

MacDonald emphasizes.

"Using Acti-dione through September and into October helps keep the turfgrass in shape for the winter season," he adds. "This fungicide does a tremendous job on leafspot and worked well on dollarspot in 1972."

His preventive programs go a long way toward this type of control because leafspot often goes unnoticed until most of the damage is done. With turf mixtures such as those at New Haven Country Club, the disease will likely attack only one type of grass and the rest will remain healthy.

This makes it easier for the disease to go undetected until severe thinning has occurred.

Leafspot most often occurs between April 1 and May 15 when temperatures are cool and the turf is moist. In MacDonald's area, the generally high humidity, along with an abundance of rainfall last year, provided good conditions for leafspot outbreaks.

Helminthosporium is present year-around, however, and can cause leafspot damage during cool, wet periods of summer and fall.

"During the application season, we spray every Friday," explains MacDonald. "This gives the greens more protection during a time when the heavy golfer traffic can bring on bruises and diseases. Even though our greens are three to four decades old, they're in good shape." □

Grass Seed Prices Up Farmer Interest Down

Several conditions, both artificial and natural, have compounded to more than triple the price of grass seed this year.

The upsurge of grass seed prices parallels the general grain trade situation of the past year. An export raid on U.S. grass seed, similar to the Russian wheat sales, has been quietly conducted by various foreign nations.

Added to the domestic shortage were unfavorable wet weather conditions in major Mid-west seed-producing areas, both during the 1972 grass seed harvest season and the 1973 planting season.

Despite an all-out effort for agricultural production by the USDA, experts are predicting little or no relief on either short-run or long-term basis.

Certified seed production has been largely dominated by veteran farmers. When farmers retire or otherwise go out of the business, young farmers are not attracted to seed

growing, despite premium per-bushel prices. Some experts attribute this factor to the lack of desire by young farmers to take the special care required in growing, handling and storing high-quality seed.

Wisconsin Assembly Plant For Toro Announced

The Toro Company plans to start construction this summer of a 165,000-square-foot assembly plant in Tomah, Wis.

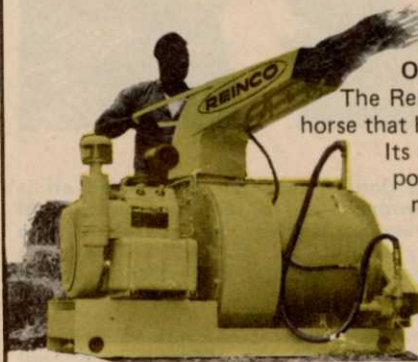
The plant will be located on 25 acres in Tomah Industrial Park, a

350-acre development created eight years ago to attract new industry and jointly owned by the city of Tomah and Forward Tomah Development Corporation. Tentative completion is scheduled for early summer of 1975. Initial work force will be about 50, but will build to between 300 and 350 employees, making Toro the largest employer in the industrial park.

Estimated the total cost of the new facility will be more than \$3 million. Annual payroll of the plant, once it reaches full employment, will be over \$2 million.

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One man can easily fertilize, seed, and mulch up to 6 good size lawns a day with the PP500. Only one moving part insures low maintenance. Simple to operate.

Add mulch, seed, fertilizer plus a soil binder such as Terra Tack to the circulating water to form a homogenous slurry. . . then spray . . . that's all there is to it. Spray on all the ingredients necessary for good turf—all in one easy operation. Check out the time. . . you'll be surprised. For further information write to:

Reinco

P. O. Box 584, Plainfield, N. J. 07061 (201) 755-0921

Green Industry Newsmakers



Hi Doll! A four-foot tall stuffed elf is strapped into a seat aboard a flight from Kansas City, Mo. to Los Angeles by Continental Airlines' stewardess Izetta Franzen as Gary Kisner, one of its creators, sits in the next seat. The elf was created to symbolize Cushman/Ryan turf care products and was exhibited at the 45th International Turfgrass Conference and Show in Anaheim, Calif.

Caddo Lake, one of the nation's most picturesque bodies of water, was



William Flemmer, III, president of Princeton Nurseries, is shown absorbed in his topic, "Nature's Guide to Successful Gardening and Landscaping". He commented on a slide presentation to the some 300 landscape contractors at the Two-Day Short Course, sponsored by ALCM and the Cooperative Extension Service at Mendon, Mass.



A chopper in Elm Grove, Wis.? It seems a huge invasion of leaf-eating cankerworms would hatch as the city's tree buds broke and leaves expended. So, a city-wide spraying program with *Bacillus thuringiensis* (Thuricide) was initiated in the Spring of 1973 to control this serious pest. The aerial spraying techniques proved successful.

in danger of being overtaken by noxious vegetation until rescue efforts were made through the use of chemical weed control, according to L. V. Guerra of the Texas Parks and Wildlife Department.

Guerra, reporting to some 1,000 people at the Weed Science Society of America in late February, said Caddo had become almost impassable for boat traffic.

The department has reopened most of the lake using 50,000 lbs. of a granular formulation of 2,4-D (Aqua Kleen).

The lake, straddling the Texas-Louisiana border, was the scene of several Walt Disney productions.



Moody Sprinkler Co., Inc. has moved to Calif. The company's new plant is located in the Costa Mesa area. The greatly expanded manufacturing facilities are geared to step up production of their Rainmaster and Customline models.

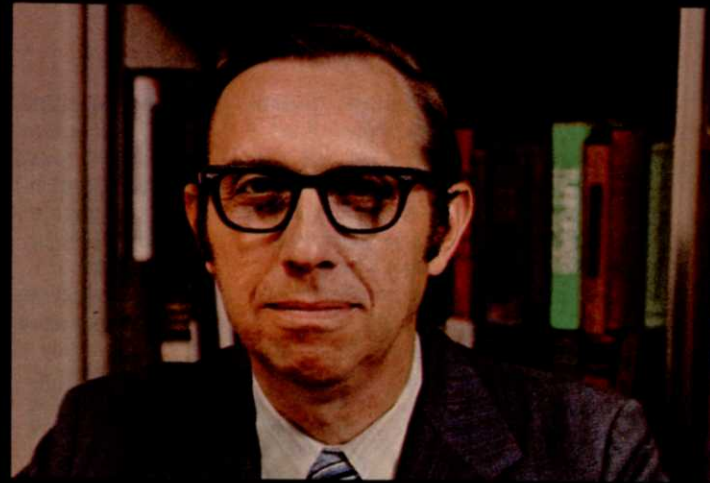
"I Stake My Reputation on Agrico Products. So Can You."

Donald Pfeleiderer, Ph.D., Ohio State University, is head of Agrico Country Club's Professional Division. He is among the country's foremost agronomists and is author of the *Agronomic Bulletin*.

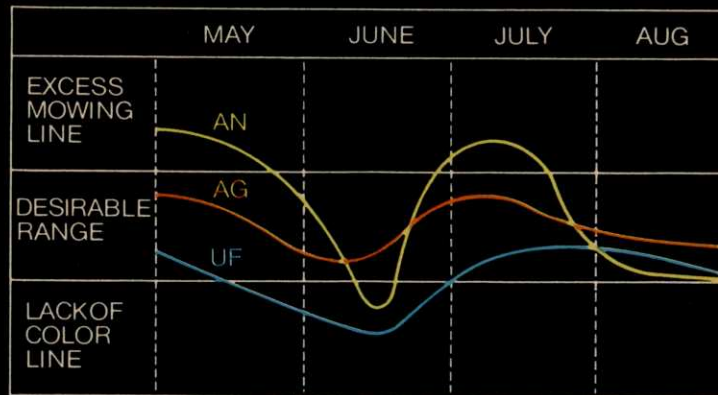
"I stake my reputation on the dependability of Agrico Country Club Fertilizer—and so can you. Because at Agrico we've proven our products work more efficiently. Here's how.

"Before any new Agrico product is introduced, it must go through extensive research and testing. It is tested on field plots under varying conditions. It is tested through plant analysis and researched under controlled conditions in green houses.

"In its final form, nothing is sacrificed. Every element and process necessary for turf growth is utilized, enabling Agrico Country Club to give you more feeding power for your money. Let's take a closer look at some of Agrico's power-feeding products."



"Shown below is one of the reasons Agrico Country Club products will work best for you. AN is all mineral nitrogen—ammonium nitrate. As you'll notice AN effects excessive mowing. UF is urea form nitrogen which does not produce the needed color. AG is Agrico Country Club 18-4-10. Like all Agrico professional fertilizers, 18-4-10 produces the needed color without effecting excessive mowing with a minimum number of applications.



"We'll go to any links"

"To help you decide which of the full-line of dependable Agrico products are best for your course, we'll go to any links. Complete the attached coupon and we'll fill you in on all of Agrico's course-care products. We'll also provide a free soil analysis of your course and send you quarterly mailings of my *Agronomic Bulletin* to keep you updated on new product information."

AGRICO PROFESSIONAL FERTILIZERS									
Advantages	Sizing	WIN	Organic	Sulfate of Potash	Mg	S	Fe	Mn	
18-4-10 Special greens fertilizer. Small granules get to roots quickly; can't be picked up by mowers.	G	10%	65%	100%	1%	8%	1%	.50%	
18-5-9 Ideal for fairways; promotes uniformly thicker turf.	F	5.5%	50%	33.33%	1%	8%	1%	.50%	
20-0-10 "0" phosphorus for use where high "P" levels exist or where arsenate is used.	F	6.8%	50%	33.33%	—	4%	1%	—	
8-4-24 Designed for low potash soils or where only nitrogen is used.	F	1.4%	30%	25%	—	4%	1%	—	
12-4-8 Ideal on fairways, tees, and greens where phosphorus is high.	F	3.6%	50%	—	.50%	4%	1%	—	
16-8-8 General purpose; ideal to use in seed beds.	F	—	—	—	—	—	—	—	

"Above is an overview of six of Agrico's full-line of professional products. The top of our line products have more WIN, higher organic content, more sulphate, magnesium, sulphur, iron and manganese. Sizing is either small for greens or regular which we call fairway sizing. These and all other Agrico products contain the applicable balance of WIN and water soluble nitrogen to allow immediate green-up and provide long-term greening—with a minimum number of applications. Based on your specific course requirements, two or more of these products will work efficiently to complete your fertilizer needs."

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Greensweep. The clean-up machine.



SPRINKLER IRRIGATION

(from page 26)

and with our known biological controls, it is inevitable that the population will reach seven billion by 2000."

In 1850, we started to use fossil fuels, he continued. Ninety-two percent of our fuel came from wood back then. Now 96 percent comes from fossil fuels. He said that America consumes 34 percent of the total world energy and 35 percent of the world's petroleum. He charged that our use of energy has increased while the efficiency of energy inputs has decreased.

Pimental cited an example of corn production to prove his point. He also said it takes 940,800 K cal (a unit of energy) to produce nitrogen today. In 1945, it required 925,500 K cal to produce the same amount of nitrogen.

One thing further. Dr. Pimental claimed that food production is "cheap only because we have a high Gross National Product (GPN). Only 17 percent of our income goes for food (1970). "We don't have the most efficient production of food, he charged. It costs us about \$40 to produce 1000 kilocalories versus \$10 for the Indian to produce 1000 kilocalories. Twenty percent of the labor force in the U.S. is involved in supplying the farmer.

He concluded his comments by saying that he has two hopes for the future, 1. mankind has the wisdom to stop reproducing and 2. the development of alternative energy resources.

Riding on this wave of energy, Dr. Ernest Smerdon, University of Florida, brought the energy situation even closer to home. "The era of cheap and plentiful fuels is coming to an end," he said. "We can't continue to use energy like we have in the past."

The agricultural engineer pointed out that irrigation is an extremely high user of energy. Most all irrigation is not gravity flow. He said that every irrigation design in the future (regardless of location or use) must be examined for efficiency of design in developing the system.

Although most of his remarks were directed to irrigation as it applies to agriculture, it is interesting to note that efficiency of design in the development of an irrigation system fits the turfgrass industry too. One can't help but reflect on the number of golf courses with poorly designed irrigation systems because there

(continued on page 42)



***“Is your superintendent getting
the course ready
for a spring tournament?”***

***“No, Jim always
keeps it looking
this good.”***



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The first step is the application of TERSAN LSR fungicide on tees, fairways and greens in early spring. TERSAN LSR stops Leaf Spot problems caused by overwintering spores of *Helminthosporium* spp. before the melting or fading-out stage. It also protects against Rust and Large Brown Patch before they have a chance to damage your turf.

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For complete details and a supply of TERSAN turf fungicides, contact your golf course supplier.

With any chemical, follow labeling instructions and warnings carefully.



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Target: Railroad Weeds

EDITOR'S NOTE: There appears to be a growing interest in railroads, and it isn't necessarily just among the locomotive buffs. Weed control firms are showing greater awareness of this market, despite the fact that it is highly specialized both in equipment and expertise. Any one of a number of factors may be responsible. The fact remains that railroad weed control has come into the spotlight. The following article is presented to shed more information into this aspect of the Green Industry.

By RICHARD W. FIELDS
Industrial Veg. Control Manager
Velsicol Chemical Corporation

GETTING your foot in the door is perhaps the main hurdle for contract vegetation control along railroads. You have to know the right people. Vegetation control along railroads is also complicated, demanding specialized sales and equipment.

Here are some of the basics involved:

The herbicide programs are controlled at railroad headquarters, with program development and im-

plementation from the district level. Chemicals are purchased and contracts with applicators are on a yearly bid basis.

The track is sprayed with bareground and weed control chemicals on a swath sometimes 8 feet wide, but usually 20 to 24 feet wide. Usually, a combination of bareground and weed control chemicals is sprayed 8 feet across. Beyond that, the weed control chemical alone is used for "chemical weed mowing."

Enough chemical is used to control most species, especially noxious weeds, and to take down the high weeds alongside the track. Without chemical weed mowing, the view is obstructed and men don't have room to work around the track. Without the bareground material on the track bed, vegetation interferes with equipment, there is risk of fire, and water does not drain off ballast rapidly.

Brush control alongside the tracks is another operation, separate from chemical weed mowing. The greatest need is for removing brush interfering with communication and signal lines. Other needs are for greater visibility at grade crossings and curves, safety for personnel beside track sections and elimination

of the potential for great forests developing alongside track sections.

The total market for weed and brush control along railroads is quite large. Railroad rights-of-way encompass something like 3 million acres in the U.S. But budgets allowed for vegetation control are limited, and so in any given year, only about 20 percent of the total acreage is treated.

Application used to be only by spray trains which apply 300 gallons of solution per acre on up. Now, on-off track vehicles (called Hy-rail) trucks, which can be driven on both highways and rails, are replacing the older spray equipment. The on-off track vehicles are low-volume application, somewhere in the neighborhood of 25 to 30 gallons per acre, and are more economical, efficient and result in fewer claim damages.

Drift control is very important for railroads, with methods including Amchem's Directa-spray and Velsicol's Accutrol spray system. With the Accutrol system, large droplets of air emulsion and the solution tends to stick together. But this system, along with most of the others, should be considered as a means to decrease the hazards of normal applications, not a means to apply herbicides in



Chemical weed mowing is not designed to completely eliminate the weeds, but to knock them down and suppress them. Wild rose control with Banvel along the ballast eliminates equipment interference, lessens fire hazards and allows water to drain off rapidly.

any wind conditions.

For example, we treat the Accutrol spray system as we would conventional water systems. When the wind is over 10 mph, we want it shut off. What we're saying is in winds up to 10 mph, Accutrol does a much safer job.

Usually, 2,4-D or 2,4,5-T is used in combination with MSMA for chemical weed mowing, although the newer trend is to combine the D's and T's with a herbicide such as Banvel, which gives season-long control of perennial weeds such as bindweed, Russian thistle, kochia, and Canadian thistle.

Chemical weed mowing is not designed to completely eliminate the weeds, but to knock them down and suppress them. It would be easy enough to completely control the weeds by using, let's say, 3 gallons of Banvel 720 per acre, but because of budget limitations, only ½ gallon is applied per acre. There is no point in total perennial weed control anyway because you still have to turn around and spray the next year for the annual weeds.

Brush control is one area that gives railroad vegetation control managers a lot of trouble because it tends to be disorganized.

Too often, spraying for brush is a hit or miss affair. Typically, railroads spend several hundred thousand dollars on brush control on the

basis of hearsay or "I think so," without knowing really what their problems are, how much brush they have, or what chemicals to put where.

Spraying brush is too costly and time consuming for it not to be done well. Developing a plan is hard work. While it may sound difficult to plan ahead of time the monumental task of controlling brush along thousands of miles of track, a railroad will be money ahead by spending it where it is needed the most.

The objectives of both the railroad and the contractor need to be written down. Management needs facts. Objectives could be species of brush to be killed; percentage of root kill expected; how long a single treatment should last, and how many years between treatments.

Perhaps we can put it in terms of the three "E's"—Examining, Execution, and Evaluation.

EXAMINATION

The contractor and railroad can cooperate in the evaluation phase. For one railroad, recently a list of brush treatment areas were given

(continued on page 48)

Spray trains effectively cover greater distances than off-track vehicles with application rates as high as 300 gallons of solution per acre.





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product, then that product tends to stay put. E-Z Go.

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Clutching scholarship checks awarded to them at the Midwest Regional Turf Conference's annual banquet are: (from left) Randal Bellinger, Reynolds, Ill., Alan Nees, Chesterton, In. and Kenneth R. Griepentrog, Tulsa, Okla. Griepentrog, a senior, received a Golf Course Superintendents Association scholarship worth \$500. Bellinger, a sophomore, and Nees, a senior, received scholarships valued at \$200 and \$100 respectively.

Midwest Regional Turf Conference Report

If experience is the best teacher, then some 600 persons attending the Midwest Regional Turf Conference at Purdue University in late February should have learned plenty.

Capitalizing on the personal experiences and problems of some of the top turf specialists, agronomists and sales personnel in the mid-continent, the meeting represented possibly the most educational turf conference in the U.S.

It was a joint effort by the Midwest Turf Foundation and the Purdue Agronomy Department that put

the conference in gear but the impressive line-up of speakers really put the conference in motion.

By placing major emphasis on personal experiences, enough atmosphere of credibility was generated on Monday afternoon to hold the interest of all attending until Wednesday noon. The real action began Tuesday morning when the sessions started three deep; enough to make this attender wish he could be in more places than one.

At the kick-off session on Monday, senior attendee Harold Glissman reminisced through the scores of conferences he has attended and the many lasting friends he made along the way. Included in Glissman's trip down memory lane was an inkling of the art philosophy and motivations of attending conferences.

Tuesday morning's section on general turf proved to be a combination of research, sales, management and the first job experience. Dr. R. P. Freeborg of Purdue quickly reviewed some reseeding and Roundup herbicide experiments. Tom Douglas, Caterpillar Tractor Co., presented the advantages and disadvantages of supervising an industrial lawn and his methods of approaching the varying problems of unions, winter salt damage and personnel turnover.

Lee Record, midwest director, USGA, led off one of Tuesday afternoon's sections with the current specifications for putting greens. He reported USGA greens can be constructed for about \$1.20 per square foot. Conforming to the construction theme, Steve Gipson, TRW, Inc., told how he was involved in the



From left, W. H. Daniel, Purdue turf specialist, executive secretary (re-elected); John Spodnik, superintendent, Westfield Country Club, Westfield Center, O., vice president and O. Lee Redman, superintendent, Bellerive Country Club, St. Louis, Mo., president. The 1974-75 officers were elected at the organization's annual conference at Purdue University.



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