

## BRIEFS



### NATURE'S CHOICE

PHOENIX, Ariz. — Nature's Choice is the theme of the 1995 Southwest Horticultural Trade Show at Phoenix Civic Plaza here, Sept. 7-8. The Cactus and Pine Golf Course Superintendents Association and Golf Course Superintendents Association of America will present educational sessions on the overall topic Turf Stress Management. More information is available from the Arizona Nursery Association at 1430 W. Broadway, Suite A125, Tempe, Ariz. 85282; 602-966-1610.

### NORTH OF THE BORDER

VANCOUVER, British Columbia — The Canadian Golf Superintendents Association (CGSA) will hold its 47th Turfgrass Conference and Trade Show at the Vancouver Trade and Convention Centre here, March 2-5. More information is available from Andrea Franks at CGSA, 5580 Explorer Dr., Suite 509, Mississauga, Ontario L4W 4Y1; 905-602-8873.

### BLEIER HIGHLIGHTS N.Y. CONCLAVE

ROCHESTER, N.Y. — Rocky Bleier, former Pittsburgh Steeler, will headline the four-day annual educational conference and trade show cosponsored by the New York State Turfgrass Association (NYSTA) and Cornell University. The keynote is scheduled for Nov. 8, at 9 a.m. As an added feature, pesticide recertification credits from several states and continuing education credits for national associations are available for conference attendance. For more information contact the NYSTA at 800-873-TURF or 518-783-1229.

### CONTAINMENT SYSTEM DESIGN

CLEVELAND, Ohio — Published by Advanstar Communications, "Containment System Design: Chemical Storage, Mixing and Recycling" by Fredric R. Haskett contains information that will allow operators to design and construct an affordable, viable and safe facility to store, handle, mix and recycle pesticides, fertilizers and other chemicals. It explains how to prepare for the scrutiny of government regulators and comply with new regulations; explores the legal implications of noncompliance; and discusses the cost of recycling finished product residues versus the cost of having them disposed of by an outside agency. Containment System Design costs \$74.95. Copies can be ordered by calling 1-800-598-6008.

GOLF COURSE NEWS

# Wildlife studies complement one another

Audubon investigating from the point of view of sustainable resources

By MARK LESLIE

SELKIRK, N.Y. — In fortuitous timing for an industry seeking wisdom about golf's environmental impact, the Audubon Society of New York (ASNY) is undertaking a wildlife study that dovetails with the U.S. Golf Association's (USGA) Wildlife Links program overseen by the National Fish and Wildlife Foundation.

"This came about at a fortunate time because I was in the process of instituting the Audubon Center for Sustainable Resource Management (ACSRM)," said ASNY President Ron Dodson.

Wildlife Links and ACSR

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The impact of golf courses on deer and other wildlife is the subject of more intense study.

USGA-backed Wildlife Links using a more broad-brush approach

By MARK LESLIE

FAR HILLS, N.J. — The first fruits of the U.S. Golf Association-sponsored Wildlife Links Program will be two publications providing golf course superintendents hands-on information "to make their facilities more environmentally in-tune," according to USGA Green Section National Director Jim Snow.

Undergoing a name change from Nature Links because of a near-conflict with another group's program, Wildlife Links was birthed to promote courses as friendly homes for wildlife and to attract support from environ

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## Experts urge aggressive defense vs. Lyme disease

RESEARCH TRIANGLE PARK, N.C. — Despite more than a decade of public awareness, the number of reported Lyme disease cases remains high, and some experts are now recommending a more aggressive approach for controlling the ticks that carry this potentially debilitating disease.

Many medical health-care experts and university extension offices now urge homeowners in high-risk areas to treat their lawns and lawn peripheries with an insecticide to reduce populations of the ticks which vector this disease. The primary vector of Lyme disease is the deer tick, also known as the black-legged tick.

Although ticks are most commonly found in wooded, overgrown and weedy areas, many Lyme disease victims are bitten by ticks in their own yards, and the use of protective clothing and insect repellent alone have not been successful in checking the spread of the disease. In 1994, more than 10,000 new cases of Lyme disease were reported in the United States, according to the national Centers For Disease Control (CDC). More than 57,000 cases of Lyme disease have been reported since recording of these cases first began (1982-1993).

In high-risk areas, such as the Northeast coastal states, North Central states

and parts of the West Coast, an application of a commonly used home insecticide can help reduce deer tick nymphs and adults in home lawns and lawn peripheries by up to 95 percent.

Although symptoms are sometimes absent, Lyme disease is usually initially characterized by the presence of a bull's-eye shaped rash at the site of the tick bite, followed by fever, headache, fatigue and pain in the muscles and joints. Although it is treatable with antibiotics, if left untreated, the disease may result in double vision, chronic arthritis, meningitis, hearing loss, cardiac problems, memory loss

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## No Dutch treat for elm lovers

By DAVID M. ROSE

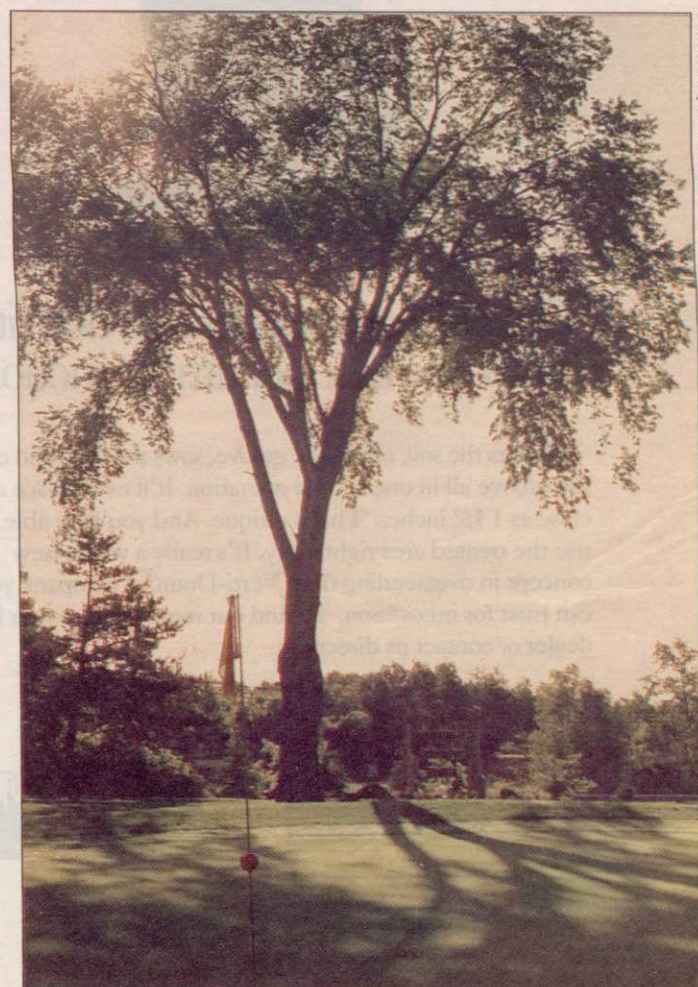
GROSSE POINTE FARMS, Mich. — In the early part of this century, golfers teeing off here at the Country Club of Detroit enjoyed the shade and splendor of more than 3,000 stately American elms. Today, all but 300 are gone, victims of the deadly Dutch elm disease. Sadly, the situation in Detroit is by no means unique.

Introduced to the United States in shipments of contaminated logs in the 1920s, *Ceratocystis ulmi*, the fungus that causes Dutch elm disease, has reduced the North American elm population by 50 to 80 percent over the last 75 years. But while there is still no sure-fire cure for Dutch elm disease, newly developed fungicides and disease-resistant elm varieties are beginning to turn the tide.

To understand the options for dealing with Dutch elm disease, it is necessary to understand the life cycle of the fungus. Fungal spores are carried to the tree by the elm bark beetle, which feeds on tender new shoots and bark. Once inside, the fungus invades the xylem, the water-carrying vessels of the tree. As the fungus proliferates, the xylem becomes blocked, resulting in wilting, yellowed leaves, and death.

For superintendents hoping to vanquish Dutch elm disease, the approaches are basically three: kill the bark beetle, kill the fungus itself, or plant elms that are less susceptible to the fungus' lethal effects. The most common means of controlling bark beetles is treatment with the pesticide Methoxychlor. The Elm Research Institute (ERI) of Harrisville, N.H., a non-profit institution dedicated to the preservation of the American elm, recommends trees be sprayed prior to leaf emergence each year. By heading off the annual influx of hungry bark beetles, according to ERI,

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Elm trees like this one used to be much more bountiful on America's golf courses.

Photo courtesy of Elm Research Institute



## Tradition left behind in fight vs. elm disease

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the chances that Dutch elm disease will gain a foothold are greatly reduced.

Not everyone agrees, however.

"We're getting away from the traditional concept of spraying for bark beetles," said Dr. Douglas Caldwell of Davy Tree Expert Co. Caldwell said the high concentrations of insecticide prescribed for large trees like elms pose potential exposure problems for workers, and could lead to liability due to drift. What's more, said Caldwell, elimination of bark beetles appears to be unnecessary as long as the fungus is attacked directly with the application of trunk-injected fungicides.

The most widely used fungicide is Arbotect, manufactured by Merck. Another fungicide, Lignasan, has been discontinued by DuPont, but its active ingredient is now available from ERI under the name Elm Fungicide. Both fungicides are applied via macro-injection, whereby a large hole is drilled in the base of the tree, a tank is fastened with a harness, and dilute fungicide is fed into the tree either by gravity or by low-pressure injection.

Alamo, a newer fungicide from Ciba Turf and Ornamental Products, is available in both macro and micro-injection formulas. The new micro-injection system consists of individual, self-contained units that are inserted in small holes drilled in a tree's flare roots.

After a light tap from a hammer, the units are pressurized and the fungicide (about 10 milliliters compared to the 10 gallons used in macro systems) is injected into the tree.

Once applied, "You can basically walk away from it," said Dr. Doug Houseworth, manager of technical support at Ciba, "whereas with the macro system you've got to baby-sit it." Company officials estimate the micro-injection units save six to seven hours of labor per tree over macro-injection methods.

All three fungicides are most effective when used as a preventive treatment.

In nationwide tests on more than 8,000 healthy trees treated with Elm Fungicide, according to ERI, less than two percent were lost to Dutch elm disease. Studies on Alamo conducted by Dr. R. Jay Stipes of Virginia Polytechnic Institute yielded similar results.

The fungicides can also be used to treat infected trees, provided the disease is caught early, typically when trees show 20 percent or less crown symptoms. Under these circumstances, ERI reports a success rate of 54 percent for Elm Fungicide.

Current research in Stipes' lab focuses on comparing the efficacy of micro- and macro-injection techniques, including how well the fungicide is transported through the tree and how long it remains active. While Stipes has not directly compared Alamo and other fungicides, he said he feels that Alamo does less damage to the tree itself. He reports having applied as much as six times the

Continued on next page

## Scientists attempting to improve friendly virus

New fungicides and resistant elm cultivars may make their job easier, but when it comes right down to it, arborists are still fighting the battle against Dutch elm disease the old-fashioned way: one tree at a time.

Is there any hope for a tactical strike that would wipe out Dutch elm disease altogether?

A cursory survey of the scientific literature reveals a possible answer in the December 1993 issue of the British magazine *Geographical*. It reported that scientists have isolated a naturally occurring virus that infects the Dutch elm fungus and significantly reduces its potential to cause disease. Efforts are underway to

tinker with the virus, making it more effective.

The ultimate goal is to release a fortified virus into the wild where, theoretically, it would spread quickly, taming the once-deadly fungus. This is an exciting prospect, but don't expect to see the virus on the shelf at the local garden center any time soon. While the concept is certainly intriguing and appears technologically feasible, much work remains to be done.

In addition, any modified virus is certain to face formidable regulatory hurdles, since federal regulations are notoriously — and, perhaps, appropriately — strict in cases involving genetic engineering.

— David M. Rose

## LOOK OUT FOR NUM



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# Alonzi testifies: Tissue analysis saves turf and money

By PETER BLAIS

MAMARONECK, N.Y. — The 6th East green at Winged Foot was supposed to be a showpiece.

Over the years, the front of the putting surface had settled, creating a severe slope. Tom Fazio was called in to restore the green, reducing the grade and creating more pin placements.

But shortly after Fazio departed, problems arose. The front section of the green, which had required 15 inches of new soil in some places, started to

wilt and go under stress more easily than other greens.

Superintendent Robert Alonzi thought the 6th was probably percolating faster than his other putting surfaces and needed more water and fertilizer. He blamed it on the additional soil.

But coincidentally, shortly after completing the restoration, Alonzi started using tissue analysis. The Karsten Turf Analyzer showed the restored green to be very low in potassium and iron. Alonzi increased the feedings of

these materials and the green quickly returned to normal, rivaling the condition of any other putting surface at the famed Long Island club.

The \$29,000 Turf Analyzer is about the size of a small personal computer and interfaces with IBM-compatible PCs. Grass clippings are collected, washed, dried in a microwave and ground in a blender before being placed in the analyzer. Using near-infrared reflectance technology, it measures the levels of 11 ele-

ments essential to turfgrass growth. The whole process takes about 20 minutes.

Alonzi performs tissue analysis on specific areas on an every-other-week basis — greens and tees one week, fairways the next. Over the past two years, he has developed a baseline that helps him decide whether to increase or decrease fertilizer and other treatments.

"It's another tool for the superintendent," Alonzi said. "It doesn't tell you to go out and



feed the grass this material or that material. It gives you a reference point from which to work."

Alonzi said the analyzer has allowed him to reduce overall pesticide use while providing information that allows him to effectively adjust fertilizer applications to materials with needed micronutrient levels.

"In the long term, it's worth the cost," said Alonzi. "We spend that much on a single piece of maintenance equipment. If a club couldn't afford it then it might be worth contacting a lab with an analyzer that could perform the test for a fee two or three times a month."

Karsten Turf General Manager Ernest "Buck" Menendez said roughly 30 courses have purchased the unit since it was first introduced in 1991. Many of those have been 36-hole facilities or management companies that can share the equipment among several courses.

"It's an expensive piece of equipment," Menendez conceded. "But fertility management is a concept that's gaining steam. If this helps superintendents maintain their turf through stress periods, then it's a good investment."

## Elm disease battle

Continued from previous page  
recommended dosage but still sees no toxicity.

As effective as fungicide treatment appears to be, it is only a partial solution. The residual period for fungicide treatments is typically one to two years, and constant vigilance is required to protect existing elms.

Another approach that may provide more lasting relief from the ravages of Dutch elm disease is the development of disease-resistant varieties of American elm. To this end, ERI has developed the American Liberty elm.

Working in conjunction with the Boy Scouts of America, ERI has undertaken an aggressive distribution program to place the disease-resistant elm in communities throughout the United States. So far, the tree's resistance to Dutch elm disease is impressive: Of more than 250,000 trees planted in the United States and Canada, only 14 cases of Dutch elm disease have been reported.

Carey Mitchelson, superintendent at the Country Club of Hudson (Ohio), has planted some 50 elms as part of ERI's Liberty Tree Memorial Program. "They're upright and they have a vase shape, so you can put them fairly close as a hazard, giving a graceful appearance without detracting from the hole," said Mitchelson. "Architecturally, the elm tree is probably one of the most graceful trees you can put on a golf course."

## ER ONE THIS SEASON.



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