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**Wilkinson-Kane Report...**

*(continued from page 10)*

**HOW IMPORTANT ARE DISEASES TO THE SUPERINTENDENT?**

Our survey did not ask you to rank the importance of disease management against weed management or turf management, but we did ask how much money you spend on fungicides each year.

**THE AVERAGE YEARLY BUDGET OF FUNGICIDES: \$32,195**

**THE RANGE OF YEARLY BUDGETS FOR FUNGICIDES: \$3,000—\$100,000**

If these figures are good estimates, the 300 golf courses in the greater Chicago area spend more than \$9.6 million dollars every year for fungicides. Fungicides are only one method used by most superintendents to manage dis-

*(continued on page 22)*

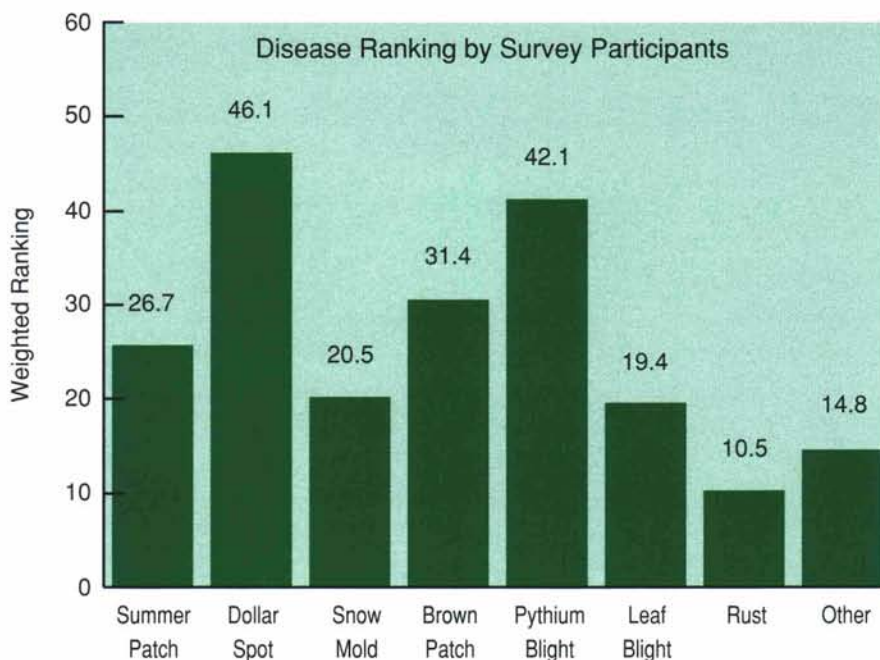


Figure 3

**RAIN BIRD**

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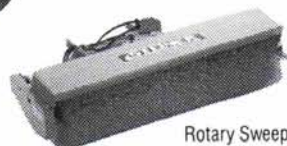
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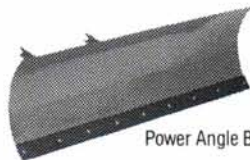
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# IPM Leading To Holistic Plant Health Care

Dan Dinelli  
North Shore Country Club

## I. IPM DEFINED

Integrated Pest Management has been defined as the selection, integration and implementation of pest control based on predicted economic, ecological and sociological consequences (Bottrell 1979). Though this is an accurate definition, I feel that the foundation of IPM is avoidance of pest treatments by sound cultural and biological practices. The term Best Management Practices (BMPs) has been used as a label for this.

Healthy, growing turf is the best defense to pest problems. My approach to plant health care recognizes that the health of the plant depends on its environment and the interactions of a multitude of other organisms. The challenge is to understand these interactions and develop strategies to stimulate the environment to favor the desired plant. Tools used in the strategies formulated need to be economically and ecologically sound. Often multiple tactics are used coordinating cultural, mechanical, biological and chemical functions. As science reveals more of the biological mysteries that exist in and around the plant, better decisions can be made taking us further to a holistic health care program.

## II. REASONS FOR IPM

The importance of practicing IPM is simple: The principles associated with IPM offer all the tools available with plant health care. In the past, turfgrass management has been viewed as a fairly antiseptic, sterile practice. Chemical pesticides were largely the tool of choice. Now, scientists are exploring deep-

er into the ecology of turfgrass. An understanding of this powerful world will be a driving force in plant health care as more is learned in managing these systems. This ecological approach to plant health care systems is key in turfgrass management.

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*My approach to plant health care recognizes that the health of the plant depends on its environment and the interactions of a multitude of other organisms.*

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## III. IMPLEMENTING INTEGRATED PEST MANAGEMENT AND BEST MANAGEMENT PRACTICES

Everyone on a golf course has an active roll in IPM. Golfers need to be educated at a level of understanding in the basic agronomic needs of the course. With this comes tolerance of management practices and respect. Beyond this more passive role, golfers directly contribute with proper ball mark and divot repair and utilizing "spikeless" golf shoe

attire. In one season of banning traditional metal spiked shoes, we have seen true, smoother putting surfaces with less wear and desiccation around the cups. We have been able to slightly raise mowing heights because of the improved putting surface.

We reach our golfers through newsletters, bulletin boards, and conversation. Continuing education is a must for myself and the crew, assuring a sound knowledge of identification, biology and control options of pests and turfgrass ecology.

## SCOUTING WITH MONITORING

Intense regular monitoring is one of the most important aspects of IPM as well as the most time-consuming, demanding practice in IPM. It is critical to detect and identify pests and potential problems as early as possible. This task is done at least twice a day—once in the morning during course set-up and once after lunch. At peak times, an additional check is done before leaving the course.

With this technique, the more trained eyes, the better. Part of our continuing education program for the crew is informative posters displayed in the shop with videos and other references on pest identification and management. Scouting goes hand in hand with monitoring and written note taking. In time, trends develop where "hot spots" emerge. These hot spots are consistent, usually from microclimates that exist on every golf course. Plotting these areas on a map works well for future reference.

*(continued on page 16)*

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- Disease forecasting models
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- Chronic testing
- Consulting with other superintendents and professionals in the field—networking
- Computers

### INSECT PEST TRAPPING

We have used pheromone traps and black light traps. Pheromone traps are used to trap certain insects. Black light traps are more general, collecting many types of insects. Traps help us to better understand the population cycles and density of insects as well as scheduling scouting intensity. Most traps capture the adult stages of pests, which may appear before the caterpillars or grubs that are damaging to the turf. The black light trap has helped us track the local Japanese beetle population explosion. The steady increase in beetles confirmed the steady increase and damage of the grubs. We use the cutworm pheromone trap to capture the adult moth.

This information is used to judge when we should collect clippings and compost them off site. Typically, we like to return clippings and compost them in place on the turf. However, when high numbers of cutworm moths are trapped, we collect clippings which, in turn, yield the majority of eggs laid. This practice has reduced our insecticide applications. Greens are the only concern with cutworm damage. During

course setup, the greens are assessed for holes caused by cutworms. Often the number of burrows are few enough to simply spot treat by a hand sprayer.

### DEGREE DAY MODELS

Insect development relies on many factors. One of the largest factors is heat. Scientists have come up with a way to better pre-

use a degree base of 50°F. So, for a day with an average temperature of 59°F at base 50°F, the degree days for that day would be 9. Each day, this calculation is repeated and the result added to the previous day's figures to get the running total of accumulated degree day values. If the average temperature for the day is less than the base, the degree days for that day are zero, not a negative number.

Researchers have developed degree day thresholds for many insects. Knowing the degree day value and referencing it to a particular insect's development, in effect, creates a calendar of insect activity. Following such a calendar helps the turf manager to focus on intense scouting for a particular insect and better target pesticide applications, if needed.

Other biological activity can be predicted using degree day figures. Plants respond to accumulated heat as well. Some plants' determination to flower or set fruit can be predicted with degree days. *Poa annua* has a degree day model for its flowering period. Understanding the plants physiological state can better determine the timing of plant growth regulator applications. Because plants and insects share this heated phenomena, field observations of plant activity can also help in determining insect and weed activity. An example is applying preemergence herbicide for control of crabgrass when the Bridal Wreath Spirea (*Spiraea X Vanhouttei*) blooms. I found that phenology is not only helpful but fun.

### KEY PLANTS

We also use indicator plants as key plants. A bentgrass nursery is maintained on site, maintained and grown in the same manner as the turf used by the golfer except

(continued on page 24)

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*The Metos calculates degree days by summing 120 air temperature measurements for the day and dividing that sum by 120 to get an average temperature for the day.*

---

dict insect emergence and activity by tracking accumulated heat, expressed as degree days. The Metos calculates degree days by summing 120 air temperature measurements for the day and dividing that sum by 120 to get an average temperature for the day. This integrated average is much more accurate than simply adding the day's maximum and minimum temperature and dividing by two. This was the method we used in the past. Once the average is obtained, the degree total for the day is this average minus the base temperature. We



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# the Bull Sheet

## DATES TO REMEMBER

December 2-5 — NCTE at Pheasant Run Resort & Expo Center.

December 16-17 — GCSAA/Wisconsin GCSA, "Golf Greens: History, Theory, Construction and Maintenance." Call 800/472-7878.

December 20 — Golf Turf Workshop for foremen, crew members and staff. Call 317/494-8039.

January 20-23 — 67th Annual Michigan Turfgrass Conference, Lansing, MI. Call 517/321-1660.

January 21-23 — 1997 Midwest Turf Expo, Indianapolis. Call 317/494-8039.

February 6-12 — GCSAA Conference in Las Vegas, NV.

February 25 — GCSAA Seminar "Prevention Maintenance of Equipment" at Seven Bridges G.C.

April — MAGCS monthly meeting at Mt. Prospect G.C.

June 2 — MAGCS monthly meeting at Rolling Green C.C.

July 7 — MAGCS monthly meeting at Orchard Valley G.C.

September 22 — MAGCS monthly meeting at Ruffled Feathers G.C.

## THE NEW BOARD OF DIRECTORS FOR 1997

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Jim Pedersen is looking for an assistant's position. Five years experience, applicators license. Call 773/777-5589 evenings.

Wanted: Used Cushman trucksters, Jacobsen G-10 tractors and fairway mowers. Call Ron at 815/468-3438.

**Please change the fax number you have for the MAGCS office to 630/406-5456.**

Floyd T. Norris is looking for a mechanic's position. He has a resume that this editor can fax to anyone interested. His number is 630/985-6942.

Poplar Creek G.C. has experienced some vandalism. The first occasion took place on the night of the ITF golf outing there.

Someone poured an unknown substance all over four greens in a serpentine pattern. Then two weeks later, a four-wheel-drive vehicle drove over another green causing extensive damage.

Jim Holtschult at Evanston G. C. is installing a three-row Toro Osmac system that will have over 1,200 heads. Installation of the new system began in early November. Plus many of the bunkers will be refurbished with new sand to keep the rest of the crew busy.

Dave Schlagetter at Indian Hill C.C. is redoing 25 bunkers and 2 new tees. Dave and his crew are doing all of the drainage and hauling of the 375 tons of sand. They have laid over 2,000 ft. of drain tile and 7,000 sq. yds. of sod.

Ed Joerns at Villa Oliva has rebuilt their 4th hole, which is a Par 3, and used Allen Block for the walls along the pond.

America's most private country club is looking for an assistant superintendent. Please send resumes to: Scott Resetich, Rich Harvest Links, PO Box 610, Sugar Grove, IL 60554. Phone: 630/466-7610.

Rory Bancroft reports in that he is in a whole new ball game since he is in Florida where Joe Jemsek will be building a new golf course. Rory states that the local superintendents have been most helpful whenever he needs help, e.g., What kind of palm tree is that? What kind of grass did you say that was? Rory can be reached at phone/fax 561/688-1260.

Golf courses can receive a free lightning exposure analysis by contacting Global Atmospheric, Inc., the owner and operator of the National Lightning Detection

(continued on page 26)



## *1987's improbable question*

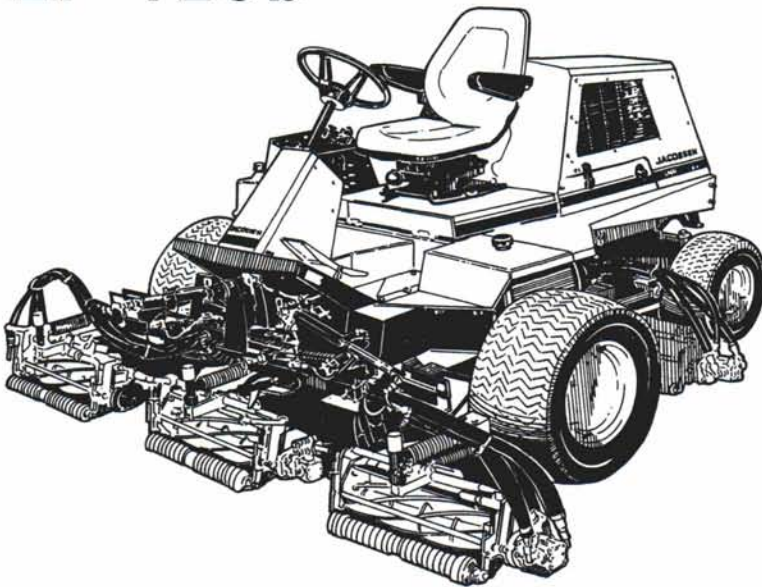
Would you cut your fine bent grass fairways with triplex greensmowers?

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# Birds, Bees, Bullfrogs, and Bartlett

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Silver Lake G.C.*

**T**he Charles Bartlett Award, one of the MAGCS highest honors, was presented to Tim Kelly at the recent NCTE at the Pheasant Run Resort on December 3.

Tim Kelly, past president of the MAGCS, has been the superintendent at the Village Links of Glen Ellyn for 22 years. His course has been the site of many competitions and qualifying rounds for the Western Open and USGA events.



Tim was instrumental in the "Keep Pace" program to speed up play on public courses and keep an 18-hole round under the four-hour limit. The Bartlett Award is in recognition of his efforts with the Audubon Cooperative Sanctuary in promoting nature and wildlife on the 27-hole site. In 1996, Tim Kelly was presented the Environmental Steward Award for public golf courses by the GCSAA. Tim has a reputation for being quiet, modest, and conservative; but his efforts speak out for him. The Midwest members offer their congratulations to the new Bartlett recipient. ■



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