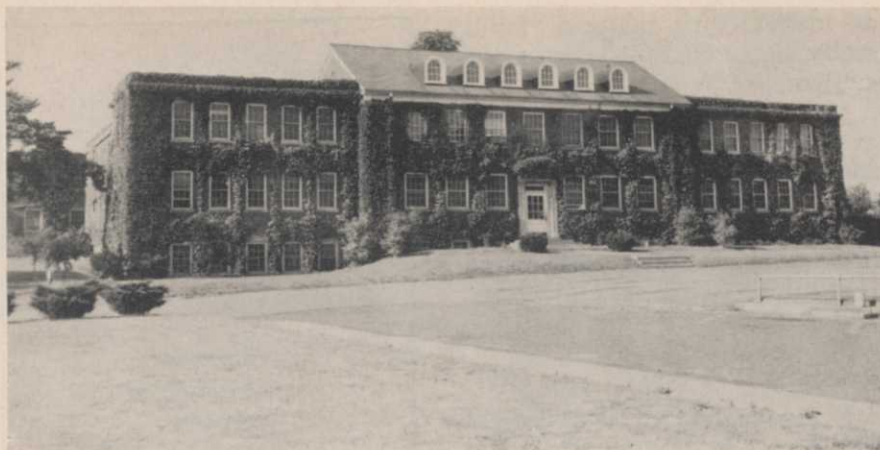
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Thorne Hall is headquarters for the Wooster, Ohio, station, and is typical of the stately buildings which grace many similar facilities across the country. Vegetation maintenance personnel will find themselves welcome at these centers of technical know-how! This and the shot of Dr. Davis on the facing page are courtesy of the Ohio Agricultural Experiment Station. All other photos by *Weeds and Turf*.

Use Your *AG* Experiment Station

ARE YOU obtaining informative literature from your state agricultural experiment station? If not, a great deal of useful aid is going by the board. *Weeds and Turf* recently visited the facilities of the Ohio station and discovered that benefits of research carried on at these institutions are not being gleaned to their fullest.

The Ohio State Agricultural Experiment Station, located in Wooster, occupies 1600 acres. Adding substations and tracts at Ohio State University in Columbus brings the total to 3200 acres. Nearly 250 persons are employed by the station, including personnel cooperating with OSU and the U.S. Department of Agriculture.

Fields represented include agronomy, animal science, forestry, entomology, horticulture, and many others. Agronomy is the field in which we were interested in our visit. It consists of what would be called plant science. Investigations range from soil studies concerning plants to radiation uptake in crops (a recently initiated study). Turf cul-

ture and pest control also fit into this branch.

In 1950 a pasture and turf program was begun. Since then it has grown so that the Ohioans now hold annual Lawn and Ornamental Field Days every third Tuesday and Wednesday in September. Here Station scientists release findings of research and demonstrate the results of experimentation. Usually about 600 persons attend this program.

"Demand for information about turf has been steadily rising," Dr. Richard R. Davis, Agronomy Department Head, told us. "Ohio State now offers a course in turf management at Columbus. Later the University

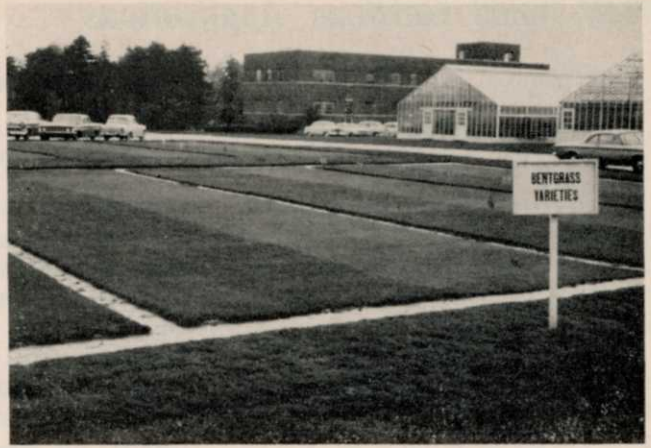
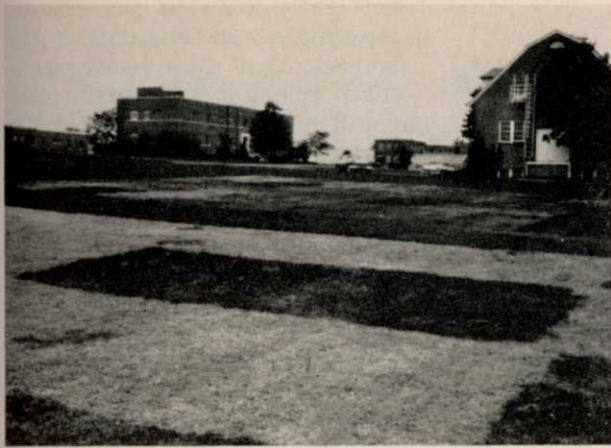
will probably sponsor a short course on the same subject. This illustrates that an Ag station is 'not just for farmers.'"

Dr. Davis showed us around the plots that had been set up to test various chemical and mechanical treatments on turf.

In chemical tests of preemergence crabgrass control, Dr. Davis said results with Dacthal and Zytron have been the most consistent. Among postemergence chemicals, the most widely used are AMA and DMA. These may discolor Kentucky bluegrass but no serious injury results if they are used in recommended amounts.

Fungus disease control receives

Agriculture experiment stations don't limit themselves to farm crop research, as many knowledgeable applicators have already discovered. Most such stations have research programs in turf management and tree maintenance, and many have studies related to weed and brush control. This article describes how one of the many ag stations operates, and tells how to make the most of services offered in state centers.



Most phases of turf management are studied at agricultural experiment stations. At Wooster, for example, there are plots for sod renewal (above left). Bentgrass varieties (above right) are planted in strips and tested for response and resistance to crabgrass and other pests. Area at the right has been laid out in a grid pattern where fungicides are tested. Dollar spot is evident at the lower left of the photo.



the attention of Professor Harmon A. Runnels. Some plots of varieties of close-cut and high-cut bentgrass are given chemical treatments to prevent the occurrence of fungus diseases. Those fungicides he found effective against snow mold (*Typhula* sp.) are "Calo-clor or Calocure, Dyrene, Scutl F-92 or F-96, Panogen Turf Spray, Tersan OM, Ortho Lawn and Turf Fungicide, Acti-dione-Thiram, PMAS, Kromad, Cadminate, Miller 658, and Elcide 73." These were applied once in December at twice the recommended summer dosage for control.

Dollar spot (*Sclerotinia homoeocarpa*) is another fungus disease damaging in Ohio. "Calocure, Kromad, Ortho Lawn and Turf Fungicide, and Acti-dione-Thiram provided better than 90% control" against this disease.

Recently striped smut has turned up at the Experiment Station on Kentucky bluegrass. None of the chemicals have been able to control it, and it is not known how widespread the disease is or will be.

Several professors at the station carry on turf insect control experiments. Professors Joseph Polivka and Roy Rings, in their work on turf grubs, prescribe aldrin, dieldrin, chlordane, or heptachlor as soon as damage is sighted or if it is expected.

In the weed department, we were told that nimblewill is the worst of the perennial grass pests in Ohio. There seems to be no control for its persistent growth habits.

Dr. Davis told us that work with 2,4-D on campus lawns has shown that the amine type (used because it is less volatile) controls most of the broadleaved weeds. He mentioned that care must be taken when using 2,4-D in lawns near tomatoes which are ultrasensitive. Those weeds not controlled by 2,4-D, like ground ivy, chickweed, and white clover, can be controlled with silvex (2,4,5-TP). Knotweed and speedwell are resistant to both silvex and 2,4-D, but some reports have come in showing that endothal (2 to 4 lbs. per acre) will kill them.

Successful results of improved

techniques of weed and turf pest control (as well as work in other fields) are published and available to all taxpayers at a nominal fee (some are even free). So if you are not already taking advantage of the research of your state institutions, write for a bulletin of available publications, obtain a program of the field days which would interest and inform you, or visit your local Ag Station.

Dr. Richard R. Davis is head of agronomy at the Ohio ag station, one of many such sources of helpful data and advice.



Well-Timed Fertilizer Applications

Improve Turf in Southern California

By HOWARD H. HAWKINS, Golden State Plant Food Company, Glendora, California
(Member of the Soil Improvement Committee, California Fertilizer Association)

Under southern California growing conditions, timing of fertilizer applications for turf areas is almost as important as the material used.

Many turf people wait until spring to apply fertilizer to turf, when actually the plants should get fertilized two to three months earlier when it is cold and rainy.

In this way the nutrients get into the soil and move into the root zone where they are assimilated into the plant systems early. Thus as soon as it starts to warm up, the grass turns green, which follows a four- to six-weeks waiting period during which time nutrients are taken into the plant.

Actually for most Bermuda lawns, which tend to turn brown naturally during the cool winter southern California nights, the best time to fertilize for spring-time growth is in late October or early November. This is after the growing has slowed down and mowing gets to be much less a major job. Fertilizer applied

at this time has all winter for the rains to carry it into the root zone, and if it is supplied mainly from an organic source, it will not leach out, but will become attached itself to clay particles to be held until used.

The class of materials most needed for good turf production is the natural organics. While it is now an accepted practice to apply fertilizer as pellets, because of ease of application and freedom from dust, it may be said that these same characteristics are needed to promote the best lawn and turf growth. When a pellet is used as a fertilizer there are many times fewer particles per pound than when a granular mixture with a quantity of organic products is applied. Therefore there is much less root contact with the fertilizer by the plant than when a mixture with more particles per pound is used.

Remember, the plant can't go out looking for the fertilizer. The fertilizer has to be placed close to the root of the plant. This is

especially true in the case of phosphates. In field trials it was learned that phosphates placed three inches away from the plant could not be assimilated by the plant. It had to be closer than that to be useful. Potash is somewhat more soluble than that in water, and nitrogen is still more soluble. However at times, phosphates can be the limiting factor in the growth of turf, especially to root systems.

Nimblewill Threatens Lawns

Gray-green, thickly matted foliage of nimblewill is increasing as a problem weed in lawns in the Midwest, according to Dr. Eliot C. Roberts, associate professor of agronomy and horticulture at Iowa State University, Ames.

To control this sturdy perennial, Dr. Roberts reports: "Only Zytron liquid combines freedom of injury to bluegrass and nearby ornamentals, and also gives some measure of nimblewill control." Zytron treatments made in July and August are more effective than those made earlier in the year, he adds.

Recommended rate of application is 1 pint to 5 gallons of water for 1,000 sq. ft. Zytron can also be used for spot treatments, Roberts points out.

"Since the spray must completely coat the plant for effective control, wet the foliage well at each application," Roberts cautions CAs, "and allow 2 to 3 weeks between applications."

Film on Water Weed Control

A new film illustrating water weed control with the new chemical Diquat is available from California Chemical Co.

Control of water weeds in irrigation and flood control channels, canals, ponds and lakes, is accomplished quickly, effectively and economically with Diquat, the company says.

Titled "Aquatic Weed Control," the 16mm color-sound film runs 18 minutes. It is available on free loan by writing to: L. F. Czufin, Manager, Advertising and Public Relations, California Chemical Co., 200 Bush St., San Francisco 20, Calif.



The West's first college turfgrass curriculum for golf course superintendents will be offered this fall at Mt. San Antonio College, near Pomona. Checking the area where demonstration fairway and greens will be installed this summer are, left to right, Frederick Bove, president of the Southern California Golf Course Superintendents Assn.; Wayne Morgan, University of California farm advisor; David Mastroleo, vice president, SCGCSA; and G. A. Sherman, dean of agriculture at Mt. San Antonio.

20-Plus Lectures Aim to Draw Record Attendance to 40th ISTC Convention

Plans for the 40th Annual International Shade Tree Conference Convention, now nearly complete, promise not only record attendance but a program of singular variety and relevance.

Set for August 16-21 at the famed Shamrock Hilton Hotel in Houston, Texas, the annual meeting includes addresses on a full range of topics from insects and nematodes which affect trees, to talks on, and displays of, "tools, gadgets, and equipment" for the arborist.

A panorama of subjects will be covered in more than 20 lectures; a full-fledged supplier's exhibit is in the offing (including both booths and field demonstrations); the social program is lavish; and there's an entire afternoon devoted to tours of surrounding tree-rich parks and residential areas.

Meeting concurrently with the International Shade Tree Conference, members of the National Arborists Association will hold educational sessions and conduct their annual business meetings and election of officers.

A special afternoon series of talks will be given over to problems of municipal arboriculture.

Official convention opening is Monday, August 17, when Prof. A. F. DeWerth of Texas A&M College in College Station, will speak on "Planting the Right Tree." He will be followed by Ernest Wertheim, a landscape architect from San Francisco, Calif., who is to discuss "Tree Planting in Large Commercial and Parking Areas."

Insect problems to be analyzed include the hackberry gall and southern pine beetles. There's also a session on nematode damage to trees.

Highlighting the public utility arboriculture section of this year's program is a speech, "Good Standards for Line Clearance," by Keith L. Davey, president of Davey Tree Surgery Co., Ltd., in San Francisco.

When National Arborists As-

sociation members hold their sessions, they'll hear addresses on sales practices and on professional tree pruning.

"A Training Program for Municipal Shade Tree Department Employees" is the address on tap for delegates who attend the municipal arboriculture portion of the program, held concurrently with the NAA meetings.

Lectures will be discontinued Wednesday so delegates can tour Houston residential areas, and participate in an extensive demonstration of complex new equipment designed to make the arborist's job easier. This is always a popular feature of the annual affair. Of course, suppliers with exhibits will have their booths open at regular intervals throughout the convention to allow delegates to ask questions about new chemicals and equipment.

Two subjects will comprise Thursday morning's program. The first, entitled "Tools, Gadgets, and Equipment for the Arborist," will be offered by Fred C. Galle, Director of Horticulture, Callaway Gardens, Pine Mountain, Ga. Second topic is "Tolerance of Trees to Deficiencies of Soil Aeration" by Dr. George Yelenosky, Department of Botany, Duke University, Durham, N.C. Dr. Yelenosky addressed the Toronto convention last year.

Of particular interest Thursday afternoon is a panel on tree diseases, which will emphasize littleleaf disease of pines and live oak decline. A cocktail party and dinner winds up the day.

More information about the 40th ISTC Convention is available from Dr. L. C. Chadwick, Secretary-Treasurer, International Shade Tree Conference, 1827 Neil Avenue, Columbus, Ohio 43210. Details about National Arborists Association activities are available from Dr. Paul Tilford, Executive Secretary, National Arborists Association, Box 426, Wooster, Ohio.



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LAMBSQUARTERS

(*Chenopodium album*)



Lambsquarters, an annual, known locally as white goosefoot, mealweed, and fathen, is a member of the goosefoot family, Chenopodiaceae. It reproduces by seeds each year, and is common in fields, neglected yards, gardens, waste places, and around urban parking lots.

Lambsquarters is sometimes confused with members of the pigweed family, but lambsquarters lacks the bristles and spines common to pigweeds.

Pale-green stems are characteristically smooth (not hairy) and ridged or angular; they stand erect and are moderately branched. Light reddish or greenish lines run the length of the stems which may grow to a height of 6 feet.

Leaves (2) are alternate, not directly opposite on the stem, simple, and irregularly toothed. Leaves have a whitish fuzz (meal) on the undersides. Lower leaves slightly resemble the outline of a goose footprint; upper leaves become longer and more pointed.

Small greenish flowers (3) without stalks are clustered irregularly on the ends of branches and in the axils of leaves (where leaf meets stem).

Lambsquarters' seeds (4) are almost 1/16 inch in diameter, lens- or disc-shaped, and glossy black. One plant can produce about 72,000 seeds. Seeds of this weed are often found as contaminants in seed mixtures.

The root (1) is a taproot and can be easily pulled from the soil.

Lambsquarters can be controlled by a foliage spray of 2,4-D at 1 lb. per acre if applied to plants that are actively growing.

A close relative of lambsquarters is Mexicantea, *C. ambrosioides*. This plant has longer leaves with wavy rather than toothed edges, and leaves are not mealy underneath. This pungent-smelling weed can also be controlled by treatment with 2,4-D.

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)

Weed Control Studies Set For 12th Fla. Turf School

Attention during the general sessions of this year's Florida Turf-Grass Management Conference will be focused on weed control in all its aspects, conference spokesmen announced recently.

Set for August 25-27 at the Student Service Center, University of Florida, Gainesville, the 12th annual seminar on turf is expected to attract over 500 delegates. More than 30 turf experts are slated to address the turf professionals in attendance.

Topics for the opening day's program will include talks on "Principles of Weed Control;" "Weed Identification;" "Aquatic Weed Control;" "Control of Grassy and Broadleaf Weeds;" and "Application of Pesticides."

General meetings will be followed by "Management Workshop Sessions" which will include such categories as golf turf, industrial sites, athletic fields, parks, cemeteries, and turf nurseries.

Special sessions are scheduled for horticultural sprayers and other lawn service agencies.

In conjunction with program emphasis on weed control, conference coordinators have planned an "Industry Hour" which will highlight herbicides and herbicide equipment, and which will feature demonstrations by suppliers. Coordinators this year are University of Florida staffers Dr. G. C. Horn and John F. Cabler.

To close out the conference on Thursday, speakers will offer 1964 Turf Research Reports on a survey of Florida turf nurseries; disease, nematode, insect, and nutrition studies; and results of technical turf research underway in South Florida and in Gainesville, which is located in the northern part of the state.

More information is available from Dr. Horn at 401 Newell Hall, University of Florida, Gainesville; or Walter D. Anderson, Executive Secretary, Florida Turf-Grass Association, 4065 University Blvd. North, Jacksonville 32211.