and vinclozolin (Vorlan, Curalan). These products are broad spectrum and generally regarded as contact fungicides, although they have been shown to have some systemic activity. The mode of action of these products is not well known, but they are usually considered along with single-site inhibitors. Field resistance to these fungicides has been observed for a number of years on fruit and vegetable crops, and a few reports of dollar spot and pink snow mold resistance have appeared in the turfgrass literature. We have not observed any resistance problems with these fungicides in Illinois.

### **Avoiding Resistance Problems**

Fungicide resistance usually results from repeated long-term use of a systemic fungicide to control a particular target disease. For benzimidazoles and phenylamides, resistance may develop in as little as two to three years of repeated use. We have seen resistance develop in Illinois in as little as three years with metalaxyl, while development of DMI resistance dollar spot was observed after eight years of frequent (though not exclusive) use.

The current thinking is that to avoid resistance, single-site inhibitor systemic fungicides should be tank-mixed or alternated with multi-site inhibitor contact fungicides such as chlorothalonil (Daconil 2787) or anilazine (Dyrene). Another approach is to tank mix or alternate single-site systemics with different modes of action. Mixing or alternating products within one class of fungicides (e.g. DMIs) will not provide any protection. In most cases, this would be the same as applying one fungicide over and over. Also, cutting application rates and extending application intervals—especially in times of heavy disease pressuremay contribute to more rapid development of resistance.

Perhaps of even greater importance in avoiding disease problems and development of fungicide resistance is the idea of using overall disease management strategies (IPM) instead of thinking only in terms of fungicide management. Use of IPM strategies that take into consideration the overall health of your turf can go a long way toward reducing your dependance on fungicides. Disease pressures can often be reduced by: maintaining adequate and balanced fertility; controlling irrigation amounts and timing; improving localized climates through subsurface drainage, aerification, and increasing air movement and sun penetration; and, reducing cultural (management) stresses-for example by raising cutting heights, reducing mechanical wear, etc.

The current climate is poor for development of new fungicides to replace older products that fail registration or lose effectiveness. Older, multi-site contact fungicides may fall by the wayside. It is important that all turf managers reexamine their fungicide use patterns and disease control strategies, and be more willing to use alternative control methods.

Editor's Note: Dr. Randy Kane is the turfgrass advisor for the Chicago District Golf Association and an adjunct assistant professor of plant pathology at the University of Illinois in Urbana-Champaign. Dr. Hank Wilkinson is an associate professor of turfgrass pathology at UIUC. Both earned their plant pathology Ph.D.s from Cornell University.

### **Fungicide Manufacturers**

Ciba-Geigy Corp., **Turf & Ornamental Products** 

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DowElanco

Indianapolis, IN (800) 352-6776

Grace-Sierra

Milpitas, CA

(800) 492-8255

Gustafson, Inc.

Dallas, TX

(214) 985-8877

ISK Biotech Corp.

Mentor, OH

(216) 357-4100

**Lebanon Turf Products** Lebanon, PA

(717) 273-1685

Lesco

Rocky River, OH

(800) 321-5325

Miles, Inc.

Kansas City, MO

(800) 842-8020

Nor-Am

Wilmington, DE

(302) 575-2000

O.M. Scott & Sons

Marysville, OH

(513) 644-0011

Rhone Poulenc Ag. Co., Chipco Group

Research Triangle, NC

(919) 549-2000

**Terra International** 

Sioux City, IA

(800) 831-1002 (ext. 225)

The Andersons

Maumee, OH (419) 893-5050

W.A. Cleary Chemical Corp.

Somerset, NJ

(908) 247-8000

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## STMA Profile: Steve Wightman Manages



Right: All-Star Game logo.

By Bob Tracinski

ou're seated comfortably at San Diego Jack Murphy Stadium watching the 63rd annual All-Star game. Suddenly, Beach Boys music fills the air. Two Woodies drive down the right field line and come to a stop behind second base. Out pop eight grounds crew members, appropriately attired in tuxedo shirts, ties, jackets and cummerbunds, bermuda shorts, socks and tennis shoes, topped off with sunglasses and Padres caps.

Each well-dressed crew member runs to a pre-assigned position to tackle the "5th Inning Drag" in style. Two more "crew members" appear in traditional garb—the white pants and blue shirts of the Padres' grounds crew uniform-and join in the task. As the dragging operation is completed, these two guys drop their rakes and start a wild and crazy

break dance. The semituxedoed crew hops back into the Woodies and stages a get-away-down the left field line, to the warning track and out the gate.

Exactly two minutes have passed. Commercial breaks completed, TV audiences are back to baseball action. And on the sidelines, Steve Wightman, stadium turf manager, breathes a sigh of relief-

tion. Choreography is not usually part of his job, but this is the All-Star Game, with the stadium's largest baseball crowd ever, 59,372, and the opportuni-

a n d

satisfac-

ty for the Padres staff and Wightman to cook up a California-style treat for the fans that was too enticing to resist.

Major League play and working within the tight scheduling requirements

# "The Murph"

of national TV coverage are common occurrences at Jack Murphy Stadium. But the All-Star Game is special.

"This was one of the biggest nights ever for us, and for me personally," says Wightman. "It was even bigger that the 1984 World Series, according to long-time crew members."

Other extra activities were connected with the game.

President George Bush attended with a friend, Mexican President Carlos Salinas de Gortari. Since these two were part of the crowd, and because President Bush was going to make a brief appearance on the field, a few extra precautions were in order.

A week before the game, a crew of Secret Service men scouted the facilities, planning the logistics of the President's visit. At 11 a.m. on game day, about 100 Secret Service men appeared with dogs and special devices and went over the 10 sections of the stadium area on either side of the presidential seats-from the top of the light ring all the way down to and through the basement, including the locker room area. Even the ceilings and cupboards were inspected. The trash dumpster near the players' entrance was emptied prior to 10 a.m. and thoroughly searched. After that process, a Secret Service man was stationed beside the dumpster to inspect all trash added to it.

Bullet-proof glass was installed on both sides of the box area where the presidents were to be seated.

Steve Wightman and his crew members were issued special identification cards to wear with their uniforms. Anyone else who would be on the field floor was issued a special wrist band so that they could be screened.

Airline-style security devices were set up to check all players, officials, umpires, and personnel, other than grounds crew members, who would be entering the locker room or going onto the field.

Not all events went entirely as planned. San Diego native and baseball great, Ted Williams, was scheduled to throw out the first ball. A special presentation covering his history in the area had been prepared. But, when President Bush chose to accompany Williams to the field, the crowd's response was less than the outpouring of applause expected for Williams.

Another surprise caused a bit of excitement. The former San Diego Chicken, now "The Famous Chicken," had purchased a ticket and attended the game fully feathered. Since this was unexpected, a few security guards (about 12) "ushered" the Chicken from the stands for a lengthy discussion of proper All Star Game etiquette. The Chicken returned to roost in his seat without further incident.

"Except for creating some nervousness among our usually quiet, collected crew, these added events had little effect on our functioning," says Wightman. "At this level, grounds crews put out an incredible amount of work and I have a terrific crew. This isn't just a field to them, but their field, and they enjoy keeping it in top shape. When the field looks its best, it's a reflection on them personally." Marketing To Managing

This isn't quite the career Steve Wightman anticipated Continued on page 24



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#### STMA Profile

continued from page 23

when he completed his bachelors degree in marketing, economics, and finance at the University of Northern Colorado in Greeley. But that background has proved highly beneficial, with its emphasis on organization, planning, management, budgeting, and interaction with personnel.

"I didn't grow up planning to get into sports turf management," says Wightman. "I always enjoyed sports and, as opportunities developed in this area, I was lucky enough to be in the right place at the right

From 1973 to 1976, Wightman was in charge of ball field maintenance programs for the Denver Parks and Recreation Department, plotting the care of 250 baseball, softball, rugby, football, and soccer fields.

When Mile High Stadium was undergoing its \$25 million dollar improvement program in 1976, the city asked Wightman to take the position of field manager to work with the installation of the new PAT system. Always ready for a challenge, he agreed.

Wightman says, "I grew up with the Broncos in Denver. Along with the football program, we had AAA baseball. but the outlook was dim for a major league team. I wanted that experience. So when the San Diego position was offered in December of 1988, I opted to expand professionally to work with major league baseball and warm-season grasses."

#### Life At "The Murph"

Jack Murphy Stadium management is divided into two segments. The field segment, Wightman's domain, covers the first row of seats down. This includes the playing field, 10 acres of landscaping, 4-1/2 acres of the San Diego Chargers practice facilities, including a 60-yard Omni-Turf synthetic field, and a one-acre sod nursery. The structure management segment covers everything else, including the electrical and carpentry

Wightman oversees a full-time staff of nine: a seven-person grounds crew, a landscape person, and a mechanic, who though included in the field budget. handles the maintenance of both field and structure equipment.

In addition, Wightman manages an eight-member Padres ground crew, which works only on home game days. Referred to as the "fluff" crew, because they reap the glory while the full-time crew handles the bulk of the field maintenance, this contingent begins work at 5 p.m. for evening games. They remove batting cages and pre-game equipment, complete final preparations for the game, do the 5th inning drag, and spend about an hour on Post-game activities.

Schedules are coordinated between the field and structure segments. During the overlap at the end of baseball season and the beginning of football season, this gets even more complicated. Wightman says, "We have 25 people involved in double overnight conversions where we go from a baseball game to the next day's football game, and back to baseball the following day. After a night baseball game, we have approximately 13 hours from the last out until the gates open for the football crowd, to complete the task."

"The portable seating for football must be moved from storage on the parking lots onto the field. With such tight scheduling, we have no time to place plywood for protection, so forklifts must drive directly over the turf. We dry the field out to prevent excess damage by the machinery needed to complete the conversion. Even so, during such situations, we aren't able to offer ideal conditions for either football or baseball play."

Besides the double sport schedule, concerts and other special events are held at the stadium.

"Because so much takes place here, we've learned to consider it an 'entertainment facility' rather than just an 'athletic field," says Wightman. "Agronomically, we do our best to prepare. Aesthetically, the field suffers the consequences. We try to minimize the detrimental effects of any activity."

The top quality turf that greeted All-Star Game players, attendees, and TV viewers was the result of extra effort. As part of an intensified maintenance program, Wightman scheduled an application of potassium and nitrogen, along with a trace elements package of iron, manganese, and zinc, approximately eight days prior to the big game.

The field has a loamy-sand base, with 8 percent silt-clay and 92 percent fine-to-medium sand.

"We converted the field from Santa Ana to Tifgreen 328 hybrid bermuda this year," says Wightman. "We can mow lower and get a better base surface since the stems are not as stiff. Because of our high maintenance schedule and fertilization program, there's a lot of grain in the grass. Out outfielders complained that the ball "snaked," (followed the mowing patterns in the turf) making it harder to field. With the new Tifgreen and few cultural changes, the "snake" has been virtually eliminated and the players are happy, especially Tony Gwynn."

### **Help From Others**

Wightman worked with fertility consultant Mark Altman of Altman and Altman Consulting, Marshall, MN, on the pre- and post-game dress up, as part of a long-term relationship. Altman conducts soil and tissue analysis on the Jack Murphy Stadium sand-based field three or four times each year. Since the 7.5 pH and elevated phosphate level tie up nutrients, the resulting deficiency must be addressed on a continuous basis. Nutritional recommendations are adjusted to "minimize the damage" on the heavily used field.

With nine play-free days following the big game, Wightman's crews renovated the field.

"We scalped the bermuda from 9/16 to 1/2 inch, verticut, dethatched, and core aerated to a depth of 3-1/2 inches," Wightman explains. "Then we topdressed with pure fine-to-medium sand and fertilized with a heavy feeding of potassium, some nitrogen, and a trace elements package. We deep watered, followed by a second deep watering over the weekend preceding the resumption of play."

The constant challenge of the sports turf field, monitoring, testing, the exploration of new techniques, are as intriguing to Wightman now as they were when he entered the profession.

"Since Tifgreen is the least cold-tolerant of the hybrid bermudas, I'm anticipating that it will go dormant two to three weeks sooner than Santa Ana's typical early December dormancy," Wightman says. "We'll still overseed with perennial rye the first part of October and monitor the results."

The constant challenge of the sports turf field, monitoring, testing, the exploration of new techniques, are as intriguing to Wightman now as they were when he entered the profession.

Wightman credits several, well-known

sports turf experts with helping him "to learn along the way," including Dr. Jim Watson, Steve Cockerham, Dr. Bill Daniels, Dr. Kent Kurtz, and the late Dr. Jackie Butler of Colorado State University.

Wightman says, "Dr. Butler was just a phone line away. I'd call about a problem, and at 7 a.m. the next day, he'd meet me for breakfast and a review of the field.

The Sports Turf managers Association is another avenue he credits for information exchange. He served on the board shortly after joining the national organization, spent one year as treasurer, served two terms as president (1985-86 and 1986-87), and spent two more years on the board as past president. He is currently a board advisor.

He also teaches at Cuyamaca College in El Cajon, CA, sharing a 16-week golf course and sports turf management program with a golf course superintendent. Each teaches an eight-week curriculum, which combines classroom sessions with four Saturdays of hands-on experience.

So far, the All-Star Game choreography isn't part of the program.

Editor's note: Bob Tracinski is manager of public relations for the John Deere Company in Raleigh, NC.

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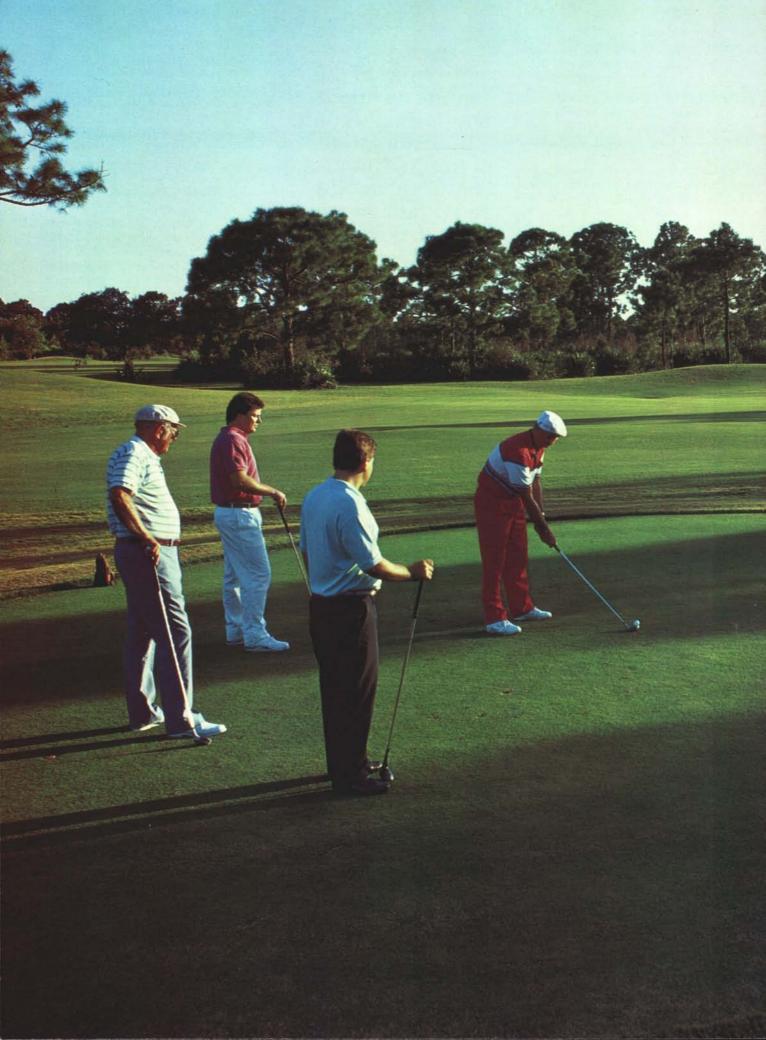
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# For All The Best Reasons.







### **EXPLORING EQUIPMENT**

### A Plug for Aerator Maintenance

By Bob Brophy

Preventive maintenance is extremely important for today's self-propelled, walk-behind aerators because they are real workhorses. A reciprocating aerator is capable of producing 288,000 holes per hour.

The heavy workload places a considerable amount of stress on the machine. To get the idea, take a tine-like piece of metal and try to punch a 2- to 3-inch-deep hole in the ground repeatedly. You will

quickly get the idea.

The overall wear and tear on a walkbehind aerator operated eight hours a day, five days a week for 20 weeks is roughly equivalent to that sustained by a car pulling a trailer at 55 mph for the same period of time, covering a 44,000 miles. In situations in which the ground is relatively hard, the process of making each hole is comparable to pushing the coring tine against a grinding wheel thousands of times each hour.

A good-quality, commercial aerator is built to handle this type of workload. However, proper maintenance is essential to keep the machine in top working condition.

### **Daily Maintenance**

Make daily preventive maintenance procedures part of your regular routine. Train equipment operators to perform these steps and make them accountable for keeping their machines well-maintained.

\*Pressure wash the entire machine with water. For best results, wash the machine after the day's work when the engine has cooled. If left overnight, dirt and grit can start eating away at vital parts, especially the aeration tines. The worst enemy of core aeration tines is rust.

Steam cleaning is not recommended. If the aerator has sealed bearings, steam may get past the seal and cause the bearings to rust. A rusty bearing can put an aerator out of work and in the shop.

\*Closely inspect all chains and sprockets for wear. Replace or adjust as needed. Do not overtighten roller chains because this will shorten service life. To ensure reliable performance, use only manufacturer-specified parts.

\*Carefully check all sealed bearings.

Make sure the bearings are straight,

and the seals are in place.

\*Inspect tines for wear, cracks, bending or other damage. Don't forget to

check the tine mounting hardware (nuts and bolts). Tighten all hardware according to the torque specifications in the operator's manual.

\*Make an overall inspection of moving parts and fasteners. Replace or tighten as necessary. Because of the extreme vibration walk-behind aerators generate, this is an important part of the preventive maintenance program. Be sure any replacement parts can withstand the vibration and stresses common to hardworking aerators.

To help save inspection time, give new bolts a coat of paint when you install them. (Paint from a spray can will work fine.) If the bolt starts to work loose, the paint on the threads will crack, providing an easy-to-see sign that tightening is needed.

\*Lubricate all moving parts, including tines and chains. A lubricant, such as WD 40, does an effective job in most cases. One exception is O-ring sealed chains. Use a spray chain lubricant specifically for O-ring chains. Several manufacturers use these chains because of the chains' strength and durability.

\*Lubricate all fittings. Wipe fittings before and after greasing.

\*Inspect all belts for wear and proper adjustment.

\*Check for proper oil levels. Follow the manufacturer's recommendations for the type and grade of oil required.

\*Look at the engine air filter system. Clean it, if necessary, following the manufacturer's recommendations.

\*With a pressure gauge, measure the air pressure of the tires. Keep tire pressure at manufacturer-recommended levels. Improper inflation can shorten tire life considerably.

This checklist applies to both reciprocating and roll-type aerators. Refer to your operator's manual for specific recommendations.

For roll-type aerators, also be sure to check the rolling time wheels for side-to-side movement. If you can easily move a tine wheel back and forth by hand, it is likely that the bushings are badly worn. Replace them.

### **Preparing for Storage**

If you plan to store an aerator for more than 30 days, follow these additional maintenance procedures.

\*Remove fuel from the system accord-

ing to the engine manufacturer's recommendations.

\*While the engine is still warm, drain the crankcase oil and replace it with the grade and weight of oil best suited to the season in which you will next use the aerator.

\*Remove the spark plug from the engine and squirt a small amount of oil into the cylinder. Turn the engine over a few times to distribute the oil, then replace the spark plug.

\*Touch up all hardware with spray paint as necessary.

\*Review the operator's manual and perform all recommended storage procedures.

### The \$100 Bolt

Proper maintenance of aeration equipment takes time, but it is time well spent. A good preventive maintenance program can reduce wear, which helps extend machine life, cut downtime, which helps lower the machine's unit cost, and help control costs for repairs and operation.

Have you heard the story about the \$100 bolt? It seems that the aerator maintenance crew was running late and in a hurry after a long work day. They failed to check a bolt for tightness. The next day, at a job 30 miles from the shop, the bolt worked loose and was lost.

Without the bolt, further operation of the aerator would result in damage. The operator had to drive back to the shop for a replacement bolt. That evening, the business owner sat down and estimated the actual price tag for that lost bolt, including employee wages paid for time spent getting a replacement bolt, money spent on gas for the 60-mile round trip and the cost of aerator downtime. The total came to around \$100.

The cost of the replacement bolt was 25 cents. The owner resolved to review proper preventive maintenance procedures the next day.

Make your resolution to promote preventive maintenance *before* you find your company replacing \$100 bolts. □

Bob Brophy is manager of lawn care products for Cushman / Ryan Inc.