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- 10 ☐ Daily Fee/Public  
20 ☐ Semi-Private  
30 ☐ Private  
40 ☐ Resort  
50 ☐ City/State/Municipal  
55 ☐ Other Golf Courses  
(please specify) \_\_\_\_\_
- 60 ☐ Golf Course Architect  
70 ☐ Golf Course Developer  
90 ☐ Golf Course Builder  
11 ☐ University/College  
15 ☐ Distributor/Manufacturer  
Representative/  
Consultant  
99 ☐ Others Allied to  
the Field (please specify) \_\_\_\_\_

**2. Which of the following  
best describes your title?  
(fill in ONE only)**

- 10 ☐ Golf Course Superintendent  
15 ☐ Assistant Superintendent  
25 ☐ Owner/Management  
Company Executive  
30 ☐ General Manager  
35 ☐ Director of Golf  
70 ☐ Green Chairman  
45 ☐ Club President  
75 ☐ Builder/Developer  
55 ☐ Architect/Engineer  
60 ☐ Research Professional  
80 ☐ Distributor/Manufacturer  
Representative/  
Consultant  
65 ☐ Other Titled Personnel  
(please specify) \_\_\_\_\_

**3. What is your facility's  
annual maintenance  
budget?**

- 01 ☐ More than \$2 Million  
02 ☐ \$1,000,001-\$2 Million  
03 ☐ \$750,001-\$1 Million  
04 ☐ \$500,001-\$750,000  
05 ☐ \$300,001-\$500,000  
06 ☐ \$150,001-\$300,000  
07 ☐ Less than \$150,000

**4. If you work for a golf  
course, how many holes are  
on your course?**

- 01 ☐ 9  
02 ☐ 18  
03 ☐ 27  
04 ☐ 36+  
05 ☐ Other

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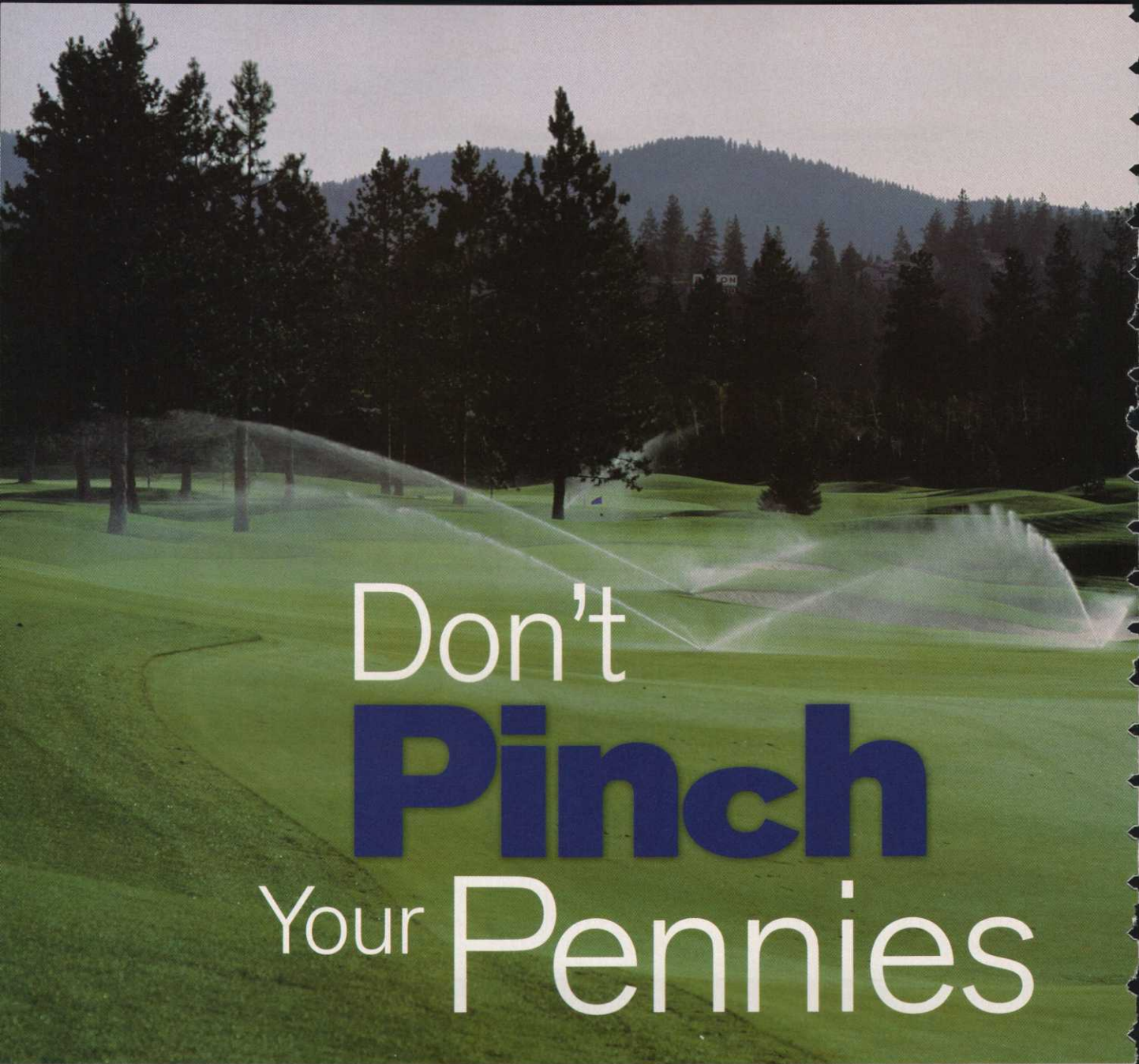
# OREGON GROWN TALL FESCUE

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# Don't **Pinch** Your Pennies

When it comes to irrigation maintenance, you can't afford to skimp on parts

BY LARRY AYLWARD, EDITOR IN CHIEF

**R**emember that old motor oil commercial? It shows a battered jalopy huffing down the street and puffing thick, black smoke from its exhaust. Then the driver of the car has the audacity to say, "Motor oil is motor oil."

You'll never catch Curt Leming, superintendent of Glendale Lakes Golf Course in

Geneva, Ill., making such an inane statement about oil. Leming knows the good Texas tea from the bad. The same holds true for repair parts associated with irrigation system maintenance.

Leming has been in the business for 30 years. One thing he has learned is not to go the cheap route when it comes to irrigation system maintenance. Even if you're on a tight

*Continued on page 45*





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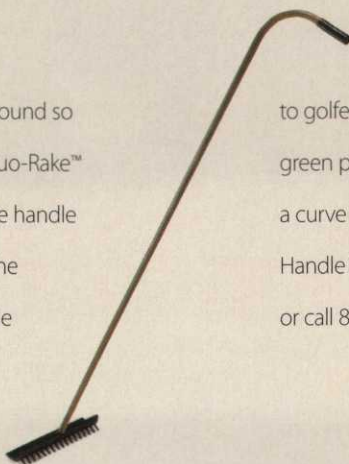


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## Don't Pinch Your Pennies

*Continued from page 42*

budget, don't cut corners because you'll end up paying for those decisions eventually. It's worth it to spend more now on better parts now, Leming stresses.

"There are components throughout an irrigation system where you have the option to purchase cheaper parts," Leming says. "Invariably they don't last, and you end up spending a lot on labor to replace them."

Over the past few years, the irrigation system at O'Bannon Creek Golf Club in Loveland, Ohio, has been updated gradually with modern parts and equipment. "[The upgrade] will double our capacity from what we had before," Guynan says proudly.

Like Leming, Guynan warns superintendents to never do irrigation maintenance on the cheap. Guynan didn't skimp when it came to purchasing such items as new intakes and heads. "Everything we've done, we've tried to do with the best materials," he says.

What, for instance, is going the cheap route? Leming warns superintendents not to use 3-inch PVC tees to connect irrigation pipes. "They crack and split open, and you have to replace them," he says of PVC, a type of plastic.

When he joined Glendale, Leming inherited an irrigation system laced with 3-inch PVC tees throughout its piping. He's had to replace about 60 of them. Leming has replaced the PVC tees with steel tees, which were the standard in the 1980s, he says. They may cost two or three times the amount of PVC tees, but they're worth it, he adds.

Keep in mind that a golf course irrigation system requires stronger parts because it functions with much higher water pressure and causes pipes to expand and contract more than most residential irrigation systems, Leming points out.

Regarding pipe, make sure the pipe

To understand the ins and outs of your irrigation system is to be an expert in water management. See the related story, **Water Works**, on page 38.

## Time for a Change?

Brian Vinchesi, president of Irrigation Consulting in Peperell, Mass., provides the following guidelines for the average lifespan of golf course irrigation parts:

PART	LIFESPAN (IN YEARS)
Irrigation Head	15 to 18
Gate Valves	15 to 20
Pumps	20 to 25
Pipe	30
Controllers	10 to 15
Computer Hardware	3 to 5
Computer Software	1 to 3
Wire Connections	25

you purchase measures up to specifications. And if you don't install it yourself, make sure you have someone who's reputable do it for you. "If somebody is cutting corners, such as not gluing pipe properly, it can be a nightmare," Guynan says.

If you're not sure what you're doing when it comes to maintaining a certain irrigation system component, such as a pump station, don't hesitate to hire an outside expert to help.

"I find that the pump station has become so technical that it pays me to have somebody who works on them all the time to come in and diagnose what's wrong with it," Leming says. "It's money well spent."

Speaking of money, irrigation maintenance can cost a lot of it. So it behooves superintendents to research the components they plan to purchase. They could end up saving themselves some money.

Just ask Leming. The irrigation water at Glendale is very abrasive, and several

*Continued on page 46*

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**GREGG GUYNAN**, SUPERINTENDENT  
O'BANNON CREEK GOLF CLUB

*Continued from page 45*

irrigation components, including the drives and nozzles on sprinklers, needed to be replaced. But Leming discovered that it was more economical to replace all of the sprinklers than just replace the drives and nozzles on them.

“When you’re buying in quantity, you can get a pretty decent price on sprinklers,” Leming points out, noting that he not only spent his money wisely but now has better quality and more modern sprinklers on his golf course.

Speaking of saving a few bucks, if you have experience doing the work that comes with irrigation maintenance, you might consider doing the work in-house.

“We’ve saved hundreds of thousands of dollars by doing the work in-house,” Guynan says. “And it’s not that hard to do. You just take your time and be careful.” ■

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**Y**ou know, I apply a jug on the front and a jug on the back.” Pesticide (herbicide, fungicide and insecticide) sales on golf courses in the United States exceed \$300 million annually,

with most of these dollars going through a sprayer. Years ago we may have just thrown a product into a spray tank and sprayed it out, without much thought of where it was going or how we might be affecting the efficacy of the product.

However, the pesticides today are characterized by low concentrations of active ingredient, and a high degree of specificity depends on dilution and coverage for efficacy. Spray volume, droplet size, pressure and speed at which pesticides are applied influence efficacy. Optimum efficacy, however, needs to be balanced against the potential for drift and non-target effects.

Spray volume, the amount of water applied to a given area, varies widely depending on the pesticide. It is difficult to draw broad generalizations, such as increasing water volume increases control. Conflicting studies have found that increasing spray volume increases weed control in some cases, while other studies have found either no effect with increasing spray volume or actually a decrease in some cases. It should be mentioned that, where increased weed control has been observed with decreasing spray volume, the proper type and amount of adjuvant was added (Nalewaja and Ahrens, 1998).

Regarding fungicides, spray volume has had little effect on turf disease control (Latin, 1998). Where spray volume has had a minimal effect, the most common nozzle used was the flat fan. Given coverage is adequate and uniform, lower spray volumes can be used.

Droplet size is largely dependent on the nozzle size and pressure. As a rule, the smaller the droplet size the more efficacious the pesticide. However, there are limits on how small droplet size can go. A spray droplet the size of 50 microns (as a reference the thickness of a human hair falls between 75 microns and 100 microns) remains suspended in the atmosphere indefinitely until it evaporates. In this case, the risk of drift is high. Drift is less likely to occur

## Getting the Best Out of Pest Applications

BY KARL DANNEBERGER



OPTIMUM EFFICACY  
NEEDS TO BE  
BALANCED AGAINST  
THE POTENTIAL  
FOR DRIFT AND  
NON-TARGET  
EFFECTS

when droplet size is above 200 microns (Zhu et al., 1994). In addition, advances in spray nozzle technology have led to low-drift nozzles that produce less drift when compared to traditional flat fan nozzles.

In the practical world of golf course management, difficulties often arise when applying these above principles on variable terrain and changing environment conditions. Bouncing up and down a hilly fairway on a spray rig requires on-site decisions. Fortunately, technology-advanced spray equipment has made these decisions easier.

However, the time-honored practices — including calibrating; selecting proper nozzles; and checking for wear, boom height and drift potential — need to be conducted on a regular basis with or without the most advanced sprayers. It's not much different than checking the air in your car tires. You don't have to, but the cost usually shows up in reduced gas mileage and frequent tire replacement.

Finally, going back to the first quote of the article, too many spray decisions are made based on how much is “left in the tank.” If not enough is left to complete the front nine, we might speed up to get the coverage or conversely slow down if we have “too much.” Needless to say, the impact often manifests itself in variable control. Likewise, reducing spray volume for the purpose of reducing the time necessary to spray (through elimination of multiple fill-ups) can impact control.

With the cost of pesticides and the limits on how much we can apply, is it worth it to be slack on how we apply them?

---

*Karl Danneberger, Ph.D., Golfdom's science editor and a turfgrass professor from The Ohio State University, can be reached at danneberger.1@osu.edu.*



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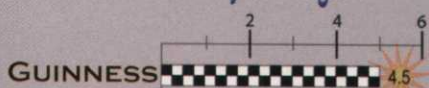


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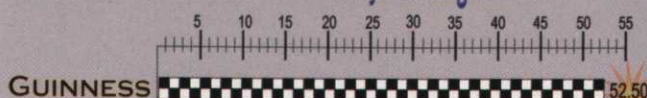
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Midnight 20.25  
Diva 17.25  
Moonstruck 11.25  
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