For the better part of fifty years, Rain Bird has irrigated and nurtured the soils of the earth like no one else.

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The Maxi controller is the latest in the broadest, best-selling line of controllers in the world.

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For a technical description of the Maxi controller, or any Rain Bird product, please write us at 7045 N. Grand Avenue, Glendora, CA 91740.

Rain Bird
BRINGING NEW IDEAS TO LIFE.

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Acid rain
Acid rain is a big conservation issue. Old Bill Lyons tells what he is doing firsthand.

Outlook on irrigation
Industry officials tell what they are doing and what is in store for the future.

Tree Pest Identification
Courtesy of Davey Tree Expert Co., we present 30 photographs of the most common tree pests.

Prince William windmill
Owners of Prince William have harnessed the wind to provide pumping power for irrigation reserves.

Public owners unite
Cecil McKay presents the case for a strong owners' organization, both socially and politically.

Designer's forum

Products

Reading . . .

Classified

Viewpoint
from the check areas. Smiley found that thatch. He found that Acti-dione bearing fungicides also contributed microflora with the non-sulfur-dioxide toxicity towards the thatch and these acidification processes explain the magnitude of decomposition of sulfur-bearing fungicides. Dr. Smiley found that the decomposition of sulfur-bearing fungicides contributed sufficient acidity to inhibit the decomposition of thatch and pH levels not significantly different from the check areas. Smiley reported that "The long-term effects of these fungicides are far more important to the overall economy of management programs and to turfgrass quality than the short-term cost and fungitoxic-spectrum considerations." He stresses that costs to remove thatch and to neutralize soil acidity are very likely to exceed differences in costs of fungicides.

The George S. May Memorial Trophy, one of the largest and most valuable, is missing. The Western Golf Association has offered a $1000 reward for information leading to its recovery. The trophy lists, on engraved plates at the bottom, all of the champions of the WGA, including the Western Open since 1899, the Western Amateur since 1899 and the Western Juniors since 1914. It weighs 60 pounds, and is 44 inches tall. The present value is estimated at $50,000.

If you're buying a used vehicle, you can find out if it was ever subject to a manufacturer's recall by calling the U.S. Transportation Department toll-free at 1-800/424-9393. The number operates from 7:45 a.m. to 4:15 p.m. Washington, D.C. time, Monday through Friday. Give them the vehicle's year, model and serial number.

The Cooperative Extension Service at Clemson University has issued a memorandum, after being notified by Rohm and Haas and the Environmental Protection Agency, that Ken-Kem 526 is not negotiable unless the golfer breaks record, or both, enroute to the championship. The winner could enjoy the richest payday in the history of women's golf, $72,500.

HMC/The Green Machine is moving to a new manufacturing plant at 207-10 Alameda in Long Beach, California. Part of a major expansion drive, the new plant will house all of the company's manufacturing offices, engineering, production and warehousing functions plus international division.

LESCO Products Division of Lakeshore Equipment & Supply Co. is sales agent for CBS Blend Ryegrass, east of the Rockies. LESCO CBS Blend contains Citation, Birdie and Omega perennial ryegrasses. LESCO has also been named marketing agent for Penncrest and Penn Eagle bentgrasses for the state of Florida.

Dick Craig, General Manager of the Jack Nicklaus Sports Center since earlier this year and Superintendent since 1971, is the first recipient of the combined Golf Course Superintendents Association of America/Ladies Professional Golf Association Citation of Performance. Craig was chosen for his expertise and performance in his profession, his cooperation with the LPGA and for the preparation of the golf course for LPGA Championship competition.

Joseph R. Flaherty, CGCS, is superintendent at Baltusrol Golf Club in Springfield, New Jersey, site of the 1980 U.S. Open. This is the sixth time the Open has been held there.

George J. Raymond has been promoted to product manager, responsible for the development and marketing of Antor, Herban and Deltic pest control products, at Boots Hercules Agrochemicals Co.

B. Hayman Co. (Hawaii), Ltd., has appointed Chuck Bell as a representative with offices in the Kailua-Kona area. B. Hayman Co. is distributor for Yamaha golf cars, Jacobsen, Smithco, Bunton, Standard Golf and other turf maintenance products in Hawaii and the Pacific Basin.

Don Andrews has been honored by the Upjohn Company for outstanding achievement in sales for 1979. He is one of 11 sales representatives named as repeat winners to the company's Agricultural Division Sales Academy.

While it's early yet, it would be good to keep in mind that the International Turfgrass Society's fourth research conference will be held in Canada. Occurring July 20-23, 1981, at the University of Guelph in Ontario, the conference will be more available to Pennsylvania Superintendents' attendance.

The Penn State Turfgrass Field Days will be held on August 6-7 at the Joseph Valentine Turfgrass Research Center at The Pennsylvania State University in University Park. For information, contact: Dr. Joseph Dulich, 210 Tyson Building, Department of Agronomy, University Park, PA 16802.

The New York State Turfgrass Association's Annual Conference will be held at the Rochester War Memorial, November 11-13 this year. The Genesee Plaza Holiday Inn will be the host hotel. For information, contact: Ann Reilly, Executive Secretary, 210 Carwright Blvd., Massapequa Park, NY 11762, or phone: 516/641-9034 or 462.

The sixth annual National Golf Foundation Daily Fee Workshop will be held on November 16-19 at the Dunes Hotel and Country Club in Las Vegas, Nevada. For information, contact: National Golf Foundation, 200 Castlewood Dr., North Palm Beach, FL 33408, or phone: 305/844-2500.
Professor H. B. Musser has made an investment in the future. He is the developer of Penncross Bentgrass, Pennlawn Fescue, author of the book *Turfgrass Management*, and a noted educator.

Professor H. B. Musser devoted his career to grass seed research. As a tribute to this outstanding Pennsylvania State University Turf Seed Agronomist, the Musser Foundation was formed.

The foundation’s purpose is to assist graduate students in turf research through a fellowship program. This means students who have finished their undergraduate work and are going into turf research may receive financial assistance at this critical point in their careers. Only the interest earned from the H. B. Musser Fund will be used for fellowships, so the dollars you contribute keep on working in perpetuity.

If you or your company are involved in the sale or use of turfgrass or turfgrass-associated products or services, there’s no better way to help yourself and the future of the turf industry than an annual contribution to the Musser Foundation.

Contributions may be made in the name of a loved one through the Memorial Fund, or to the Turfgrass Research Fellowship Fund.

“A fellowship involves an exceptional graduate student doing needed research, writing a thesis, adding to turfgrass literature and providing leadership for the future.”

THE MUSser INTERNATIONAL TURFGRASS FOUNDATION
of the H. B. Musser Turfgrass Fellowship, Inc.

Please send contributions in care of:
Dr. Fred V. Grau
P.O. Box AA
College Park, MD 20740

A nonprofit organization dedicated to fostering Turfgrass as a learned profession; to enhancing the lives of people all over the world through Turfgrass, and to supporting education and research in Turfgrass development and management.
Straw fungus may make alcohol

A fungus found growing on cow dung may help turn straw and corn stalks into alcohol fuel. Donald Wicklow, a microbiologist with the USDA’s Science and Education Administration in Peoria, Illinois, said the fungus makes straw more digestible by breaking down the lignin which binds the cellulose fibers together. When the lignin cement covering is removed, the cellulose inside is exposed and becomes available for digestion. Then, the enzymes in fermenters can change the cellulose to glucose sugar.

The fungus is called Cyathus stercoreus. At the USDA northern regional research center, the fungus digested 45 percent of the lignin in wheat straw and exposed 21 percent of the cellulose. One of the USDA’s goals at its Northern Agricultural Energy Center in Peoria is to produce fuel alcohol from cellulose in plant stems. A fungus with the ability to digest lignin, particularly lignin in grasses, may be the breakthrough superintendents need to process alcohol fuel from clippings.

PGA tour, Walt Disney join forces for junior golf

Construction is underway at the Walt Disney World Golf Resort on a new kind of junior golf course, which sponsoring PGA Tour commissioner Dean Beman sees as a “breakthrough in bringing the game to a wider audience of young players.”

Pictured above, the PGA Tour Wee Links Golf Course is a low-maintenance prototype, designed by Lakeland, Florida golf course architect Ron Garl. The 6-hole, 1525-yard layout on 25 wooded acres of the Magnolia Course, will open in late summer. It has two par-3 and three par-4 holes, as well as one par-5. Tees and greens are going to be covered with an artificial turf called ‘Mod Sod.’ The porous turf requires no maintenance, but can be top-dressed.

Sand traps are small and flat and water hazards are small and only 24 inches deep so that balls may be easily retrieved.

Clubs, golf balls and instruction will be available as part of the $2.00 greens fee. The PGA Tour is funding the $200,000 project on land donated by Walt World. Its designers hope it will be a prototype for courses across the country, which may help establish a kind of ‘little league’ program for young golfers.

Excel sponsors optimistic day

In the photo above, two turf managers look over a piece of equipment at Optimistic Day, sponsored by Excel Industries, Inc., in Hesston, Kansas. Among the festivities were Excel plant tours, Hyster equipment demonstrations, a pig roast with all the trimmings, and a golf tournament at Hesston Golf Park. Besides golf course superintendents, the 350 attending included state officials, school board officials, media and Excel employees. It was the first such outing for Excel, and produced a “very good reaction” according to Mark Foree, Advertising and Promotion Manager.

SAP disagrees with EPA’s 2,4-D testing

The FIFRA Scientific Advisory Panel (SAP) thinks that EPA should resolve controversy between two existing studies before they require additional oncogenity studies. And then if additional tests are required, SAP feels that they should be limited. In commenting on the EPA’s proposed multigeneration study to establish no observed effect levels (NOELS) for the acid form of 2,4-D in one species, SAP said: “The panel is of the opinion that an additional multigeneration study to establish NOELS for the acid form of 2,4-D in one species is not warranted.” They went on to say that SAP felt the existing study was adequate. The panel did agree with the proposed testing requirements for acute toxicity, mutagenicity, and dermal absorption.

Public opposes Labor payment ban

More than 200 legislators, federal contractors, civil rights groups and clubs submitting comments to the Labor Department’s Office of Federal Contract Compliance Programs (OFCCP) called the proposed ban of federal contractor payments to selective admissions organizations “unnecessary, illegal, and unwarrantable”, according to the National Club Association.

A common point of controversy concerns the OFCCP approach requiring that the contractor determine if employment advantage has been incurred by an employee whose membership fee has been paid in a selective admissions organization. The Equal Employment Opportunity Commission (EEOC), which must approve the final regulations, has recommended instead that the rules absolutely prohibit payments to selective admissions groups.

Civil rights groups have taken the EEOC posture. The Anti Defamation League of B’Nai B’rith claims, “. . . the EEOC position, in contrast recognizes . . . that the intent of the contractor to confer an advantage by paying the membership fee for an employee in a social club which discriminates against other employees makes the act of payment discriminatory even if no advantage results.”

Taking the opposing view, the Conference of Private Organizations, an association of national fraternal, service and civic groups, asserts, “Cases based on denial of equal employment opportunity have traditionally dealt with clear allegations of discrimination directly applied by the employer in the work area. . . . OFCCP, however, would now have us leap from such unambiguous and unquestioned cases to make a tenuous connection between membership policies of third-party private organizations and employment discrimination by an employer toward unknown employees. . . .”
A BEAUTIFUL RYE.

There's no doubt about it. REGAL is the new turf-type perennial ryegrass that combines color, vigor and density for an elegant turf. REGAL's dark green, fine-textured leaves look beautiful alone, or blend well with other turf-type ryegrasses. It has excellent tillering characteristics, and during periods of transition with bermudagrass, helps to maintain a lush, green, uniform turf.

And REGAL cuts clean, for a beautiful lie on tees, greens, fairways and roughs. Without ragged edges, or grainy areas.

REGAL—bred for rapid germination, exceptional vigor, density and persistence. Good disease resistance, too.

If you'd like more information on REGAL, contact North American Plant Breeders. P.O. Box 2955. Mission, Kansas. 66205

Write 105 on reader service card
Acid Rain
Is there danger to turf?

By Old Bill Lyons
Lyons Den Golf Course
Canal Fulton, Ohio

Recently an article appeared in a Toronto, Canada, newspaper claiming that acid rain has killed the fish in many of the lakes in NE Ontario. This article claimed that the acidity of the rain was caused by pollution from the burning of high sulphur coal. (Ohio coal is high sulphur.)

Governor James A. Rhodes wisely appointed Dr. Widenfaul, of the Ohio Research and Development Center, Agronomy Department to study and monitor rainfall to determine the acidity and other elements.

Acid Rain is not something new. Dr. Widenfaul tells the writer that the Swedish Ag. Dept. has kept records for 35 years. At OARDC he tests the rain water weekly (averaging).

In the agricultural areas where 30” or more of rain falls, 25 lbs. of lime (calcium and Magnesium) are lost per

1,000 sq. ft. annually (1,000 lbs per acre). The Ag. Dept. of our government had a program of supplying, at cost to the farmer, 2 tons per acre, of lime every 4 years for his crops. This neutralized the acid rain, and also took care of the elements lost to drainage and run-off.

Testing every rain storm, for its acidity and the nitrogen content is new to the turf grass industry. At Lyons Den we are now making records of each rain cycle, (daily if necessary). We are looking at it from the effects that acid rain has on diseases of turf on the golf greens.

Note from the chart below, that as the turf becomes acid in thatch or soil the fungi population increases in proportion to the acidity. Also, thatch builds up faster at the lower pH ranges. (Thatch is the enemy of all fine turf.)

Correcting acidity in turf is only one step toward better disease control. Yet, it is basic. If the pH in both thatch and soil is pH 7.0 or above, then fungicides will have to be used to control diseases. As you can see from the chart, it might be well to apply lime to raise the pH level first and if this does not give control, then select the fungicide that one thinks will control the specific disease.

In the past most emphasis was placed on the pH of soil only, where as
It's easy to check our best features. We don't cover 'em with a shiny shroud. What you see is what you get... a completely functional and easily maintainable machine built with a minimum number of components. National's 84-inch Triplex offers the same superb performance on hillsides or level ground. Three, power driven, free-floating reels follow ground contour and cut without skip or scalp. Reels adjust down to fixed bed bars providing for more rigid and longer lasting mowing units. Bed knives have turned up lips for extra wear... a feature we introduced as early as 1925. National's no-nonsense design makes normal service faster than any mower on today's market.

Check out the economies of National's ugly beauties. We've been adding nothing but quality since 1919... it's obvious!

Deliberately designed to provide its own power source which allows unit to be pulled by almost any size tractor with or without PTO. Five, free-floating, powered reels cut an 11½ foot swath. Wings fold to 68".

Low center of gravity and wide track provide great maneuverability. Mows a 68-inch swath at speeds up to 4 mph... that's half an acre in 15 minutes. Wings fold to 37½".
Acid rain from page 8

the disease problem was in the thatch which could have a low pH while the soil pH is neutral or above; such as with some high sand content greens.

Dr. James Boyce, former Research Director of turf grasses for all of Canada, thinks we have opened a new line of thinking in connection with why we have so many summer time turfgrass diseases.

Dr. Patricia Sanders, Pathologist, Penn State University, was excited to learn of what we are doing with acid rain versus disease.

One golf superintendent whom I do not wish to name has a secret. His is one of America's greatest courses. Not having gave acid rain a thought until we talked, he normally applies 10 lbs. of superfine dolomite lime, (raw rock powdered) per 1,000 sq. ft. to his fairways, FOUR times a year.

Dr. Fred V. Grau, retired director from USGA Green Section, has preached 1 lb. of hydrated lime plus 2 lbs. of urea formaldehyde fertilizer per 1,000 sq. ft. on golf greens for many years. Was he counteracting acid rain?

The late Paul Truckenbrod, Sunnybrook Golf, Kent, Ohio, taught us to dust hydrated lime on golf greens late in the evening, before fungicides were available, to counteract or control as best we could the humid-weather diseases of turf.

The late Colin Smith, Shaker Heights Country Club may not have known about acid rain 40 years ago, but he knew that something was happening so he had John Spodnik, now grounds manager for Westfield properties, Westfield, Ohio, put on 25 lbs. of superfine Dolomite Lime per 1,000 sq. ft. on golf greens for many years. Was he counteracting acid rain?

The late John Spodnik, now grounds manager for Westfield properties, Westfield, Ohio, put on 25 lbs. of superfine Dolomite Lime per 1,000 sq. ft., aerified four times, only 1 lb. of Manhattan rye grass seed, this fairway got well, the thatch oxidized and we have had a decent fairway for the past three seasons. This is the only way to economically eliminate thatch.

We are developing some new programs at Lyons Den that are too early to talk about. Perhaps our studies of 1980 will be available for 1981. Would a spray lime system be practical to counter act acid rain? We shall try.

Suggested Technique for Testing Rain Water

In the Lyons Agricultural Soil and Plant tissue Test Kit: Use the 3 - spot plate

1. Fill each with rain water. (Keep spots clean.)
2. To each spot add 1 drop of each of the 3 reagents.
3. Use the special in the center spot, use No. 1 on the left and No. 2 on right.
4. Stir with a clean plastic stir and do not use the same one on each spot. Contamination.
5. Compare the colors on the chart.

Testing Dew (Guttated Water)

1. Dampen the Whatman filter paper but keep fingers off the area to be tested.
2. Apply just 1 drop of each of the 3 reagents.
3. Compare colors.

The use of Squibb's Nitrazine paper that has a wide range, 4.0 up to 8.5 pH. A cross check if you please.

The more Tender-Loving Care we gave our No. 3 fairway in 1977, the less grass we grew and the more fungi we had eating away the turf. Here we developed the Purdue Method of testing thatch. The pH of the thatch was 4.5 pH. That layer was, like many home lawns 2" deep. By applying 100 lbs. of superfine lime per 1,000 sq. ft. plus aerifying, plus 10 lbs. of 15-15-15 fertilizer per 1,000 sq. ft., aerified four times, only 1 lb. of Manhattan rye grass seed, this fairway got well, the thatch oxidized and we have had a decent fairway for the past three seasons. This is the only way to economically eliminate thatch.

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