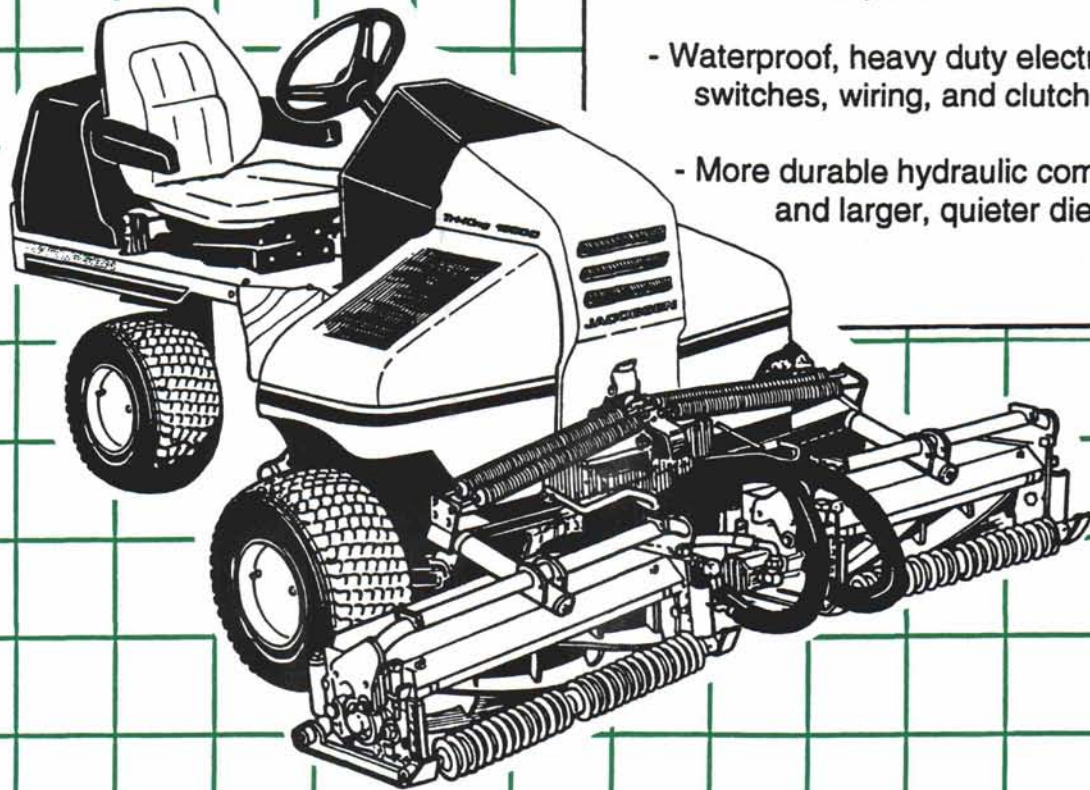


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# BioJect Follow-Up 'How Is It Going?'

Tim Anderson,  
Assistant Superintendent,  
Naperville C.C.

This month's installment of "Ask the Expert" is a follow-up article to last month's article on biological disease control. There has been a rising interest within the turfgrass industry regarding the use of biologicals and specifically the BioJect System. Currently, there are 12 BioJect Systems in use in the Chicagoland area. To find out more about this system, I spoke with four local superintendents who are using the system for the first time this season. They include:

Tony Kalina,  
Prairie Landing Golf Club

David Blomquist, C.G.C.S.,  
Naperville Country Club

Kurt Galisdorfer,  
Exmoor Country Club

Scott Witte,  
Cantigny Golf Club

I would like to thank all these superintendents for their time. As expected, there is a lot of information to be gained from their experiences. While reading this article, keep in mind that it was written on July 31 and that weather conditions this year have been atypical. Also keep in mind that there are many factors which influence disease development including: local climate, microclimate, grass species, fertility, degree of disease pressure, and cultural management techniques. As I spoke with each superintendent, I tried to learn what they expected to gain through the use of the BioJect System, how they envisioned it fitting into their overall fungicide program, and what their results had been up to this point in the season.

## Prairie Landing Golf Club

At Prairie Landing Golf Club, Tony's goal was to achieve a level of disease suppression such that he could save two curative and one preventative fungicide application on greens, tees, and fairways. In addition, he also looks at the system as a public relations tool so that he can promote the idea of using innovative technology to act in an environmentally sensitive manner. Tony used money out of his fungicide budget to cover the cost of \$17,000 to lease the BioJect System. He projects that by saving two curative and one preventative spray, he will save \$25,000 on chemical fungicides this year.

### Prairie Landing Fungicide Summary Through 7-31-96

	DATE	PRODUCT	RATE	DAYS	NOTES
<b>Tees</b>	Last week of July	Sentenal	.16 oz/M	14-21	All tees
<b>Fairways</b>	Last week of July	Sentenal	.25 oz/M	21-28	All fairways

Prairie Landing experienced an outbreak of Dollar Spot in early May prior to their use of the BioJect. Tony applied a high rate of a contact fungicide to check the disease. He started injecting with the BioJect on Memorial Day weekend. Tony's original fungicide plan called for spraying fairways the last week of July with Sentenal at .33 oz/M. He left this preventative application of Sentenal in his program to carry him from the end of July to the last week of August. He did back off to a .25 oz/M rate because he had no incidence of disease. Tony admits this has been a difficult year to evaluate the results of the BioJect System because of low disease pressure and, in particular, because of the cool nights. At this time, he credits the use of the BioJect System with saving him one curative application and allowing him to back down the rate on his preventative fairway application. Tony estimated that this translates into a savings of \$12,000 to \$14,000. Since the initial outbreak of Dollar Spot, which occurred prior to the use of the BioJect System, Tony has not observed any additional disease activity.

## Naperville Country Club

At Naperville Country Club, Dave's goal was to control Dollar Spot on tees and fairways. Money saved in chemical applications to prevent Dollar Spot on tees and fairways would be used to offset the cost of leasing the BioJect System. In previous years, greens and tees were treated on preventative programs, while fairways were treated on a curative program using systemic fungicides. This year, the greens will stay on their regular preventative program. With the addition of the BioJect System, the tees and fairways will then both be treated on a curative basis only using predominantly contact fungicides. Dave would like to go through the summer with one systemic application on the tees and a total of three or four tanks spot-sprayed as needed throughout the season in fairways.

### Naperville Country Club Fungicide Summary Through 7-31-96

	DATE	PRODUCT	RATE	DAYS	NOTES
<b>Tees</b>	6-20	Sentenal	.16 oz/M	14-21	Half of tees treated
	6-21	Sentenal	.16 oz/M	14-21	Other half of tees treated
<b>Fairways</b>	6-19 to 6-20	Daconil	2 oz/M	7-10	All fairways
	7-19	Daconil	2 oz/M	7-10	Spot-sprayed one tank
		Subdue	1 oz/M	10-14	
7-23	Daconil	2 oz/M	7-10	Spot-sprayed two tanks	

On 6-11 and 6-16, slight outbreaks of Dollar Spot were found while scouting for disease. These areas were monitored to see if the BioJect System would provide adequate disease suppression. On 6-19, half of the fairways

(continued on page 30)



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**Did NTEP Survive ...**  
(continued from page 18)

### Is NTEP in financial trouble?

Earlier this summer, a notice was circulated from NTEP that the United States Department of Agriculture was removing support for the NTEP program in the 1998 fiscal year. While it might have been easy to translate this projected action into the immediate demise of the NTEP program, this was far from reality. In essence, even without USDA financial support, the NTEP operation was, and still is, fiscally sound. The lack of budgetary support on USDA's behalf, however, might have meant a lack of formal association with the USDA organization that physically houses the NTEP headquarters and its facilities. USDA did assure NTEP of a continuing relationship, allowing the NTEP headquarters to remain in their current facility. However, without a budget line, this relationship could prove to be highly unstable in the future.

### The turf industry to the rescue

Fortunately, in early June, the U.S. House of Representatives reinstated the funding line for NTEP in the USDA budget. The funding was established with a 10 percent increase over the previous year's budget. This amounted to a total of \$55,000. The agricultural budget has now moved to the Senate, but additional problems are not anticipated. Final passage of the budget will be necessary to meet the new October 1 federal year.


### NTEP future

The long-term continuance of NTEP was never in real jeopardy. The \$55,000 budget line in the USDA Beltsville Research Station budget represents only "support in kind" for NTEP. NTEP never did, nor never will, receive direct cash support from federal sources. The budget line only represents a continuing relationship between the United

States Department of Agriculture and NTEP allowing NTEP to conduct its business at relatively low overhead and in a nationally located area. Whether future increases or decreases occur in national funding, NTEP will continue its mission of providing a mechanism for the uniform evaluation of new turfgrass cultivars.

Where do we go from here? What is the future of NTEP and how will the industry best benefit from its services? One of the findings from a self-evaluation prompted by these recent events was the potential overlap of activities by NTEP administration. This has prompted a gradual change in operational focus and activity of NTEP over the next four to six years. Kevin Morris, the national program coordinator, who is housed at Beltsville and involved in the day-to-day operation of the organization, will slowly phase out

(continued on page 26)



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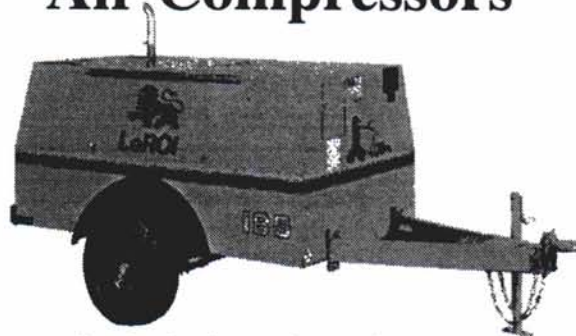


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**Did NTEP Survive ...**  
(continued from page 24)

his field research and evaluation activities. This will allow Kevin to focus more on administrative duties and program planning critical to NTEP's future. Dr. Robert Shearman, the current executive director of NTEP, located in Lincoln, Nebraska, will slowly move his NTEP administration activities to Kevin while increasing his local research and teaching program at the University of Nebraska. Dr. Shearman will eventually close out the position of executive director and devote full time to his activities in Nebraska. These two changes will lower the overhead costs associated with the NTEP operation assuring the ability of NTEP to continue in its evaluation of new turfgrass varieties.

NTEP will also expand the scope of its activities to help pro-

vide more realistic evaluation for selected species. With the direct cooperation of GCSAA and the USDA Green Section, NTEP will establish 15 regional evaluation trial sites on golf courses across the country. These trial sites will be newly constructed practice putting surfaces at selected host clubs. Trials will be located in the north and transition zone for creeping bentgrass greens and in the transition zone and south for Bermuda grass greens. The putting green grass evaluation trials will receive traffic similar to that found on the golf course. The experiments will be established in cooperation with a university researcher and course superintendent. Resources for conducting the experiments will be split equally between GCSAA, USGA, and NTEP. It is hoped that this program can be initiated this fall with the green construction phase. Please contact Tom

Fermanian if your club may be interested in participating. As the current north central representative to the NTEP policy committee board, Tom Fermanian will relay any requests to the development committee.

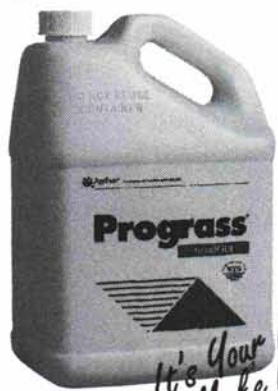
**New NTEP cultivar evaluation trials**

In the fall of 1995, two new Kentucky bluegrass cultivar evaluation trials were established at the University of Illinois. One trial with 103 high-maintenance Kentucky bluegrass cultivars was established at fairway mowing heights and cultural practices. A second low-maintenance study with 21 varieties was established to evaluate performance of cultivars under minimal or low maintenance. These two new trials were added to ongoing evaluations of fine fescues, perennial ryegrasses, fairway and greens-height creeping

(continued on page 28)

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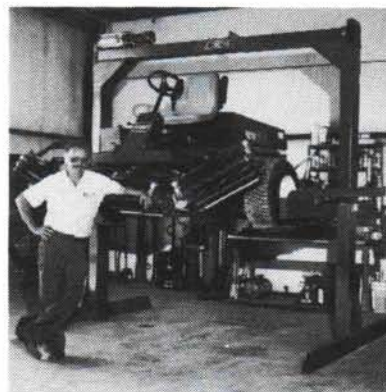
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**Did NTEP Survive ...**  
(continued from page 26)

bentgrass, and tall fescue. A new tall fescue trial is planned for fall 1996 establishment. The spring and summer of 1997 will see the establishment of both new zoysia grass and buffalo grass trials across adapted zones. Unfortunately, due to the lack of entries, a limited number of evaluation sites were supported. The University of Illinois will not have official tests for either species. It is likely, however, that we will plant an unsupported "consumer" trial with currently available varieties to support our extension efforts. The fall of 1997 will see the initiation of both fine fescue and new creeping bentgrass trials. This will provide us with an opportunity to look at new creeping bentgrass varieties under putting green management, possibly on modified root zone.

**Summary**

While new and expanded efforts by NTEP will translate into improved quality and performance of turfgrass cultivars, superintendents rarely evaluate these materials first hand. Often times, information of turfgrass performance under pest and environmental influences is filtered by turfgrass research and extension personnel and provided in the form of recommended cultivar lists.

These cultivars can be viewed at our annual University of Illinois Turfgrass and Landscape Field Day. All of the NTEP trials along with a vast array of field studies are clearly marked and explained during the annual morning tour. The NTEP trials are available for viewing at any time during the year. A trip to Urbana might be very useful when planning for a major renovation or new establishment. ■

**the Bull Sheet**  
(continued from page 20)

*I would again like to thank Chicago Turf & Irrigation, Illinois Lawn Equipment, Lemont Paving, and Midwest Irrigation for their help these last six years up to and during the Western Open. Knowing you have these companies ready to assist you when needed is a great advantage to have during the tournaments.*

Thanks again,  
Ken Lapp.

.....  
Ken Lapp has been really busy the past couple of years preparing the course for the Western Open. In the last two years, he has built two new holes, a par 4 and a par 5, which can be used as alternate holes on either No. 2 course or No. 4 course and built a new par 3 hole as an alternate for No. 2 course, which makes it a 19-hole golf course. Last month, he started enlarging greens on holes 4 and 6 on No. 4 course and will use the alternate holes as part of

No. 4. This fall he will be enlarging the 4th green on No. 1 course and will also build a second green and tee for the 4th hole on No. 2 course. Then to top it all off, a new irrigation system is planned for the No. 3 course.

*Editors note: All of you superintendents that have trouble telling your help to go the 4th tee and do something, think what it must be like at Cog Hill. "Was I suppose to go to the 4th tee on the 3rd course or was it the 3rd tee on the 4th course???"*

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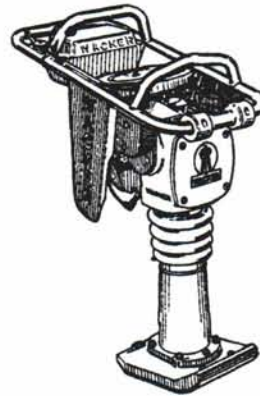
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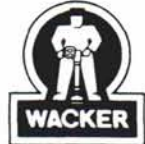
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had active Dollar Spot, so the first application of Daconil was made. The goal was to knock the disease down and allow the *Pseudomonas aureofaceans* bacteria a chance to reestablish itself. On 6-20, half of the tees were sprayed prior to dark. The next morning, the untreated tees had active Dollar Spot, so they were treated with a chemical application. On 7-17, minor Dollar Spot activity was noted on some of the fairways. These areas were monitored for progression of the disease. Later that night, Naperville received 10 inches of rain. On 7-19, the fairways which had disease activity were sprayed. On 7-23, five additional fairways which had Dollar Spot were treated with a chemical application. Since the tees were sprayed with Sentenial, they have had virtually no disease activity. Only small isolated areas of very weakened Dollar Spot have occurred. These areas didn't require fungicide treatments. Dave has noticed a decrease in the amount of Dollar Spot affecting the irrigated Bluegrass surrounds. In addition, two areas of the course which were treated with a high rate application of Turfcide 400 in the spring have remained disease-free. Based on this, Dave is considering combining the use of the BioJect System with a high-rate spring application of either Turfcide 400 or Bayleton for the 1997 season.

While the BioJect System is definitely having an effect, the results haven't been as strong as Dave had expected. He believes that better calibration and timing of the system will yield an increase in the quality of disease control.

### **Exmoor Country Club**

At Exmoor Country Club, Kurt is hoping to achieve overall disease suppression so that he can stretch out his spray intervals and omit chemical applications during periods of low disease pressure. Kurt used funds from within his fungicide budget to cover the cost of leasing the system. Money saved from omitting sprays and stretching intervals will go toward offsetting the cost of the lease.

#### **Exmoor Fungicide Summary Through 7-31-96**

	DATE	PRODUCT	RATE	DAYS	NOTES
<b>Tees</b>	6-27	Bayleton	2 oz/M	30	All tees
	7-16	Daconil	3 oz/M	14-21	Half of tees. Other half left as check
	7-29	Scott's Fluid Fungicide Terremec SP	1.6 oz/M 4 oz/M	10-14 5-7	All tees Spot-sprayed isolated areas
<b>Fairways</b>	6-20	Bayleton Daconil	1 oz/M 1.5 oz/M	30 7-10	All fairways
	7-14	Bayleton Daconil	1 oz/M 1.5 oz/M	30 7-10	All fairways except two par 3 approaches left as check plots
	7-29	Scott's Fluid Fungicide	1.6 oz/M	10-14	All fairways except check plots

On Sunday, 7-28, Kurt observed active Dollar Spot and isolated areas of *Pythium* on tees. On Monday, 7-29, he sprayed all tees and all fairways except for his two par 3 approaches. These areas served as check plots. Prior to this outbreak, his course had been clean. An upcoming member/guest tournament and the fact that frequent rains had kept him from running the BioJect on a nightly basis were both factors that played into his decision to spray tees and fairways on 7-29. His two check plots have not received any chemical applications since 6-20, and they are free of disease.

### **Cantigny Golf Club**

During the first year of use at Cantigny Golf Club, Scott envisioned the BioJect System acting as a supplement to his current disease management program. Scott was looking to prolong his spray intervals by one or two weeks so as to realize a savings in fungicide dollars spent. Because of the large acreage at Cantigny (about 250 acres), EcoSoil Systems tried using two 110-gallon tanks which were controlled by a computer board. Ongoing problems with the computer board and pumps resulted in the system being only 50 percent functional from the end of June until mid July. The end of July, the dual tank system was replaced with a single 175-gallon tank. Since this time, the system has been 100 percent functional.

Even with only 50 percent capability early on, Scott believes that they did experience some residual effects from the bacteria. He was very consistent with his injection cycles. If he wasn't planning to run a regular irrigation cycle, then he ran a four-minute syringe cycle on greens, tees, and fairways so as to get the *Pseudomonas aureofaceans* out onto the golf course. He timed the syringe cycles so that they started at 9:30 p.m. right after dew formation.

In the past, Scott's philosophy has been to use a blended program of preventative sprays combined with proper integrated pest management. With the BioJect System, he will hold to the same philosophy. He plans to use more contact fungicides based around his applications of Banner and Sentenial. He feels like he can be a little more lax because he knows that if he has any spray skips or localized disease areas, he can run an extra syringe on them in the morning to remove the guttation water and, hopefully, at the same time get some of the residual benefits from the bacteria left in the irrigation system from the previous night's irrigation cycle.

*(continued on page 32)*