

serious environmental pollution with herbicides."

"Our challenge is to set the record straight. We must be our own public relations people and tell the story that herbicide usage is not causing contamination of air, plants, soil, or water," he said. Dr. Wiese then reported on studies which supported his premise.

Anyone who has attended SWSS before, or a similar type meeting, is familiar with the groupings of speaker presentations in sections. In a sense sections at SWSS represent "environments of interest." Early in the meeting, program chairman Dr. Paul W. Santelmann combined the thoughts of these various "environments into a symposium "How Weeds Affect Specific Environments."

Speaking on the aquatic environment was Dr. Robert D. Blackburn, ARS, U. S. Dept. of Agriculture, Ft. Lauderdale. "Although aquatic weeds are of less importance when compared to terrestrial weeds, aquatic weeds can present the greatest health hazard," he said. "Aquatic weeds provide harborage for mosquitoes, and the snail, intermediate hosts for a variety of trematodes which adversely affect the health of man and animal." Attempts to con-



New officers of Southern Weed Science Society are: (back row 1-r) Dr. Donald E. Talbert, secretary-treasurer; M. M. Merkle; H. A. Greer; Dr. Gale Buchanan; (front row 1-r) Dr. Allen F. Wiese, past president; Dr. Paul W. Santelmann, president elect; Dr. William G. Westmoreland, president; and James Becton, vice president.

trol snails are often hindered by massive aquatic weeds.

Blackburn pointed out that aquatic weeds reduce shoreline property

values, create odor and interfere with aquatic recreation sports. He challenged those present as to  
(continued on page 38)



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Two men join a 40 foot section of PVC pipe with another. It is linked to a sprinkler head on the edge of a green.



This system features individual head control, to allow for the different water needs of certain areas on the course.



Using PVC for the pipe network also meant the irrigation contractor was able to make length adjustments easily.

## A Golf Course In His Majesty's Honor

**I**F King James II of England was alive today, he could see what has happened to a certain 2500 acres of land he granted to 17th century colonists for settlement in the New World.

But he'd probably pinch himself to see if he was dreaming. History has it His Majesty was a bona fide

golfer. The showpiece on that 2500-acre site is now a 54-hole golf course named (of course) King's Grant Country Club.

It's all part of a \$200 million land development project located 15 minutes from Philadelphia and 40 minutes from the Atlantic Ocean; a project intended to be an entirely

new, planned community for 30,000 people. The first 18 holes of the course layout, a championship course set amid the pine barrens of South Jersey and a meandering stream, will be playable this spring.

To give the course an historical flavor, the project developers (Evesham Corporation, a subsidiary of Seltzer Brothers) imported Frederick W. Hawtree, noted English golf architect, as a design consultant. William Seltzer president of Evesham, envisions the original course as someday being the site for a major USGA tour event.

But even in its developmental stage, the course has several interesting qualities. For example, sand and sandy loam topsoil led Evesham landscape architect Michael Kihn to specify that the turf be maintained with an automatic irrigation system featuring double row lines on several fairways.

"Water percolates through the turf and topsoil very quickly," says Kihn. "This is good for drainage purposes, but poor for retention and turf life. So we need a fully irrigated course, even though this area has a very high water table."

To install the irrigation system required the combined expertise of Kihn; Philadelphia Toro Co., designer of the system; the irrigation contractor (John P. Schmidt Co.); the general contractor, (Harold E. Bishop, Inc.); a hydraulic project engineer (James William of Evesham); and the underground transmission system manufacturer (Cer-

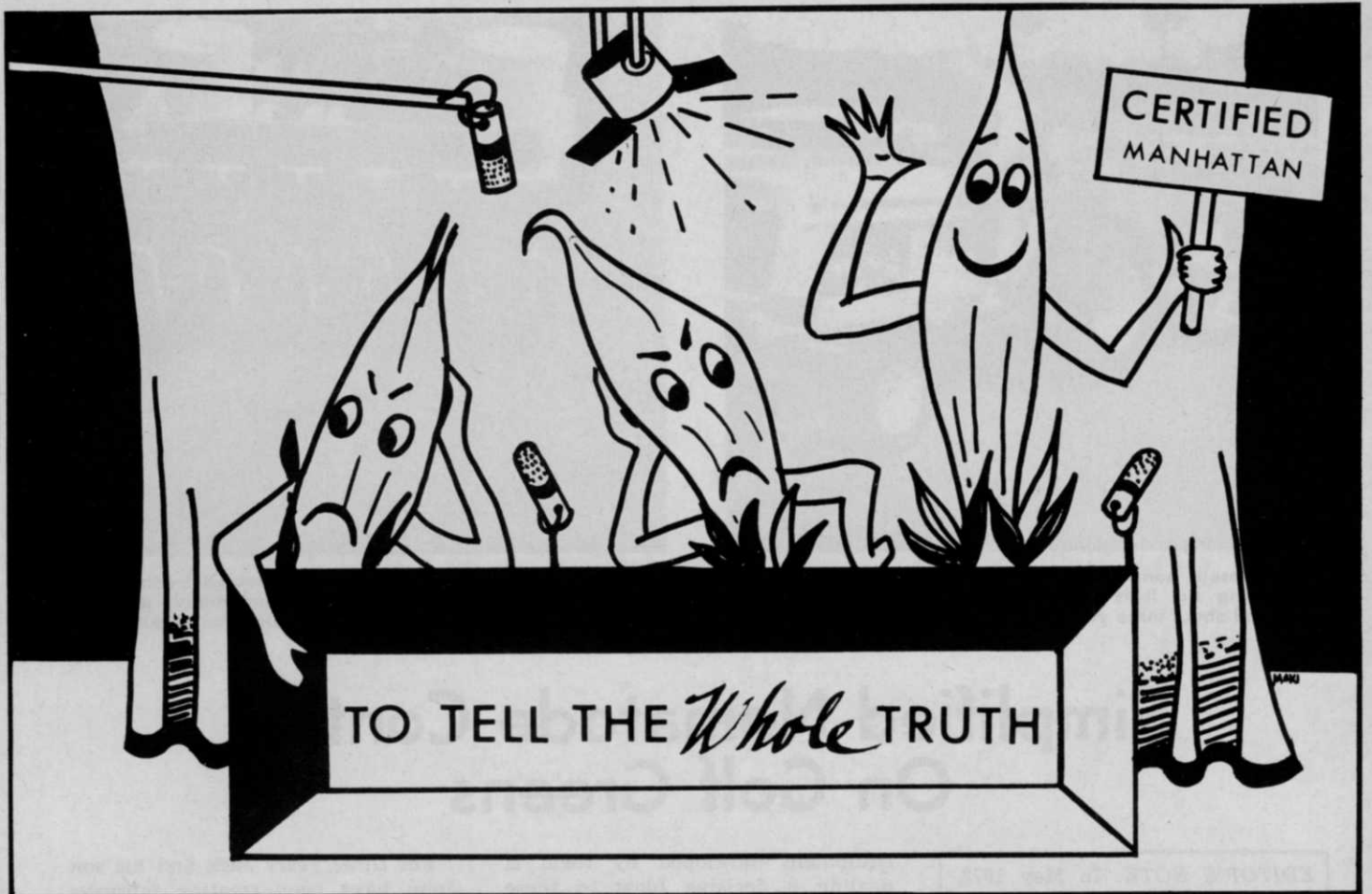
*(continued on page 44)*



This pipe is light weight. One man can handle 40 foot sections with ease. No special handling equipment is needed.



Solvent welds are completed in minutes. Interior of bell and end of one section is coated. Exterior of the spigot end is coated. Joining is done manually.



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John Russell, son of owner, operates the greens model fumigating rig. It is smaller than the fairway model rig developed about three years ago.



Note that there is very little damage created by the fumigating rig. Golfers can play almost immediately after injection. These photos were taken by Dr. Don Dickson, extension nematologist, Univ. of Fla.

## Simplified Nematode Control On Golf Greens

**EDITOR'S NOTE:** In May 1972, WEEDS TREES AND TURF published an article on Jack Russell, owner of Soil Fumigants Inc. At that time he had developed a way to inject Nemagon soil fumigant in the control of turfgrass nematodes. We recently visited with Jack Russell again to inquire about new developments. The following article reports on these changes and the increased interest in Russell's business.

**B**ARE or sparsely covered areas of golf greens and other turf areas have been a maintenance problem as long as high turf maintenance has been practiced. Soil insects, extreme pH conditions, soil fungi, poor drainage and dry spots can often cause such problems. However, it is now being recognized that nematode damage to turf roots in many areas is the most frequent offender.

One company to take advantage of research tests on this problem is Soil Fumigants Company, Orlando, Fla. They've witnessed the worked accomplished by Dr. Vernon Perry and Dr. J. R. Christie of the University of Florida. Results of field demonstrations by Dr. Granville Horn have been carefully stored in their files for customer use. Yes, Soil Fumigants Co. is definitely in the business of fighting nematodes. And

equipment developed by them is dealing a decisive blow to these voracious pests. Jack Russell, owner of Soil Fumigants Co. uses Nemagon soil fumigant because it has been proven to be reliable.

Most highly maintained turf areas such as golf greens must be handled with care, he says. Machinery must be used that disturbs or damages the turf the least.

"We first selected a lightweight but adequately powered tractor unit, he continues. "Then soft balloon tires — actually used airplane tires — with little or no tread were mounted on the tractor so that the turf surface would not be marred with cleat marks." Another requirement of the tractor was an adequate hydraulic lift to handle the weight of the injection unit.

The next requirement of their injection machinery is a set of six sharp and thin shanks to slice the turf and allow the nematicide into the root area. Russell sets shanks at eight inch intervals to give the best fumigant distribution. Packer wheels close the slits in the sod with such perfection that particular golfers may play immediately following the treatment with no putting problem.

"In fact, it is very often difficult to follow the line of last injection," Russell inserts. "The thin cut in the turf is usually not visible after three or four days."

For three years Jack and his son John have been treating fairways and other large turf areas with similar but heavier equipment. Results have been extremely satisfying, according to the duo. Most superintendents have voiced the opinion that this method of turf nematode control using the injected Nemagon has been the best money they have ever spent for improving the vigor of turfgrasses, reports John.

The cost of fairway fumigation averages about \$50 per acres for material and application. "A single treatment will remain effective for one to two years," says Jack. "We've noticed that fumigated turf appears to be healthier. This vigor has reduced the need and the cost of numerous applications of herbicide. A vigorous stand of turfgrass crowds out many problem weeds. Plant parasitic nematodes are harmful to most turfgrasses, but unfortunately the weeds seem to survive best. In fact, weeds seem to thrive in soil with a high nematode count."

Since the Russell's small fumigation rig is usually used on turf areas of high maintenance, they use a slightly higher rate of Nemagon — from 30 to 35 pounds per acre — for more complete control. There's a decided response in turf at this slightly higher rate, notes this applicator.

What does it cost for fumigation of  
*Continued on page 46)*



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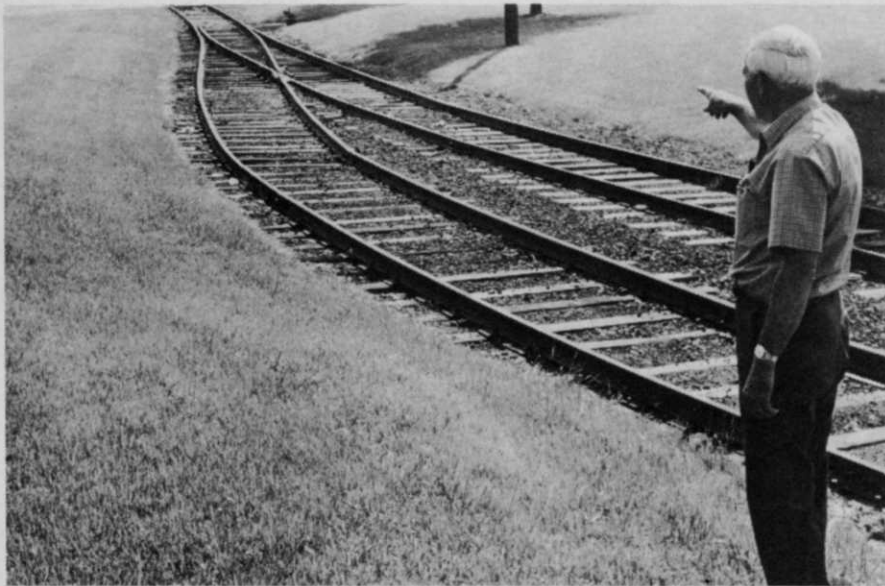
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Lytle inspects a railroad treated with residual herbicides. He says he can't think of anything he dislikes about the custom spray business. Note how herbicides are carefully applied to prevent leaching.

### SALES UP

(from page 18)

go back and hit the tougher ones twice a year."

Lytle says he can't think of anything he dislikes about the custom

spray business, "only that you have to be real careful about wind drift and leaching. If these chemicals hit a tree, it's 'curtains.' By the same token, this power is exactly why I use these sterilants, like Hyvar X and others."

The firm, which now has 12 employees, was one of the first custom application businesses in the greater Cincinnati area. The company owns eleven trucks and a wide variety of "Hi-Boy" and other spraying equipment suitable for tackling almost any type of commercial spraying job. Lytle serves customers in northern Kentucky and as far west as the Indiana line. Despite his firm's success, Forrest Lytle doesn't plan any expansion in the near future.

"We have no plans to enlarge our territory at the present time," he says, "although we've had plenty of offers. We were offered a nice chunk of the billboard business in Cleveland but turned it down. We want to continue our loyalty and good service to our present customers for now."

Before starting his custom application business 30 years ago, Lytle was self-employed in the meat packing business. He admits the change over to the custom application business was "quite a switch. My trouble has always been that I like to get in a place, run it to its top dollar,

(continued on page 34)

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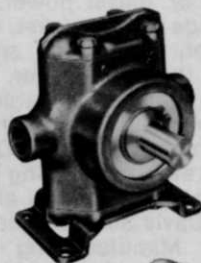
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## GYPSY MOTH

(from page 16)

"We plan to keep using it, especially where the moth is more than just a nuisance," Gauer said. "We use it for several reasons. It works. It's biodegradable. And it's very well accepted by our customers . . . they ask for it by name."

Pete Woodcock, City Forester for Scarsdale, N.Y., used the product this past season to protect some 70 miles of roadside trees and 125 acres of parkland. Woodcock termed the results "excellent."

Woodcock's men applied the bacillus compound with a mist-blower at the rate of five to seven pounds per 100 gal. of water. The Scarsdale oaks, maples, sycamore, birch rhododendrons and shrubbery received a one-shot treatment.

## CITIZENRY INFORMED

The local citizenry was informed of the decision to switch to a biological insecticide via the Scarsdale *Inquirer*, *Village Report* (a quarterly report that goes to each Scarsdale household) and Village Board meetings.

The response?

"The local Audubon Society chapter, and other concerned groups were ecstatic that the Village had taken the initiative to go to a biological insecticide," Woodcock said.

"The cost is high," he said, "but not excessive when you consider the results. I prefer the wettable powder because there are no mixing or storage problems. Best of all, it's effective."

Byron Lynch, an aerial applicator

on Long Island, has sprayed some 2000 acres for gypsy moth over the past two seasons.

"It's a fantastic product," Lynch said. "It works all the time." He believes that the key to success in treating for gypsy moth is timing.

"All my customers were very satisfied," he said. "It provides the kind of excellent control that traditional organic phosphates no longer provide due to resistance buildup.

"Then too, there are the outstanding ecological advantages," Lynch said. "We don't have to worry about killing non-target insects, birds, etc. But the main reason I use it is that it works."

Bryon Blundell built his spraying business, Evergreen Enterprises in Wilton, Conn., by using ecological products. Treating for gypsy moth is a matter of ethics with this native-born Britisher.

Last year he sprayed about 500 private properties using two 35 gal./min. Hardie sprayers. His typical job is one-half acre.

Any disadvantages?

"One has to take a bit of care on rainy days," Blundell said. "Since Dipel is not a contact kill insecticide, a heavy rain can slow down its action. I don't spray if rains threaten and my schedule is not too oppressive, or I use a contact pyrethrum compound."

"I can foresee the day when biologicals will be just as high volume an industry as traditional chemicals are now," said Art Hohmann, Conservation Control Tree Specialists, Huntington, L. I., N. Y. "We're looking to the future with Dipel. We expect it to be our major spring chemical."



Larvae eat everything in sight, especially young oak leaves. Frequently, however, the larvae do not eat the entire leaf, devouring only enough to do irreparable damage.





Byron Lynch, an aerial applicator on Long Island, has sprayed 2000 acres for Gypsy Moth during the past two seasons.

"We enjoyed very good control last season," Hohmann said. "Of our 50 or so customers only two complained. That was because it rained within 12 hours after application."

He sprayed approximately 100 acres of privately-owned oak, maple and ash. For cankerworm, he applied Dipel at 3/4 lb./100 gal. of water; for gypsy moth, 1 lb./100 gal. of water. It also mixes well with fungicides, and liquid foliar nutrients.

"The safety . . . that's what we sell," he says. "Someday we'll have an all biological program." Many of his customers ask for this biological product by name. Part of the reason is that Hohmann promotes the ecological aspects of this material to local garden clubs. The Long Island arborist also makes a point of telling customers and potential customers that although this insecticide will take a bit longer to kill the caterpillar, feeding damage ceases within hours. "And that's the main thing," he says.

Dipel was also effective last season in the Midwest against an old pest, the inchworm (or cankerworm).

"I could see the eggs all over my trees," said Robert F. Kroschel, Bensenville, Ill. "They were really loaded."

Kroschel sprayed his 25 ft. fruit trees three times in six weeks starting in mid-May. "I like it because it mixes well and doesn't harm birds or the ecology," he said, "and also because it's effective."

He also takes pride in his pair of 100-year-old Downy Hawthorne trees. The species has a height of just about 10 ft., with a mushroom canopy that spreads over 30 ft. He treated these for inchworm. Results  
(continued on page 34)



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