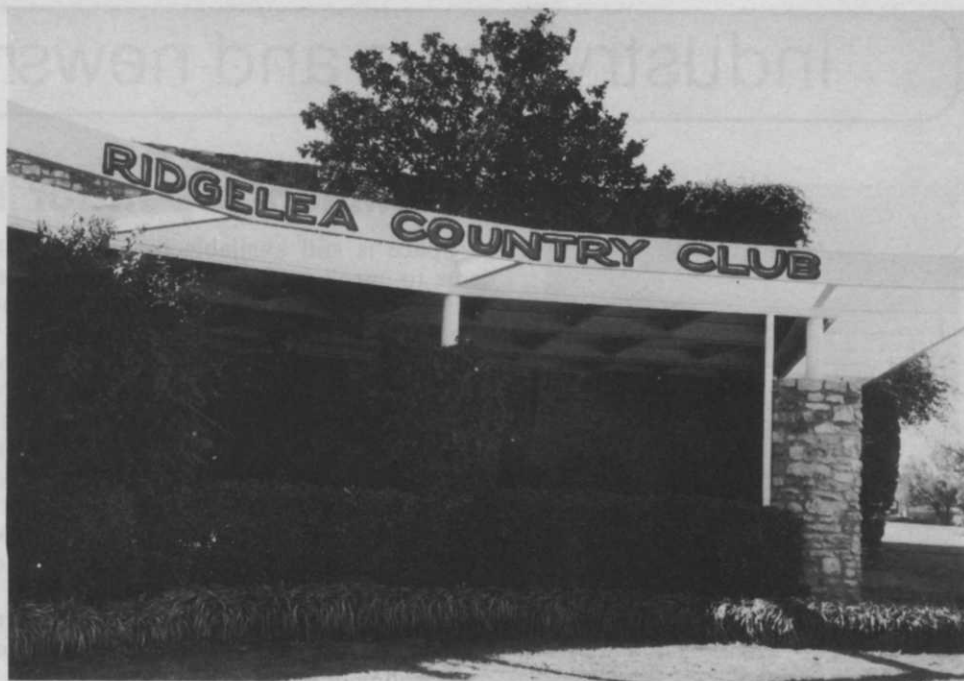


With a famous reputation at stake...Jobe's is trusted to feed the trees.



Ridgelea Country Club, Ft. Worth, Texas



Bellingrath Gardens, Mobile, Ala.

Good looking, healthy trees are important at Bellingrath Gardens near Mobile and Ridgelea Country Club in Ft. Worth. That's why these famous places rely on Jobe's Tree Food Spikes.

Jobe's Tree Food Spikes are produced under a patented process. Fertilizer is compressed into the shape of a railroad spike. All you do is hammer Jobe's into the ground; soil moisture does the rest. Trees and shrubs can be fertilized in one fourth the usual time and about half the normal cost.

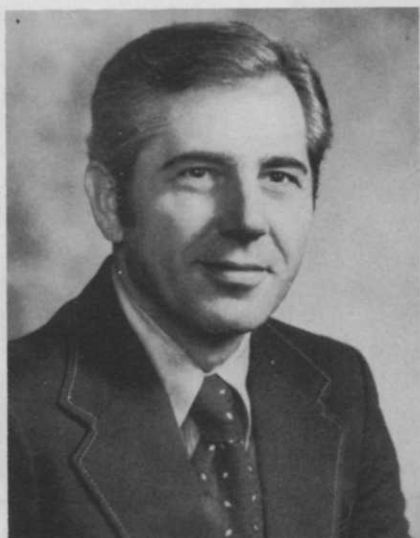
University tests have proven Jobe's are as effective as other tree feeding methods, plus being quicker and less expensive. Average cost is 29¢ per spike*. Time required to feed a 5" tree is just 5 minutes. Use one spike per inch of trunk diameter.

Why don't you give Jobe's Tree Food Spikes a try? A lot of very famous places do! Order from your supplier or order direct: 5 cases @ \$30 per case, 15 cases @ \$25 per case, freight prepaid.

*Based on 5 case order.

Jobe's®
TREE FOOD SPIKES
Makes tree feeding easier

Dept. W, 462 East High St., Lexington, Ky. 40508



William R. Michaels has been named president of Lockwood Corporation, a wholly owned subsidiary of Alaska Interstate Company. The company is a leading manufacturer of center pivot irrigation systems and specialized farm equipment, headquartered in Gering, Neb.

Herbicide Antidote Gains Recognition for Stauffer

A herbicide antidote developed by Stauffer Chemical Company has been recognized as one of the 100 most significant new technical products of 1974 in the "I-R 100" competition, sponsored by Industrial Research magazine.

President H. B. Morley accepted the award for Stauffer at an awards banquet at the Museum of Science and Technology in Chicago, Sept. 19.

Herbicide antidotes have been viewed as a major breakthrough in weed science by leading university agricultural authorities. The antidotes are chemical agents that are used in combination with thiocarbamate herbicides and permit application rates sufficiently high enough to control difficult weed species without damaging crops.

Stauffer's first commercial herbicide antidote, R-25788, is being marketed in combination with Eptam® and is called Eradicane®, and in combination with Sutan®, called Sutan®+.

Enrollment Open for Irrigation Course

Space is still available for students to enroll in a three-day short course on Turf Irrigation Principles and Practices to be held in Fresno, Calif., on Dec. 10-12 at the Airport Marina Motel. The course is sponsored by the Sprinkler Irrigation Association.

Instruction material in the course is not of an advanced nature but will begin with the basic concepts of sprinkler irrigation and cover design and application through lectures, examples and problem-solving techniques.

Enrollment fee for the course is \$125 per student which includes participation in all sessions, luncheons each day and provision of copies of the *Third Edition of Sprinkler Irrigation*, the *Supplement to the Third Edition*, and the *ABC's of Lawn Sprinkler Systems*, as well as other materials provided by the instructors.

Enrollment in the course is limited to 50 students. Applications are accepted on a first-come, first-served basis. Those completing the short course will receive a special certificate from the Sprinkler Irrigation Association stating that the individual has attended and partici-

pated in a course covering basic sprinkler irrigation theory, technique and system design.

Instructors for the course include Dr. Falih K. Aljibury, University of California; Jerry L. Boesel and David Davis, Rain Bird Sprinkler Mfg. Corp.; William Closter, Closter Brothers, Inc.; Del Crummey and Purnell Thomas, FMC Corp.; and Edric Green, Moody Sprinkler Co.

Full programs and registration forms are available from the Sprinkler Irrigation Association at its national offices at 13975 Connecticut Ave., Suite 310, Silver Spring, Md. 20906.

Echo Chain Saw Division Hosts Distributor Meeting

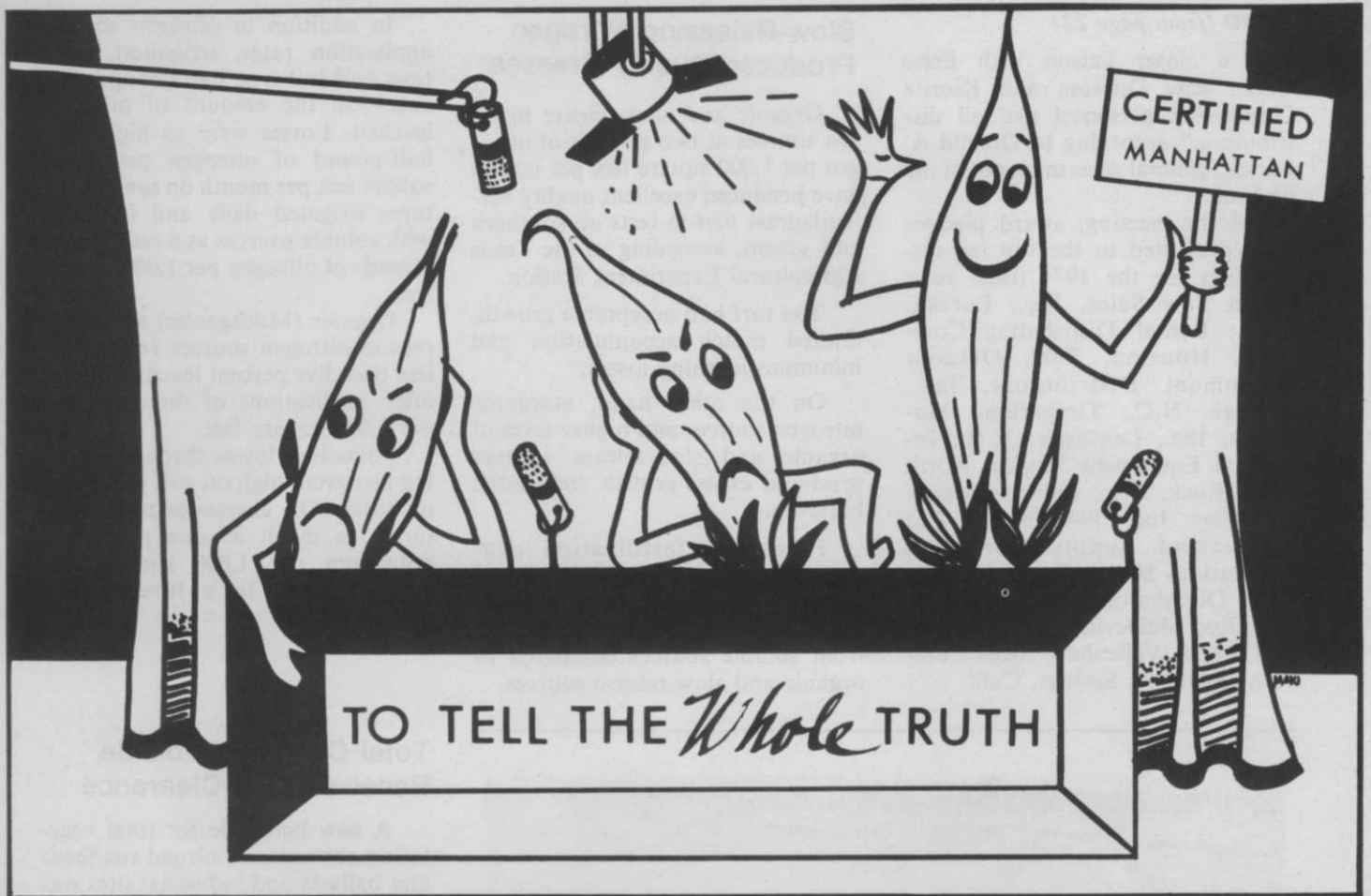
The Echo Chain Saw Division, Kioritz Corporation of America, recently hosted more than 75 chain saw "enthusiasts" at the firm's first national distributors meeting.

Held in Northbrook, Ill., the three-day event was staged to "pro-

(continued on page 24)



The Midwest Agricultural Chemicals Association, Inc. elected new board of directors and officers for the 1974-75 year. Seated (left to right): Dean Roy, Cole Chemical Co., second vice-president; Ray Smedul, Chevron Chemical Co., president; Gene Neuwirth, Shell Chemical Co., first vice-president; and R. C. (Bud) Moreau, Velsicol Chemical Co., secretary-treasurer. Standing: Dick Carritt, retiring board member, P.P.G. Industries; Tom Foster, Guth Corp.; Ray Dreger, Mobil Chemical Co.; Larry Bert, Midwest Agricultural Warehouse Co.; Keith Boyer, Brayton Chemical Co., past president; S. E. Cook, Hercules, Inc.; and Swede Roskam, Oil-Dri Corp. of America.



WILL THE REAL MANHATTAN RYEGRASS, PLEASE STAND UP!

Manhattan perennial ryegrass is a fine textured perennial ryegrass developed by Dr. Reed Funk, Rutgers University. This new, improved, fine textured grass is genetically pure and great care is taken by Manhattan Association growers who plant only foundation seed stock. The seed is produced by members of the Manhattan Ryegrass Growers Association who agree to strict rules of growing, to protect the crop from cross-pollination and other contaminants.

The seed produced by these growers is closely watched and both field certification and seed certification are required before the seed is released to you, the customer.

Any seed bearing the name "Manhattan" but which does not carry certification tags may not be truly Manhattan. The variance could be drastically untrue of variety.

For your protection — buy only Certified Manhattan; why take a chance on imitations?



"TURF TYPE"
PERENNIAL RYEGRASS

Certified Manhattan is grown by the
**MANHATTAN RYEGRASS
GROWERS ASSOCIATION**
P.O. Box 145 • Hubbard, Oregon 97032

Exclusive Marketing Agents

WHITNEY-DICKINSON SEEDS, Inc.
52 Leslie Street • Buffalo, New York • 14240

For More Details Circle (145) on Reply Card

vide a closer liaison with Echo Chain Saw Division and Kioritz Corporation personnel and all distributors," according to Donald A. Bartelt, general sales manager of the division.

At the meeting, award plaques were presented to the top ten distributors for the 1974 fiscal year: Chain Saw Sales, Inc., Eureka, Calif.; Rental Distributing Company, Houston, Tex.; Outdoor Equipment Distributors, Inc., Raleigh, N.C.; Timberland Machines, Inc., Lancaster, N.H.; Industrial Equipment Service, North Little Rock, Ark.; Lummis Supply Company, Inc., Philadelphia, Pa.; Timberland Supply Company, Kosciusko, Miss.; Brown Equipment Distributors, Inc., Corydon, Ind.; Red McDevitt, Inc., Syracuse, N.Y.; and Wallenberg Sales Company, Santa Fe Springs, Calif.

Slow-Releasing Nitrogen Produces Quality Grasses

Organic and slow-release nitrogen sources at two pounds of nitrogen per 1,000 square feet per month have produced excellent quality bermudagrass turf in tests on southern golf greens, according to the Texas Agricultural Experiment Station.

The turf had acceptable growth, limited thatch accumulation and minimum leaching losses.

On the other hand, inorganic nitrogen sources and higher rates of organic and slow-release sources produced excess growth and thatch build-up.

Potassium fertilization produced no measurable effect on turf quality or thatch. Nitrogen losses through leaching were very high from soluble sources compared to organic and slow-release sources.

In addition to nitrogen source, application rates, irrigation practices and soil type had strong influences on the amount of nitrogen leached. Losses were as high as a half-pound of nitrogen per 1,000 square feet per month on sandy mixtures irrigated daily and fertilized with soluble sources at a rate of two pounds of nitrogen per 1,000 square feet.

Organic (Milorganite) and slow-release nitrogen sources resulted in less than five percent leaching losses after applications of three pounds per 1,000 square feet.

Potassium losses through leaching also were high on golf green soil mixtures. On coarse-textured mixtures, as much as one pound of potassium per 1,000 square feet leached away in a three-month period.



David T. McLaughlin, president of The Toro Company, holds a rendering of Toro's new assembly plant being built in Tomah, Wis.

Total Control Herbicide Receives EPA Clearance

A new herbicide for total vegetation control on railroad roadbeds and ballasts and industrial sites was recently cleared by the EPA. The product will be marketed under the trade name, Spike®, by Elanco Products Company, Indianapolis, Ind.

The new chemical, a thia-diazolylurea compound, was field developed by the Lilly Research Laboratories, a division of Eli Lilly and Company, also of Indianapolis.

The new chemical was widely tested for four years on over 100 commercial-size railroad sites and many large industrial locations under an experimental permit granted by EPA. Features of Spike, according to the manufacturer, include control of more species of tough weeds and most brush species, long-lasting residual control, application timing flexibility, and resistance to leaching and lateral movement in the soil.

Elanco marketers indicate that Spike is now available for commercial use. Additional experimental testing of the product is now underway for control of woody plants in pastures and rangelands.

For more information, contact: Specialty and Technical Chemicals Department, Elanco Products Company, Indianapolis, Ind.

Toro Breaks Ground for Wisconsin Plant

State and community representatives gathered in Tomah, Wis., for a groundbreaking ceremony for The Toro Company's \$3.5 million assembly plant.

During the ceremony, which took place on 7,500 square feet of fresh sod laid in the shape of a map of Wisconsin, Governor Patrick J. Lucey, Tomah Mayor C. E. Bean and Toro President David T. McLaughlin each operated a Toro mower to cut a swath in the blue

Merion grass.

The new plant, Toro's first in Wisconsin, will be a single story steel and masonry structure with 160,000 square feet of space. Scheduled for completion late next year, it will provide employment for 350 men and women by 1976. Toro, headquartered in Minneapolis, Minn., is the nation's leading independent manufacturer of maintenance and irrigation equipment for lawn and turf care.

Expo '74. From solid rock to garden showplace in eight months.



TORO®



TORO sprinkler systems. Only way to go when the growing gets tough.

A year ago the 1974 World's Fair was a landscape architect's nightmare. A blighted area of down-and-out train depots and gaping warehouses. . . . 53 acres of solid rock and ruin.

The challenge? Turn it into an international environmental showplace. One that would live up to the Expo '74 theme: "Celebrating Tomorrow's Fresh, New Environment."

The transformation took over 2000 trees, countless plants, tons of top soil . . . and a TORO sprinkler system.

Faced with potentially serious soil erosion conditions, TORO experts designed a system flexible enough to accommodate every imaginable type of

terrain and vegetation, day-and-night crowds of visitors, and the capricious Spokane weather. In less than four months, we installed 2600 Stream Rotor and other sprinkler heads, three miles of pipe, 20 controllers and 160 valves . . . all from the same fine TORO product line that America's top golf courses have used for years.

The results at Expo '74 speak beautifully for themselves . . . in any language. Now if a TORO system can work that kind of magic for 53 acres of solid rock, just imagine what it could do for your next job!

Then write for facts and details beyond your wildest imaginings. TORO Irrigation Division, Dept. W-1174, P.O. Box 489, Riverside, Calif. 92502.

For More Details Circle (111) on Reply Card

Ground Keepers



Rotary cutters.

Four different models. 60"-72" cut widths. For mowing hilly estates, slicing tall, tough weeds, saplings and rugged brush.

International

S ers

International... the mowing man's one-stop supermarket.

And variety doesn't stop with our mowers. Look at all the ways you can go with the sleek, ground-hugging 2400B LO-BOY TRACTOR: Hydrostatic, mechanical or hydraulically-actuated transmissions. Diesel or gas engines at 46-53 hp (net IEMC). 2400B also available in standard height model.

You decide. The right mower. The right tractor. International makes both to work smoothly as one unit. Try us and see for yourself.



Flail mower.

84" cut width. Ninety extra-heavy-duty blades cut and pulverize tough weeds and tall grass. Residue is broadcast evenly without windrows.



Cutter bar mowers.

5, 6, 7, 9-ft. widths. Mechanical or hydraulic drive. Ultra-fast, short-stroke action for high-speed mowing along highways. Can team with rear mounted equipment.



2500B tractor.

A big brother to the 2400B. Hydraulic, mechanical or hydraulically-actuated transmissions. Gas or diesel engines. 59-70 hp (net IEMC).

International

It's them. Or us. 

There are many companies making industrial equipment. Some have entries in many product categories. Others specialize in one category. However, only International has a machine in almost every category that's either a product leader or a competitive equal. So no matter what other make you're looking at, International gives you one very important choice. It's them. Or us.

PAY LINE DIVISION OF INTERNATIONAL HARVESTER

Regional Turfgrass Conferences To Feature Education and Equipment

MIDWEST:

THE OHIO TURFGRASS Conference and Show, a regional Midwest show devoted strictly to turf and turfgrass maintenance, will be held Dec. 3-5 in Columbus, Ohio.

Headquarters for the educational sessions and exhibits will be in the Franklin County Veterans' Memorial Building, with lodging available in several downtown Columbus hotels.

The educational program will include outstanding speakers from several states. In addition to many general sessions and lectures, split sessions will be held on various topics of interest — golf courses, schools and athletic fields, lawns and general grounds, cemeteries, and sod production.

"Energy and the Turf Industry," a general session concluding the educational program, will include speakers on fertilizer availability, an outlook on equipment and materials, practical turf management with reduced supplies, the effects of the energy crisis on the use of recreational facilities and a panel discussion.

Social activities include the Ohio Turfgrass Foundation banquet during which the Ohio Turfgrass Foundation Man of the Year Award, several Professional Excellence Awards, and about ten Ohio Turfgrass Foundation scholarships will be presented.

Attendance of about 1,100 to 1,200 is expected, along with some 60 to 65 exhibitors. Last year's conference in Cincinnati, Ohio, drew 1,102 participants from 24 states and Canada.

Attendance is open to anyone interested in turfgrass management. For more information, contact David P. Martin, Executive Secretary, Ohio Turfgrass Foundation, 1827 Neil Avenue, Columbus, Ohio 43210.



Turfgrass conferences offer the turf manager an opportunity to see what's new in equipment and supplies.

NORTHEAST:

NEW JERSEY TURFGRASS Expo '74, first of its kind for the state, is generating lots of interest and excitement in the New Jersey turfgrass industry.

This new venture, a combined educational conference and trade show, is sponsored by Cook College of Rutgers University and the New Jersey Turfgrass Association.

Turfgrass Expo '74 will provide a "new look" for the traditional turfgrass conference held annually in January. This new look will include a new name, new date, new location, new facilities and, most importantly, many new activities.

Beginning Dec. 2 with the Expo Golf Tournament at the Ramblewood Country Club, Marlton, N.J., the next three days (through Dec. 5) are heavily programmed with educational sessions and a trade show. Headquarters for Expo '74 are at the Sheraton Poste Inn, Cherry Hill, N.J.

The educational program, under the chairmanship of Dr. Ralph E. Engel, research professor, Cook College, includes a wide variety of topics and many highly qualified turfgrass experts, and is designed to cover a broad range of turfgrass interests. The educational program will conclude on Dec. 5 with workshop sessions of four major subjects — sprayer and spreader calibration; mower maintenance; trouble shooting small pumps and sprayers; and maintenance and failures of pumps, valves and automatic switches.

A turfgrass equipment and product show, a major new attraction, will complement the educational sessions.

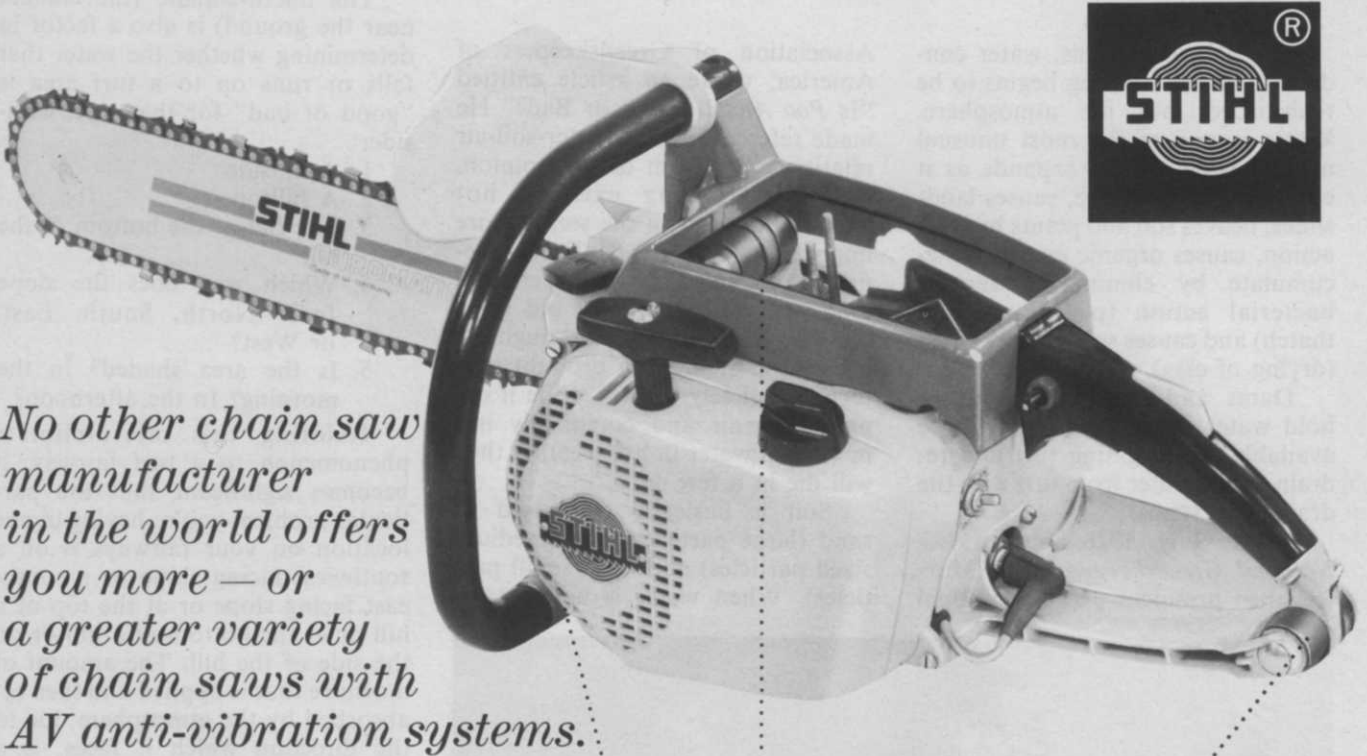
Highlighting the social activities will be the Expo Banquet on Dec. 4. Planned as a "night of awards, recognition, sociability and fun," the banquet will include scholarship presentations and the golf tournament trophies and prizes. Election into the New Jersey Turfgrass Hall of Fame will recognize one individual who has made significant contributions for the betterment of the New Jersey Turfgrass industry. This Hall of Fame award is being instituted at the Turfgrass Expo '74 as an annual event.

These new and expanded activities of the New Jersey Turfgrass Expo '74 will provide increased opportunities for keeping abreast of new technological developments in all aspects of the turfgrass industry as well as contact with individuals associated with the various segments of the turfgrass industry.

Additional information about New Jersey Turfgrass Expo '74 can be obtained from Dr. Henry W. Indyk, Expo General Chairman, Cook College-Rutgers University, Box 231, New Brunswick, N.J. 08903.

*When you want accurate facts
about anti-vibration systems &
about eliminating vibration in chain saws...*

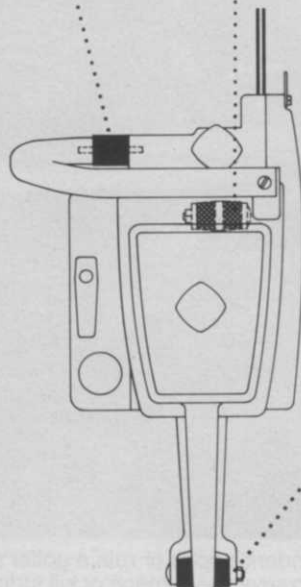
*Ask the people who gave it to you
first and who know it best! STIHL!*



*No other chain saw
manufacturer
in the world offers
you more — or
a greater variety
of chain saws with
AV anti-vibration systems.*

STIHL was the first chain saw company in the world to introduce and manufacture an AV anti-vibration system on their saws — as far back as 1964 — and it has proven so reliable and popular with professional cutters, that we have had to make the AV system available in just about every saw in our line.

Our exclusive and patented AV anti-vibration system (as shown) consists of strategically positioned rubber shock absorbers mounted in the handles and body



of the saw. They serve to practically eliminate vibrations from chain and engine and let you cut longer, with less effort and fatigue, and without unnecessary discomfort to your hands, arms and back.

STIHL American, Inc.
107 Bauer Drive, Oakland, N. J. 07436,

WATER ITS ACTION IN THE ROOT ZONE

By DONALD A. CLEMANS
Golf Course Superintendent, Cody, Wyoming

As each day begins, water condensed as dew and fog begins to be reabsorbed into the atmosphere. Water is one of the most unusual natural resources. It expands as it cools and becomes ice, causes landslides, heaves soil and plants by frost action, causes organic matter to accumulate by eliminating aerobic bacterial action (peat bogs and thatch) and causes soil to crack open (drying of clay).

Dams and ponds are built to hold water in reserve so it will be available for irrigating turf and re-drain excess water from turf with tile drainage systems.

In the July, 1926 issue of *The National Greenskeeper*, John Morley, then president of The National

Association of Greenskeepers of America, wrote an article entitled "Is *Poa Annua* Good or Bad?" He made reference to the water-soil-air relationship: "I am of the opinion, especially during extreme hot weather, that air in the soil is more important than water. For if deprived of water in hot weather for a long period the roots of old grass will frequently survive, although the leaves and stems in a drought may turn completely brown, while if deprived of air and completely immersed in water in hot weather they will die in a few days."

Soil is basically composed of sand (large particles), silt (medium sized particles) and clay (small particles). When water is added to a

soil, three of the possible conditions produced are:

1. Saturated Soil (too much water and devoid of air)
2. Field Capacity Soil (desirable balance of soil particles, air spaces, and water)
3. Wilting Point Soil (soil with too little water which is held too tightly to the soil particles to be available to plants)

The condition of the soil that is being wetted affects this relationship. That is, granular soil has good movement of soil, water and air, while compacted or platy soil has poor movement of water and air.

The micro-climate (the climate near the ground) is also a factor in determining whether the water that falls or runs on to a turf area is "good or bad" for that turf. Consider:

1. A hillside
2. A hilltop
3. The flat at the bottom of the hill
4. Which way does the slope face? North, South, East, or West?
5. Is the area shaded? In the morning? In the afternoon?

Relating this micro-climate phenomenon to a turf fairway, it becomes significant that the particular problem you're having in one location on your fairways is on a southwest facing slope or a southeast facing slope or at the top of a hill or at the bottom of a hill or on the side of the hill. The amount of moisture that is applied and then reabsorbed by the atmosphere due to the direction which it faces, is a significant response and reaction to the micro-climate. And thinking in terms of micro-climate the significance is maybe a key to the solution to one of your problems.

Most golf courses in the mid-west and many in other parts of the country are 40 or 50 years old. Every 5 or 6 years in the last 20 years or 30 years a way has been found to decrease the height of cut and increase the playability of the turf and still using basically the same turfgrasses originally started with. Kentucky bluegrasses, the bentgrasses and some of the hybrid bermudas used in the South are different, but basically the height of cut has drastically been reduced in the last 50 years.

(continued on page 45)



Water on a golf course can dampen a superintendent's spirit or ruin a golfer's game. Large amounts of standing water such as this can severely damage or kill turfgrass by suffocating the roots.