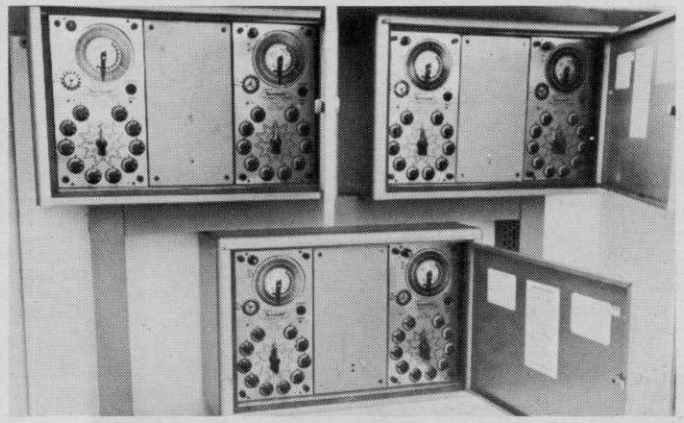
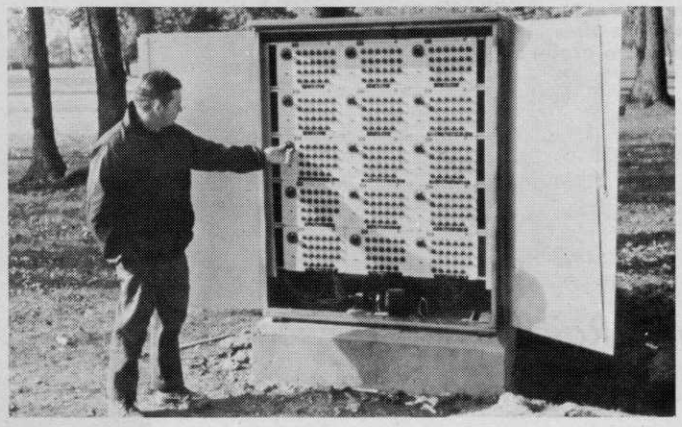
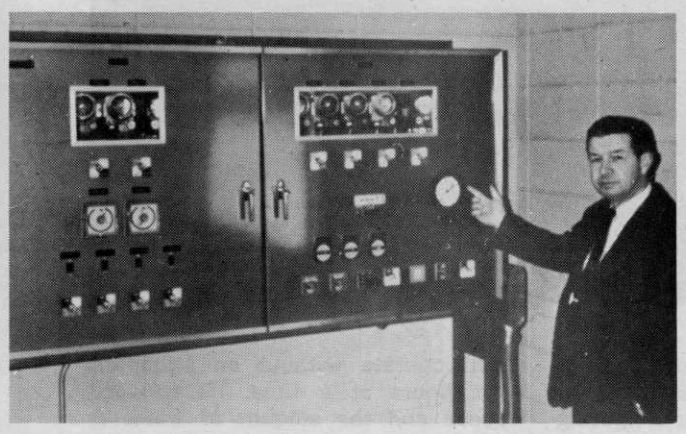


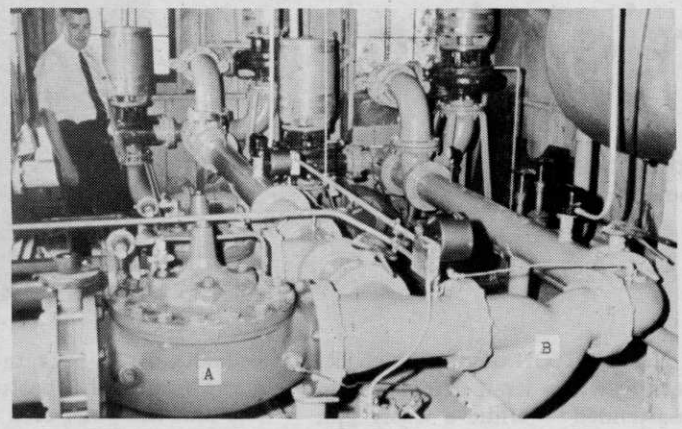
Three or four Rainmaster controllers—or similar products—will fit snugly inside the electrical cabinet shown at left. The system here has separate clocks for greens, tees and fairways. More than 65 wires are coming into this unit. Field controller installations can easily be blended in with the course through proper landscaping.



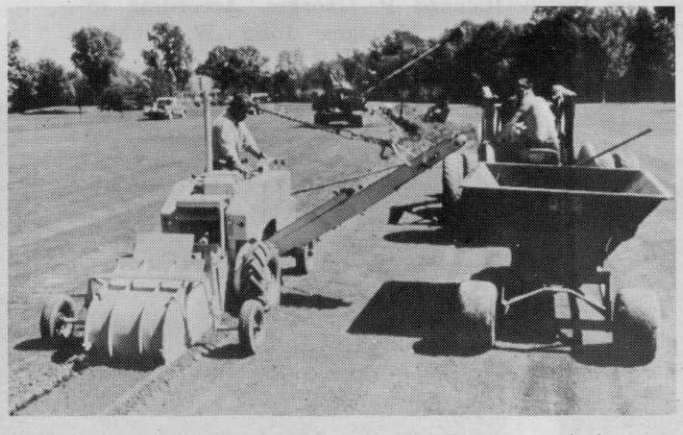
Bob-O-Link Country Club at Highland Park, Ill., is using this larger, more sophisticated field controller installation. This unit provides one program for fairways and approaches, four preset programs for greens, and four preset programs for tees. Bob-O-Link also has telephone contact between field stations and the superintendent's office.



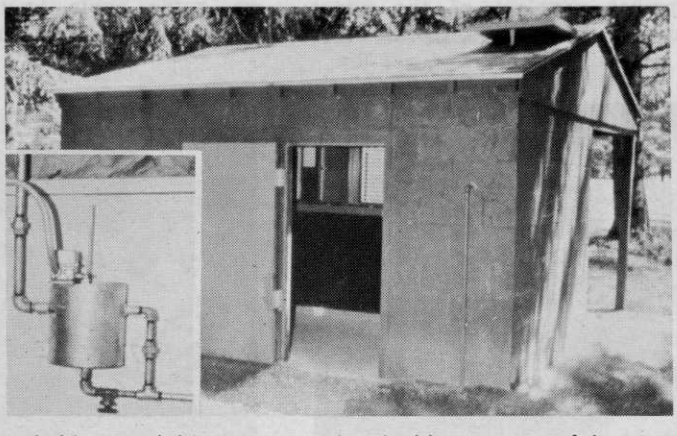
Robert Williams, superintendent at Bob-O-Link, points to the central program unit that operates his field controllers. This system provides automatic or manual start, individually, for greens, tees, fairways and approaches for both the irrigation and syringe cycles. The unit has a series of red alarms to indicate malfunctions.



Clean water at a constant pressure is a necessity for trouble-free golf course irrigation. Oak Hill Country Club, Rochester, N.Y., obtains these requirements with a pressure regulating valve (A) and a Y-type strainer (B). The strainer features an automatic blow-off to remove collected contaminators.



This trench cleaner is a modified footing digger, made by Arps Mfg. Co., New Holstein, Wis. It prepares the trench with a one-inch depression to allow for the replacing of sod. Excess dirt is augered into the wagon. Used with a backhoe and tamping unit, the trencher enables replacement of sod in less than three hours.



A field control house serves the double purpose of housing irrigation controllers and as a shelter for golfers. The house at Oak Hill Country Club features a rain gauge on the roof that operates an automatic shutoff (inset) for the sprinkler system. The unit is adjustable from .15 inch of rain. It shuts off system and returns controllers to start position.

As the water gun atop the Turbo-Rain unit revolves, it lays down as much as 500 gallons of water a minute. It will operate unattended for hours at a time, advancing across a field according to a preset speed.

Turbo-Rain Gives 24-Hour Unattended

Large-Area Irrigation

By EDWARD G. DICKSON
Hialeah, Fla.

AN IRRIGATION device which literally walks itself across a field — unattended — while a water gun mounted atop it sprays up to 500 gallons of water a minute is being introduced to a variety of agricultural uses.

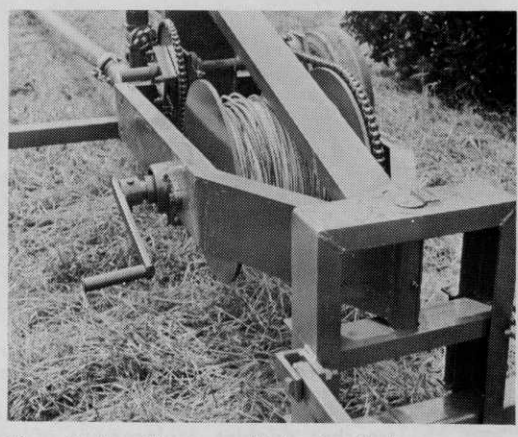
Turbo-Rain, built in Winter Haven, Fla., to help alleviate the critical manpower problem of the citrus industry, is being used, too, in other activities — to irrigate row crops of many kinds, and pastures. At least one unit has been sold for irrigating a sod farm. Conceivably, its builders say, it could be a water source for a variety of turf locations, including parts of golf courses.

Once harnessed by "mobile pipe" to a water pumping station and with its guide cable anchored in the ground ahead of it, the Turbo-Rain will operate without an attendant for hours at a time. Its forward speed and the amount of water it lays down can be determined at the outset by a valve adjustment. It will operate at night as well as during the day, the makers say.

Turbo-Rain is manufactured by Hydro Equipment Co., headed by Richard P. Georges. According to Sales Manager John W. Baker,

John W. Baker, sales manager, points to Turbon-Rain design features — a water turbine and gear box. The gears are driven by the turbine and pull the wheeled machine along a long steel cable.

Forward movement of the Turbo-Rain can be adjusted with this by-pass valve. The valve regulates the amount of water passing through the turbine, thus changing the "walking" speed of the machine.



The steel cable on which the Turbo-Rain "walks" itself is reeled in on this drum, at the forward end of the irrigation machine. The end of the cable is anchored in the ground.

about 200 units of the irrigation machine are in use. Some have been shipped as far away as Argentina.

The irrigation system, he said, is being used in the peanut fields in Georgia, on vegetables in California and Michigan, on grain fields in the Midwest, as well as in the Florida citrus groves. One sod farm in Georgia has purchased the equipment, Georges said. A Florida horse farm is using it for pasture.

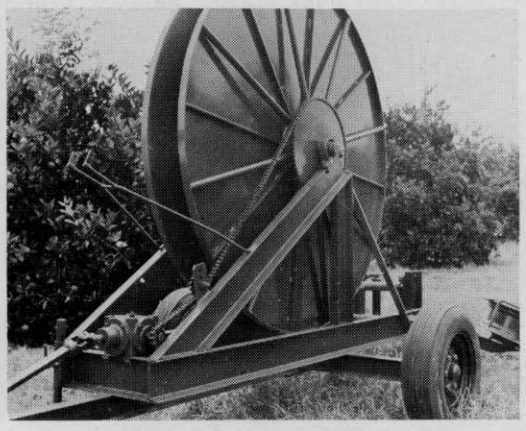
There is a common denominator in all these uses—to provide irrigation without requiring a workman in constant attendance and without having to install a permanent system.

An ideal application, Baker said, would be a square 40-acre field of reasonably level ground and uninterrupted straightaway runs for the Turbo-Rain.

If this field were broken up into four areas, each 330 feet wide and 1,320 feet long, the Turbo-Rain could make a pass through one of these areas in 12 hours comfortably. For example, this strip could be watered during the night without any supervision except at the start. It would shut itself off at the end of the job.

Key feature of the machine is the water turbine. Water from the pump enters the turbine from the hose which connects the pump and the machine. The turbine action turns gears in an attached gear-box. These gears, in turn, pull the machine along a 1-4-inch galvanized cable, 1,400 feet long, which is anchored in the ground ahead of the Turbo-Rain.

A by-pass valve, which controls the amount of water going into the turbine, makes it possible to vary the forward movement of the machine from 6 to 60 inches a minute. The water gun has a 1¼ nozzle and has maximum water coverage of



This is the hose reel unit operated from the power-take-off of the pulling vehicle. This unit is owned by Green Swamp Grove of Harmon Brothers, Winter Haven, Fla.

500 feet diameter. The Turbo-Rain moves on four pneumatic implement tires.

Maintenance on the machine is slight, according to Baker. There are five grease fittings to service and the grease in the gear-box must be changed periodically.

The pumping equipment can be any standard type. The water flow must be reduced to four inches for the 630 feet of non-stretch 4-inch mobile hose, which reaches to the Turbo-Rain unit.

For handling the hose, the unit includes a two-wheeled hose reel, which can be pulled by a tractor or truck and is operated by power take-off. It can lay the hose in the center of the row or at the side of the row. Also for handling the mobile hose are two capstands, usually placed at the ends of the runs to guide the pipe on turns.

The company also makes a model of the Turbo-Rain for groves or orchards with tall trees. On that model the water gun is located much higher and the machine is equipped with counter-balancing tanks to compensate for the greater height of the unit.

Hydro Equipment Co., is a division of Superheater Sales Co., which produces a crop protection system.

National distributor (outside of Florida) for Turbo-Rain is Ames Irrigation Co., of Gainesville, Fla., a division of Rucker Co., of Oakland, Calif.

Tree Odor May Help Solve Air Pollution

Strange as it may sound, the taste and smell of trees may provide the key to solving many of the problems man faces today.

James Hanover, associate professor of forestry at Michigan State University, says that leaves and stems of trees give off vapors which often result in a unique odor associated with individual trees, species and large forests.

Only recently, the potential significance of these vapors for problems of insect attraction, human allergy, atmospheric contamination and ecological regulation has been realized.

An instrument called the gas chromatograph, which is far more sensitive than the human nose, is being used to measure tree odors and determine their chemical composition. Further study of the different odors given off by different trees will give insight into specific ecological problems.

"Corresponding measurements of the 'taste' of internal chemicals of tree tissues are also being conducted," says Hanover. "Eventually, the chemical codes which determine whether certain trees are resistant or susceptible to damaging diseases or insects may be unraveled and used to improve the environment."

"That noise is Charley cutting down the dead tree, before the wind blows it on the house."

DO IT RIGHT THE FIRST TIME!

If breezes threaten to blow your herbicide off target, and maybe onto desirable plant growth...

If rainy weather keeps your crews off the roads, inflicting costly delays on your already tight schedule...

If you are spending too much time in pre-mixing your herbicides, or in refilling your tanks, and you end up with a lot of wasted material and money...

Or, if you've sprayed, and the broad-leaved weeds and brush still abound...

Then, you should have done it right the first time with Visko-Rhap* invert emulsion herbicides.

Visko-Rhap, in special formulations of 2,4-D, 2,4,5-T, and Silvex, from Hercules.

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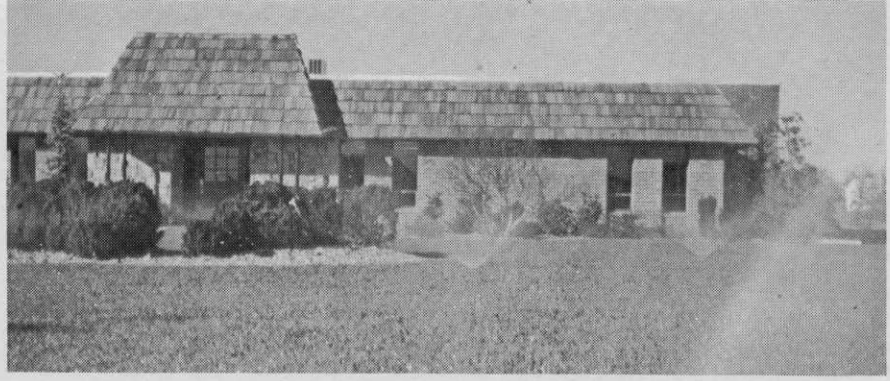
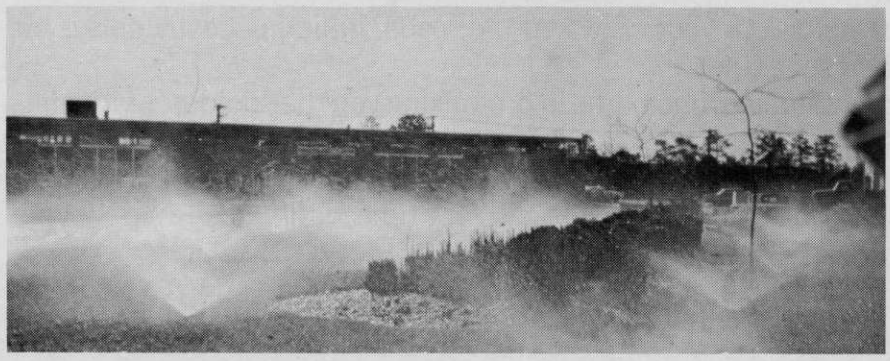
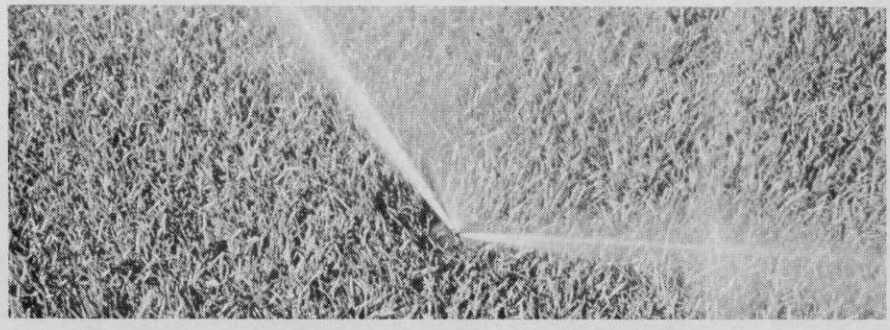






Beauty, Upkeep, Status Push Turf Irrigation

By A. BROWN, Vice-president of Sales,
Turf Irrigation Corporation
Commack, N. Y.

UNDERGROUND sprinkler systems are becoming more popular with commercial and industrial firms whose buildings are surrounded by large turf areas. Pride seems to be the foremost factor contributing to the trend.

This desire for appearance perfection is becoming a must in the industrial parks that are springing up throughout the country. Wide acceptance and usage of underground sprinkler systems for commercial grounds is yet to come. Therefore, phenomenal growth is ahead, with these factors bringing on the expansion:

—labor savings for turf maintenance;

—a genuine desire for a more beautiful plant site;

—recognition that well-groomed and landscaped grounds project the image of an affluent company; and

—the emergence of beautification as a popular status symbol.

Commercial site irrigation will experience the same type of success as has been achieved by color television. One commercial firm installing a system will inevitably motivate others to do the same. The trend can then snowball.

A large number of commercial installations have come as the result of the beautifying effects of systems for private homes of business and professional people.

Proper installation is an excellent entree for subsequent jobs.

It is important for the installer to visit the job site in order to design the sprinkler system effectively around the present or proposed landscaping.

Catalog specifications for sprinkler heads should be followed closely. For example: Turf Irrigation sprinkler heads are equally spaced 24 feet apart; and rotary heads are equally spaced 36 feet apart to allow for proper water overlay.

Installation is quite simple. Introduction of trenching machines and sod cutters has practically eliminated menial labor.

Complete automatic electric systems are set for proper watering in the spring and aren't touch again until fall.

After a system is shut down, it is imperative to blow out the lines to prevent ice damage to valves, lines and heads during winter.

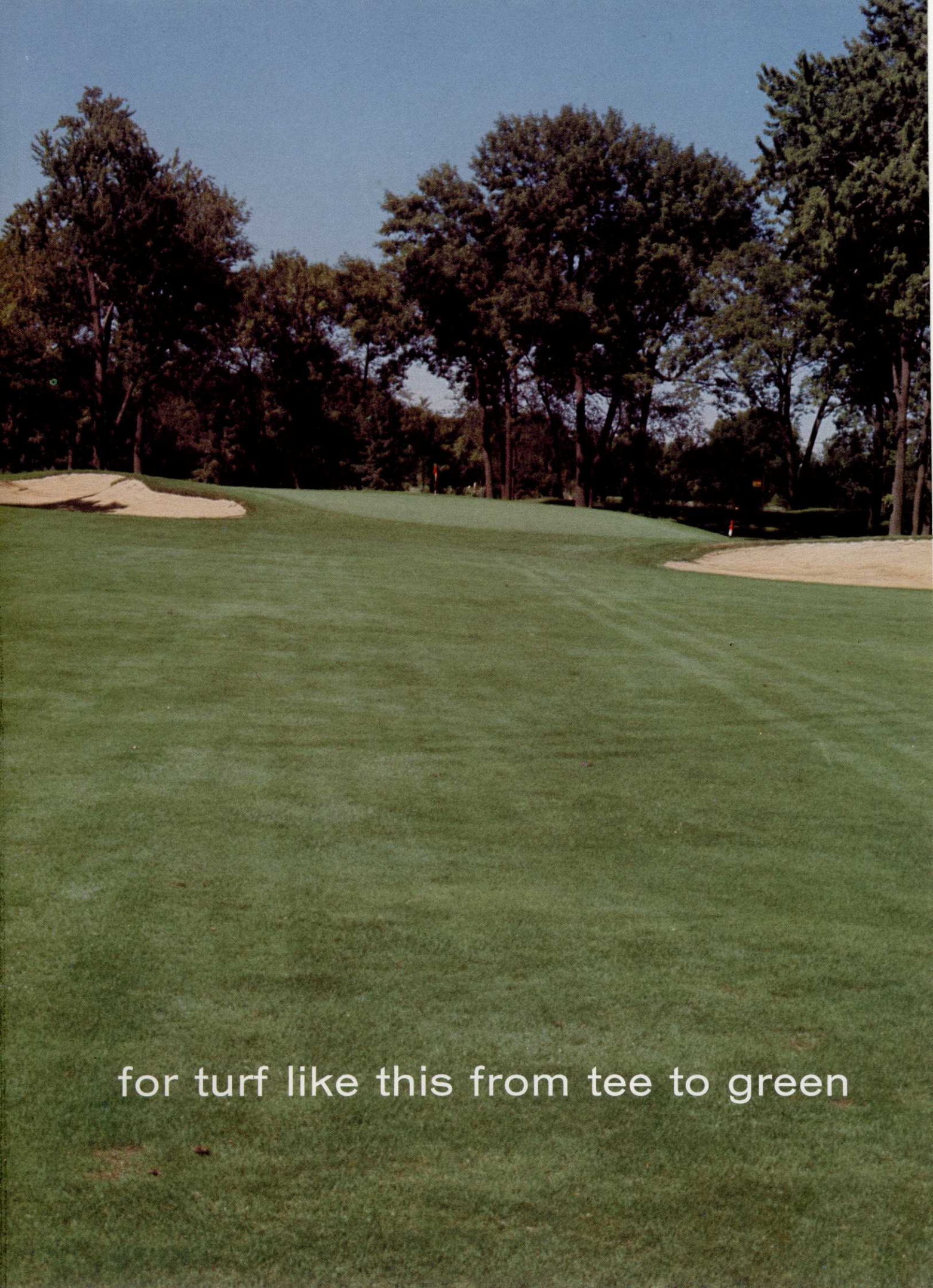
To insure that a system is maintained properly, it is important to discuss the system in detail with the man charged with its maintenance. He should know, for example, how and why the electric valves and controller operate. This effort will eliminate a large percentage of call backs.

Turf Irrigation Corporation has arranged a school and field trip program to orient purchasers of its products.

Selling cost for installing a commercial job, in round numbers, is about $2,000 per acre for rotary pop-up heads and $3,000 per acre for automatic pop-up heads. This is based on one- to ten-acre plots. The estimate includes the electric valves, electric controller, poly pipe, pipe fittings, etc., predicated from existing water service.

Evidence of this expanding industry of commercial turf irrigation has come through our experience with several relatively new sprinkler installers. With a year's concerted effort, they have seen business increase within a short period to a full-time endeavor.

Turf Irrigation Corporation's growth also reflects the trend. Consolidated sales of all our divisions for 1968 showed a 60% growth over the previous year. Backlog orders going into 1969 were about 200% greater over a year ago, attributable in part to 35 new items added to our product line in 1969.


for turf like this from tee to green

follow the

TUCO Acti-dione®

fairway spray program

The same antibiotic fungicide proven for years on golf greens *at hundreds* of courses now provides a program for economical treatment of fairways.

NOTE: The cover photo, the untreated fairway at left and the closeups below were all taken the same day in August, 1968, at courses less than 40 miles apart. All are unretouched. Below left is bluegrass; right is bent grass.

why a fairway disease control program?

1. Golf course superintendents set increasingly demanding standards for themselves to provide superbly conditioned courses regardless of weather and other obstacles.
2. Demand by golfers for high-quality turf at all times. They want the good lie for fairway woods and iron shots.
3. Growing numbers of golfers increase this pressure, and increased traffic is too much of a challenge for anything less than healthy turf.

why Acti-dione® for a fairway spray program?

The use of Acti-dione Ferrated or Acti-dione RZ has demonstrated effective, economical control of many turf diseases when combined with good management practices.

Acti-dione Ferrated is a formulation of the antibiotic Acti-dione and Ferrous Sulfate designed for the control of specific turfgrass diseases. Acti-dione RZ is a broad spectrum turf fungicide formulation containing the antibiotic Acti-dione in combination with PCNB. Both products are used in a preventive and eradicative treatment program for:

Kentucky Bluegrass-leafspot, going-out, and melting out
Merior Bluegrass—rust, fading-out and powdery mildew
Bentgrass—dollarspot, melting-out and fading out.

how to use Acti-dione® in a fairway spray program

Acti-dione may be applied as a spray with a conventional boom sprayer or with a broadcast boom jet spray nozzle. The Acti-dione spray should be allowed to dry in the grass—do not water in.

Your fungicide program should begin in the spring as soon as possible after the first mowing. Succeeding applications should be made as often as necessary throughout the growing season. Usually an interval of 21-30 days between applications will maintain satisfactory control. The recommended rate of Acti-dione Ferrated for fairway disease control is one package per acre; the recommended rate of Acti-dione RZ is 1.5 pound per acre.

Prepare a fresh solution each day spraying is done; use at least 30 to 40 gallons of water per acre. For severe disease infestations, increase dosage rate of Acti-dione Ferrated to two packages per acre. If you are using Acti-dione RZ, one package of Acti-dione Ferrated per acre may be added as a tank mixture to increase effectiveness.

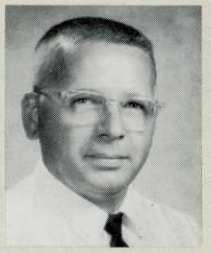
When mixing Acti-dione for fairway spraying:

1. Fill the spray tank ½ full with clean water
2. Start agitator and add the recommended amount of Acti-dione for the number of acres you plan to spray
3. Add remaining water while agitator is running

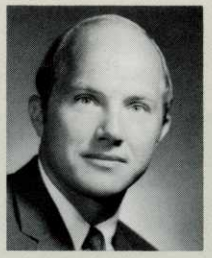
For sprayer calibration, request our Acti-dione sprayer calibration guide.

When it comes to turf problems—

STANLEY CAPLAN has a B.S. in agriculture from Delaware Valley College of Science and Agriculture in Doylestown, Pennsylvania. Stan has had several years of experience as a manager and buyer of nursery and garden supplies for a large company in California prior to joining TUCO in 1965.



HENRY LYON graduated from Cornell University with a major in ornamental horticulture. He has a broad agricultural background which includes wholesale sales and garden store management. Henry has been with TUCO since 1964.



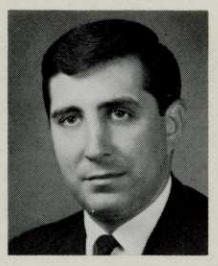
ROBERT SCOBEE was raised on a golf course (his father is a superintendent). Bob graduated from Purdue University with a degree in agronomy. Former secretary of the Indiana Golf Course Superintendents Association, Bob is a member of the Golf Course Superintendents Association of America. Bob has been with TUCO since 1965.

THESE MEN UNDERSTAND AND CAN HELP!

TUCO realizes maintaining healthy, top quality fairways, tees and greens is far from easy. That's why this outstanding team is available to help you with your turf growing problems. Just a call will put one of these highly trained and experienced men to work for you. TUCO has the products and the personnel to do the job.

CARMEN BOONE is a native of Arkansas and studied at Arkansas A & M College. He has a broad agricultural background and has had experience in the agricultural equipment field. Carmen joined TUCO in 1968.

CARL MARTIN is a graduate of Texas A & M University with a degree in entomology. Carl is exceptionally well versed in the field of Entomology. He is a member of the Entomological Society of America and has been with TUCO since 1964.



ROBERT LIPPMAN is an honor graduate of Pennsylvania State University's turf management course. While attending college, Bob was awarded a scholarship and certificate of merit from the Golf Course Superintendents Association of America and has had actual field experience as a golf course superintendent. He is a member of the Metropolitan Golf Course Superintendents Association and the Hudson Valley Golf Course Superintendents Association in New York state. Bob joined TUCO in 1967.

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