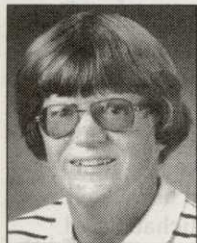


BRIEFS



METGCSA HONORS VITNUM

Dr. Patricia Vittum, program director of the Department of Entomology at the University of Massachusetts,



Dr. Pat Vittum

has been presented the Metropolitan Golf Course Superintendents Association's John Reid Lifetime Achievement Award. Co-author of the *IPM Handbook for Golf Courses*,

Vittum is well-known for research into the hyperodes weevil. An affiliate of the UMass Cooperative Extension Service, she has been the pesticide coordinator and state liaison representative for the National Agricultural Pesticide Impact Assessment Program for Massachusetts in the 1990s.

HAMILTON JOINS TWINEAGLES

NAPLES, Fla. — John Hamilton has joined the Nicklaus-designed TwinEagles Golf & Country Club as an agronomist. Hamilton has more than 20 years experience. Before joining TwinEagles, he operated a turfgrass consulting service for three years to international golf course clients in China and Guam, and also served as an agronomist with Golden Bear International.

MILLETT ASSUMES MET PRESIDENCY

WHITE PLAINS, N.Y. — Ridgeway Country Club superintendent Earl Millett has taken over the presidency of the Metropolitan Golf Course Superintendents Association (MetGCSA). A graduate of the University of Massachusetts' Stockbridge School of Agriculture, Millett has been involved in the MetGCSA for 21 years, the New York State Turfgrass Association, and the Tri-State Turf Research Foundation, on whose board he serves. He has been at Ridgeway since 1980.

FERTILIZER INSTITUTE ON THE WEB

Washington, D.C.—The Fertilizer Institute has launched its internet web site and they implemented a new logo. The site, located at www.tfi.org on the world wide web, will contain general information about fertilizer for the public as well as specialized news about association activities for TFI members.

"We view the new web site as a means of extending the lines of communication with our membership and the general public," said TFI President Gary D. Meyers.

Golf course 'living lab' Cal State Poly's aim

By DOUG SAUNDERS

POMONA, Calif. — Dealing with society's trash is an issue that draws little attention from the public until a landfill needs to be created or closed down. After operating a 200-acre landfill on campus property since 1957 in conjunction with the Los Angeles County Sanitation Districts, California State Polytechnic University here hopes to close the landfill and build an 18-hole golf course that will serve as a living laboratory.

The landfill has served two purposes over the last four decades. It has been a repository for the tons of refuse from the growing LA metropolis, and has served as an outdoor lab for waste

management, environmental sciences, engineering, and agriculture.

"The landfill has been very beneficial to the university from not only an economic standpoint, but also as an educational tool," said Ed Barnes, executive director of the Land Lab and Asset Development for Cal Poly Pomona.

At some point landfills do reach capacity and the next question was how to best close this one down. Strict EPA guidelines specify the closure procedures for landfills. The university has decided that, in conjunction with closure and monitoring regulations, creating a golf course can continue to provide economic and educational

benefits into the future.

"Our desire," Barnes said, "is to build an 18-hole course that will generate income through greens fees, provide a recreational outlet for students, be of value to our athletic program, and give more opportunities for internships for our colleges of hotel and restaurant management, turfgrass management, landscape architecture, and bio-sciences."

Cal Poly recently selected Golf Dimensions, a golf course management firm based in Irvine, to help the university through the project's planning and construction phases. Golf Dimensions recently completed the

Continued on page 29

NEW ENGLAND TURF CONFERENCE

Wake up to soil acidity tests, Hummel tells superintendents

By MARK LESLIE

PROVIDENCE, R.I. — Decrying the fact that many of them have no idea how acidic their soil is, Dr. Norm Hummel called on turfgrass managers to establish soil-testing programs "to define the best fertilizer regimes" for their properties.

Speaking at the New England Regional Turfgrass Conference here on March 4, the former Cornell University professor said: "As basic as it is, it's amazing to me how many people don't have an idea of what the pH of their golf course or athletic field is at."

A soil test can address soil acidity and liming requirements, pH reduction, soil phosphorus and potassium, secondary nutrients like calcium and magnesium, and soluble salts for those in coastal areas, said Hummel, who now operates Hummel & Co. in Trumansburg, N.Y.

Calling pH "one of the most basic soil fertility aspects," Hummel said the optimum reading for most cool-season grasses is in a range of 6 to 7.

"One of the reasons is that optimum nutrient availability is found within that slightly acidic range," he said. "When you get into higher pHs, many of the micronutrients are there but tied up in unavailable forms. When you get much below that, nutrients

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Sunlight assessment, other tools taking turf care into 21st century

By MARK LESLIE

PROVIDENCE, R.I. — Sunlight assessment and digital imaging — two new technologies that are pulling golf superintendents into the computer age — will also help them deal with the difficult task of course renovations, according to a spokesman for the U.S. Golf Association Green Section.

"Frankly, most of the people here have the equipment and capabilities to operate this technology," Dave Oatis, director of the Northeast Region, told the New England Regional Turfgrass Conference here.

Oatis hailed the sunlight-assessment technology developed by Arbor Com Inc. of Toronto area. Company owner Scott Robinson, an arborist from Toronto, developed this tool "and it is mind boggling what they can do with it," Oatis said.

Oatis cited the usefulness of digital imaging as "limited only by your imagination."

"On difficult sites with difficult memberships, and for particularly important trees, you can use [sunlight assessment] to document and quantify how many and which trees need to be removed" to save shaded turfgrass, Oatis said. "You need eight hours of sunlight for healthy turf."

The position of the sun as it rises differs by approximately 22

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GOLF AND THE ENVIRONMENT



Aspetuck Valley Country Club in Weston, Conn., is home to alltypes of birds, waterfowl and other creatures.

Aspetuck Valley fulfills Audubon requirements

WESTON, Conn. — Aspetuck Valley Country Club has achieved designation as a Certified Audubon Cooperative Sanctuary by the Audubon Cooperative Sanctuary System (ACSS), the educational division of Audubon International.

"The membership is very proud that Aspetuck Valley is a Certified Audubon Cooperative Sanctuary golf course," said superintendent Steven Colangeli, who initiated the program at the club in 1996.

"It's a great feeling to know that a golf course can act as a recreation area for golf as well as a wildlife sanctuary. It's also nice to know that our daily maintenance practices and

Continued on page 25

The policy game of golf

By RON DODSON

One of the major problems facing the golf industry today is whether governmental action is the most effective way to protect or restore the environment. Actually, it's a question of whether the public believes governmental action is the only way to protect or restore the environment. To golfers, superintendents and developers, this is an important question because governmental action impacts us all — individually and collectively.

Because the public's awareness of environmental issues and golf courses is at an all-time high, it's timely to take a

Continued on page 25



Veterinary sheds light on pesticide perceptions, realities

By MARK LESLIE

PROVIDENCE, R.I. — Addressing the question of whether risks to animals from pesticide applications is real or perceived, a Virginia toxicologist said he spends “most of my time convincing people that a ‘poisoning’ wasn’t a poisoning at all,” but some such cause as an infectious disease.

Nevertheless, Dr. Dennis Blodgett recommended to an audience of mostly lawn-care professionals that they take a number of measures to assure they do not harm birds, fish or other wildlife. While fungicides cause no problems and fertilizers are a concern primarily with fish, Blodgett said the herbicides 2,4-D, dicamba, MCPP, MCPA and Bensulide must be used carefully.

Listing birds, bees and fish as “more susceptible [to pesticides] than other species,” the associate professor at Virginia-Maryland Regional College of Veterinary Medicine said: “We need a non-application zone around fish ponds.”

He also suggested that pesticide applicators:

- Not irrigate pesticides to water-saturated ground.
- Not apply them before a heavy rain
- Avoid application on windy days.
- Avoid puddling herbicides.
- Not apply pesticides if waterfowl or pets are in the area.
- Instruct clients to keep pets off the lawn until the chemical is dry.
- Empty and turn over feeding bowls, water dishes, etc.
- Use newer insecticides that are not organophosphates and are safer, in general, than LPs and carbonites.
- Beware using Ficam or Dursban where waterfowl could be affected.
- Beware using the pre-emergent herbicide Bensulide where there are young dogs, which have developed signs of SLUD (Salivation, Lacrimation, Urination, Diarrhea).

If a person claims a pesticide application harmed wildlife, Blodgett said that in order to determine whether the problem is real or perceived, the applicators should:

- Make sure any clinical signs of sickness are compatible with the pesticide used.
- Make sure the onset times of the symptoms match the time of application.
- Determine if they share the blame. For instance, he said, if a dog owner has used a flea collar, shampoo, or flea dip on a dog, the animal’s ingestion of a chemical might “put them over the top,

whereas your pesticide application alone wouldn’t cause any problems.”

• Have public relations literature explaining why problems are unlikely.

If people are convinced the pesticide application caused a problem, Blodgett recommended the applicator get “a real

diagnosis from a veterinarian” — through blood or urine samples, or through brain samples and stomach contents if the dog is dead.

“Communicate with a veterinarian, whenever possible,” he added. “Volunteer to call the vet with information on what was in the spray and, especially, the

concentration. Most veterinarian colleges have toxicologists on staff who are available for consultations.”

In Blodgett’s audience at the New England Turfgrass Conference here, half the people had been accused of poisoning pets, yet none thought the animal was poisoned.

“Some of the problems occur because of the innate habits of the animals,” Blodgett said. “Cats lick themselves, so anything that gets sprayed on them is going to end up in their stomachs. Once it’s in their stomach, it gets absorbed into their body a lot faster than if it were just going through their skin.

“Waterfowl consume grass as a large percentage of their diet,

Continued on next page



IT TOOK THE EASY WAY OUT.

Pesticide truth & fiction

Continued from previous page
 so an insecticide sprayed on a lawn will be ingested in a larger amount by them than dogs or cats.

"Dogs' indiscriminate appetites get them into trouble."

Listing the SLUD symptoms, Blodgett said certain pesticides can also cause seizures, respira-

tory distress, muscle tremors and pinpoint pupils from contact.

"We need those clinical signs to believe an insecticide was involved [in a sickness]," he said. "But we also need a pretty quick onset time — oral ingestion within a couple of hours, internal ingestion within 24 hours or so."

Insecticide problems are rare in cats and dogs, but are observed in waterfowl because of their diet, Blodgett said.

Spraying for sod webworms can cause a problem with songbirds, which can eat granules or even the sod webworms as they come out of the ground to die, he said.

"We have some problems with cats and Dursban and Lorsban

(chlorpyrifos)," Blodgett said. "We don't get SLUD signs... You get a sick cat that doesn't want to move around or eat. It has a delayed onset of three to seven days after application."

He said Diazinon is behind most calls he gets concerning waterfowl, so it's been taken off golf courses. "It only takes two granules to kill a songbird," he added. "So 5-percent Diazinon is

the highest concentration that can be safely used on lawns if you have waterfowl in the area, or birds of most any type. Two pounds per acre can kill birds."

Ficam and Dursban also are implicated with waterfowl cases, he said.

Concerning 2,4-D, he said high doses cause paralysis in dogs, while lower, but still toxic, amounts can cause vomiting and diarrhea.

The lethal dose of 50 milligrams per pound of body weight categorizes 2,4-D as toxic, but the application rate of one pound per acre only produces a concentration in grass of 150 parts per million.

"That is the same as 150 milligrams for every two pounds of grass," Blodgett said, "and since a dog will, at most, eat only one cup full, that is way less than will poison him."

He said the old fear that 2,4-D is a cancer concern for dogs has been disproved.

Citing fish being highly susceptible to most pesticides — organophosphates, carbamates and even parathrides, Blodgett said, "Some of the herbicides are pretty toxic to fish, particularly Prowl or Pendimethalin."

He added that fish are also susceptible to fertilizers and the ammonia in fertilizer, and noted that urea breaks down into ammonia.

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Super: Namacur not 'misapplied'

HOLLYWOOD, Fla. — The Namacur "misapplication," which led to Florida officials drastically reducing the use of the remedy for nematode, was not a misapplication at all, according to William Peace.

Peace, superintendent at The Club at Emerald Hills here who was assistant superintendent at the time of the incident in 1994, said the application was done by the book.

Responding to an article in the GCN March edition, Peace said: "We had an outside contractor come in to put out the Namacur. Everything was done by the label. There was nothing on the radar indicating rain, and no prediction of rain."

But, 3 inches of rain fell during the night and some of the Namacur was washed into the abutting Intercoastal Waterway, causing a major fish kill.

Peace said that after the state's investigation, the club was never fined and it split the cleanup cost with the contractor.

Acidity tests

Continued from page 15

such as phosphorus in particular are there but unavailable.

"Simply by 'liming' a low-pH soil, phosphorus becomes available and you see benefits in terms of rooting."

Hummel added that microbial activity is also increased simply by adding lime.

"When you have a pH of 5.2," he said, "microbiological activity is slow and you get a little thatch. Simply liming it, and bringing the pH up into the mid-6s, you increase the microbiological activity and, as a result, you are able to keep up with the organic accumulation so you get thatch decomposition. It demonstrates pretty clearly the importance of thatch on water movement into the soil."

Hummel suggested golf course and lawn-care managers purchase their own soil pH meters.

"We found that the inexpensive (\$50 or so) meters are actually pretty accurate," he said, recommending that the meter should have automatic temperature collection and a reference electrode. A kit to calibrate the meter should also be bought, he said.

Determining pH is simple, Hummel said. "Put a soil sample

in a cup, add water, let it sit a half hour and take the reading."

He listed liming guidelines:

- Apply in the fall or spring.
- Coordinate the application with core cultivation if possible "because lime neutralizes acidity where it is at. It does not move down into the soil. So anything you can do to get it down deeper, the better off you will be."

• Use a maximum of 50 pounds per 1,000 square feet on estab-

lished turf.

• If you have high pH soils, add elemental sulfur applications to lower the pH to slightly acidic.

While nitrogen is so dynamic in the soil that it is rarely tested for, Hummel did recommend "management factors" for phosphorus and potassium.

Phosphorus, he said, "is essential in establishment. And if you are in newly established field, a soil test is valuable to determine phosphorus levels.

"Established turf is unaffected by additional phosphorus because it has a very fibrous root system and obtains whatever phosphorus is there. Phosphorus is very immobile in soils. Its availability is very closely tied to pH."

Potassium content in turf, he said, is about half that of nitrogen.

Saying that secondary nutrients — calcium and magnesium — are important, Hummel added, "But in most native soils we rarely run into deficiencies."

Referring to the Cation Exchange Capacity (CEC), which defines the soil's ability to hold nutrients, Hummel said: "Sand and silt have little CEC. Most CEC in a soil is in clay or organic matter. So, add organic matter to a soil and it improves CEC."

Soil reports also divulge "percent base saturation," the ratio of basic cations in the soil — calcium, magnesium and potassium.

The recommended percentages of basic cations in soil, he said, are: potassium, 2-7 percent; calcium, 65-85 percent; magnesium, 10-20 percent; and hydrogen, 0-5 percent, when present.

He listed as calcium sources: calcidic limestone, 32 percent; dolomite limestone 22 percent; gypsum 19-23 percent; superphosphal fertilizers 12-21 percent; and natural organic fertilizers, like bone meal and some poultry manure products.

He recommended magnesium oxide as the best source for magnesium. "It's 33 percent magnesium and is a granular form that is easy to apply," he said, adding that other sources are dolomite lime, 12 percent; potassium magnesium sulfate, 11 percent; and magnesium sulfate, 9 percent.

"A soil test is only as good as you send in," Hummel said. "First, identify the different soil and turf areas. Then, collect a representative sample from each area. Use 10 to 20 subsamples using the top 2 inches of soil, excluding thatch. The depth of the sample should reflect the depth of rooting."

"Soil testing, though a widely used tool, can be misused or better used," he said, asking people to maximize their soil test programs by deciding on a reputable lab and staying with it; keeping accurate records; sampling to the same depth each time; and sampling at the same time of year.

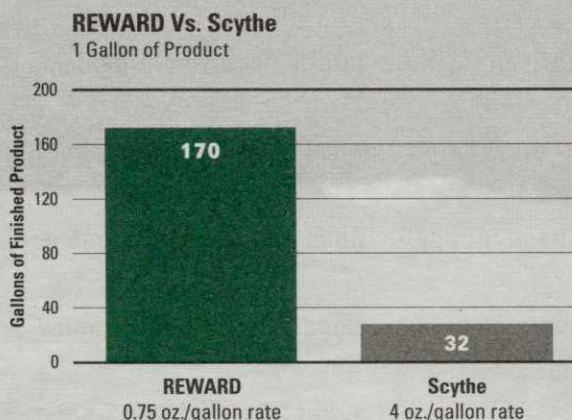
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New technology

Continued from page 15

degrees, depending on location, from the longest day to the shortest. And its angles change over the course of a day and the year.

"So, when we ask which trees should be removed, the answer is different for different times of the year," he said. "If you do a sunlight assessment on just one day of the year, you will make a serious mistake, cutting the wrong trees entirely, or not cutting enough trees — usually the latter."

Using Arbor Com's technology solves the quandary, Oatis said.

Setting up a sunlight location device on the green and connecting it to a laptop computer, Arbor Com can provide the exact location of the sun at any hour on any day of the year.

"You map the green and trees and run a shade-assessment program which shows how much light different areas of the green get...," he said. "It can rate which individual trees have the biggest impact on shade. The program also calculates the amount of light you will gain after doing the tree work. It identifies trees, or even branches which are causing problems and quantifies how much you'll gain by doing the work."

He said Thornhill (Ontario) Country Club superintendent Keith Bartlett, who has used the program very successfully, claimed this technology "saves as many trees as it eliminates because it eliminates unnecessary removals."

After completing this program, superintendents could use the digital imaging program to sell membership on a renovation project. This technology creates a visual representation of proposed work. The computer operator can change digitized images to show whatever changes they propose.

"There are as many possibilities as you can think of for this technology," Oatis said. "You can add or remove trees or features, mounding, bunkering, landscaping around the clubhouse. Your only limit is your imagination."

Using this technology requires a "pretty fast computer with mid-sized memory, a simple software program like MGI Photo Survey; and you have to get digital images," he said, suggesting a digital camera, or having photographs or slides scanned. Digitized photos cost \$1.50 apiece, and scanners sell for as little as \$300, Oatis said.

Meanwhile, Oatis also recommended that superintendents investigate using:

- irrigation coverage analysis — "an excellent technology that is not being used enough";
- seed purity testing; and
- pest forecasting devices, "which will become more valu-

able as you get more forecasting on your golf courses... The cost is not prohibitive and if it helps you eliminate one pesticide application a year it will pay for itself very quickly."

Irrigation coverage analysis is important because "if you don't have sprinkler heads that will apply water evenly, the best control system in the world is not worth a dime," Oatis said.

Saying that some of the sprinklers on the market today do not

apply water accurately, he encouraged superintendents to use the SPACE (Sprinkler Profile and Coverage Evaluation) software program developed by the University of Southern California. SPACE previews how a specific head, nozzle and spacing combination will work, both through a picture and numerically.

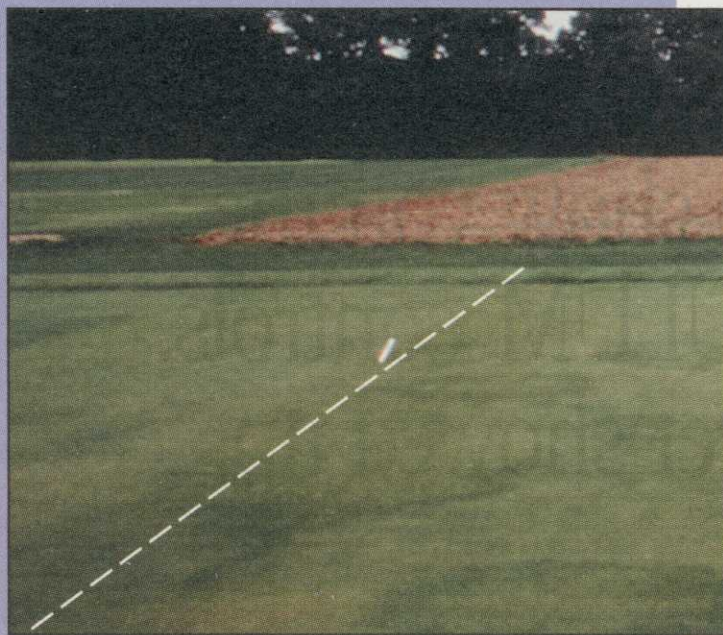
"You can use it in a couple of ways," Oatis said. "First, it virtually guarantees that the system you're putting in will provide

good coverage. And spending a couple hundred dollars to ensure that the \$500,000 irrigation system will work, is cheap insurance.

"Second, if you have an existing system, it is a great tool for troubleshooting. In the past, when you saw a coverage problem the only way to treat a dry spot was hand-syringing, or to go through a period of trial and error with different heads, nozzles or pressures to correct the problem. With this program, you can do it very effec-

tively in the laboratory."

Testing seed purity, Oatis said, is another cost-saving investment. Spending \$200 for a laboratory's test seed in 50-gram samples, as opposed to 2-1/2-gram samples, can prevent many problems with weeds, he said. He cited a study in which 90 seed samples were tested at the 2-1/2-gram rate and 94 percent were shown as clean. Yet a 50-gram sample showed that 45 percent of the samples contained *poa annua* and *poa trivialis*.



PRE-TREATMENT:

Both areas exhibit the presence of Fairy Ring. The area on the right received 2 treatments of AQUEDUCT at 8 oz./1000 sq. ft. Treatments were applied one week apart.

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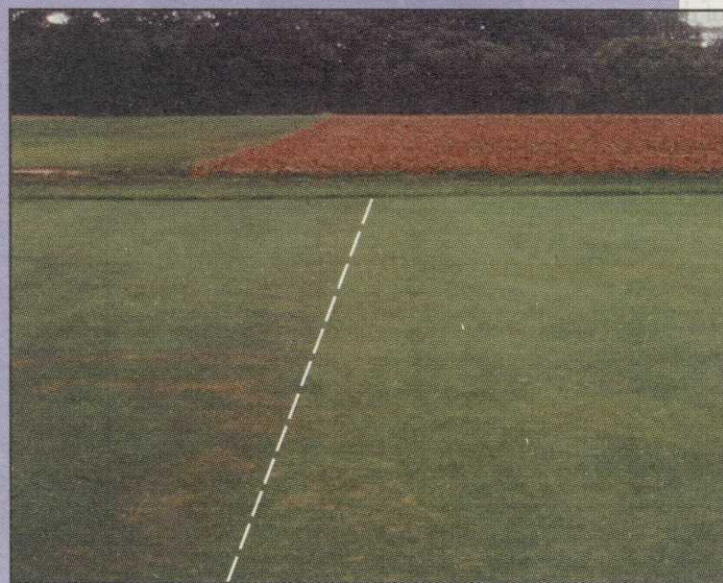
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Untreated area (left) shows severe signs of stress due to water repellency. Area on right (treated) exhibits recovery and shows good turf quality.