

manufacturer's recommended pressure and distance from the ground, usually give the best combination of coverage and drift reduction. Hollow or solid cone nozzles are best for spot treatment applications using a backpack sprayer.

**Insufficient rate.** Pesticide manufacturers spend years and millions of dollars field-testing their products to develop label rates. Usually a label will give a range of the quantity to be used, for example 2 to 4 oz of product per thousand square feet. The proper rate will depend on the type and growth stage of the weed to be controlled. Young, small weeds can often be controlled with lower rates while thick stands of mature weeds, particularly types with vegetative propagules such as rhizomes or stolons, may require the high rate. There is of course no guarantee that even a high rate will eliminate the weeds-sometimes multiple applications are necessary to control hard-to-kill weeds. Pre-emergent herbicides may be affected by soil type: high label rates may be necessary in organic soils or when a thick thatch layer is present.

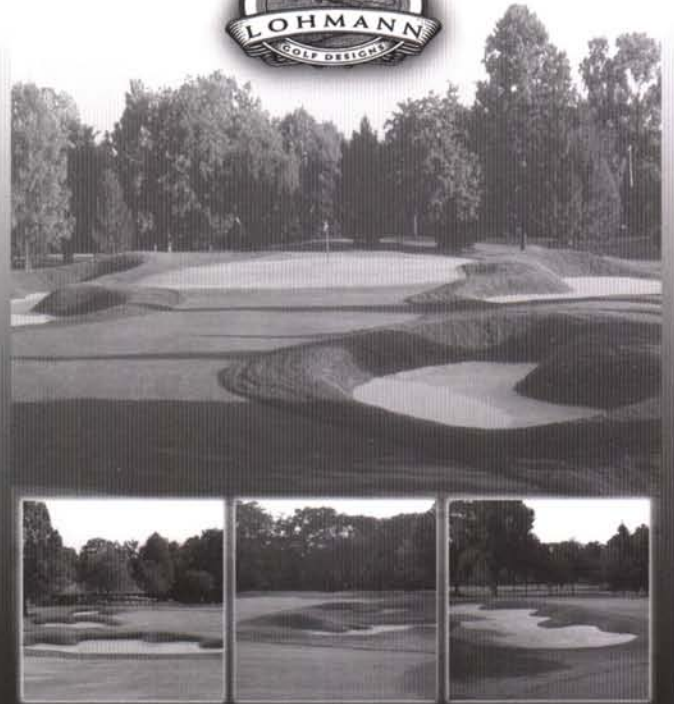
**Improper application method.** Read and follow the label instructions for all pesticides, including herbicides. Some products require the addition of a surfactant such as methylated seed oil or crop oil concentrate to ensure adequate coverage and penetration of the herbicide for weed control. Halosulfuron (Manage) is an excellent product for yellow nutsedge control when a surfactant is added as stated on the label. Some new or revised products are now pre-packaged with a surfactant for added efficacy. Applying herbicides on cloudy or overcast days with little wind and moderate temperatures may help avoid evaporation of water droplets from leaf surfaces before the herbicide is absorbed. Low wind conditions will reduce drift, ensuring more of the herbicide is deposited on the target weeds. Make sure to use sufficient carrier volume even if it means an additional trip or two back to the shop to refill the tank. Calibrate your spray equipment at least once annually and repair or replace any leaking hoses or worn nozzles. Finally, keep thorough records of when and where herbicides were used, the amount applied, the calculations you performed to determine the amounts applied and from your calibrations, the product and EPA registration number of the herbicide used, and the weather data during the time of application. The information may be helpful for determining why a particular herbicide application didn't work as well as expected.

**Herbicide resistance.** Although not a common problem, be aware that herbicide resistance could develop if when herbicides are routinely applied that have a common site of action. Changing herbicides will help prevent resistance.

## CONCLUSION

Herbicides are useful tools for suppressing weed populations. However, herbicides are only part of an arsenal for maintenance of a high quality turf, and must be combined with good primary and secondary cultural practices (mowing, fertilizing, irrigation and aeration and topdressing, respectively). Relatively few herbicides are labeled for turf use compared to those available for conventional agriculture. The profit simply isn't there for many products potentially useful for turf. Company mergers in recent years have resulted in few agrochemical companies. The remaining companies are often currently focused on high-profit products with little research devoted to new compounds. Increasing legislative restrictions are causing the loss of some turf herbicides and making it harder for getting new compounds registered. Consequently few new herbicides are being developed. The few new turf products that are undergoing trials are typically products currently registered for conventional agriculture. Research will indicate how effective they are for turf weeds and how they should be used. ♣

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# He Helps Keep a Little Part of This World Green

By Lori Ward Bocher

After writing for *The Grass Roots* for 13 years, Gabe Lopez is the first person I've met who was literally drafted into the golf course business. He had no choice but to work on a golf course. But it turns out that he liked it so well that, 15 years later, he's still working in the business.

Gabe is the irrigation field service manager for Reinders. He's the one you call when you just can't get that irrigation system working the way you want it to. During the golf season he travels all over Wisconsin and the Upper Peninsula of Michigan. But how was he initially drafted into the business?

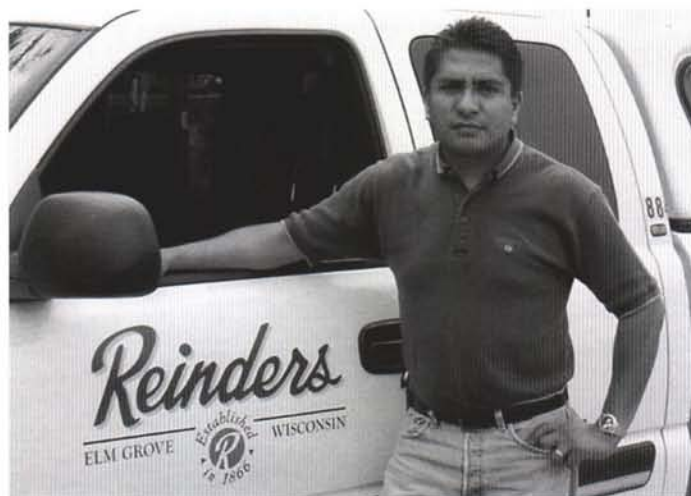
Gabe graduated from Elkhorn High School in 1986. He then went to work as a night auditor and a front desk clerk at the Lake Lawn Lodge in Delavan, which is where he still lives today. In 1988 the resort was sold to the Anvan Corporation which also owns The Abbey and the Interlaken Resort in the Geneva Lakes area.

"When Anvan bought Lake Lawn Lodge, one of the first things they wanted to do was to renovate the golf course," Gabe explains. "They rebuilt it, adding some greens and tees, drainage, and an irrigation system. In the fall of 1988 there were only four or five people working on the course, not nearly enough for the renovation project. The hotel management then put up a draft notice throughout all the properties stating that all the 'boys' had to go out there and help lay sod. I was 21 at the time. I had no choice. They said, 'You're a young buck. Get rid of your pretty penny loafers, go get some mud boots, and start laying sod.'"

### Likes it better outside...

"Once I got outside, I found that I liked it better than being inside all the time," Gabe continues. "I could get fresh air and exercise. So I became part of the grounds crew. In 1989 we put in the new irrigation system. I helped put together pipes and did other odds and ends."

In the spring of 1990, the Anvan Corporation began construction on the Geneva National courses. Gabe's superintendent at Lake Lawn, John Krutilla, became superintendent at Geneva National. "He asked me if I wanted to go with him," Gabe recalls. "They are signature courses by Arnold Palmer and Lee Trevino. Because of the big names, I thought it would be fun to go there and play with the big boys. John then promoted me as the irrigation technician for Geneva National. It was my job to get the system up and running and then to maintain it. I worked at Geneva National for five years. That's how I got to know the



people at Reinders because I'd call in my orders for parts or repairs."

But Gabe didn't go to work for Reinders quite yet. "I left the golf course business for a season and went to work for a landscaper in the fall of 1995," he remembers. "I was laid off for two months and so I fulfilled a childhood dream to get my commercial driver's license and become an over-the-road truck driver. I had enough of that after four months.

"Then in August of 1996 I had an interview with Craig Reinders. I left the trucking business and went to work for Reinders in the service department," Gabe continues. "They sent me to schools for both Toro and Rain-bird, the two main lines of irrigation equipment we handle. Aside from the school of hard knocks - managing an irrigation system myself for several years - this was the first formal training I had in irrigation."

### Moves to field service...

In the spring of 1998, Gabe began going out into the field to service equipment. "One of the nice things about being out in the field is that I'm basically my own boss," he says. "I tend to push myself too hard and have long hours. But I enjoy the challenge and the satisfaction of getting irrigation systems up and running again. Because I worked on a course for several years, I know how frustrating it can be to have a system down.

"I like to call the irrigation system the life blood of a golf course. That's my own little patented word for it," Gabe points out. "Water is one of the basic necessities. So when a course calls up and says it has a problem with a pump station or a central or whatever



else, I enjoy being able to help. I'm helping to keep a little part of this world green."

Gabe receives most of his service calls directly from his customers, and he does all of his own scheduling. From mid March to late November he's on the road 90 percent of the time. With a heavier concentration of business in the southern part of the state, he is able to make it home to Delavan all but about two nights a week. Jobs range from replacing a fuse to replacing the entire office central and field satellite controllers which might take two or three days to complete.

He travels in an extended-cab, half-ton pick-up with an 8-foot bed. "Anyone who has seen my truck always asks me how long it takes to load it up when I get a new truck every two years. It averages about two days to unload, reload, and get everything ready in the new truck," Gabe says. "Needless to say, the cost to replace my truck, including parts, if it ever was stolen would give our insurance agent a heart attack. The truck is stocked with the most common replacement items and equipped with all the proper tools and testing equipment."

Gabe is in constant contact with Michelle Berg, the office manager at the Elm Grove office of the Reinders irrigation service department. "A running joke between me, my wife, and Michelle is that I talk to Michelle more than my wife in the summertime. I'm always in contact with her," he points out.

***Calls are prioritized...***

At Reinders, they prioritize the service calls. "We keep pump stations our Number 1 priority," Gabe explains. "If there's no water, there's no grass. The pump station affects every part of the course. Second on the list are the irrigation centrals. Depending on what type of system it is, they may be able to water manually if they have to. But it's a pain to do that, so we try to keep that down to a minimum.

"Our lowest priority is if a head's not working some-

where," he continues. "They can water that part of the course manually until we can get there. And we will get there. But we have to put out the biggest fires first. I strive to keep everybody happy. And 99 percent of the superintendents are patient and tolerant.

"Work is pretty much non-stop, every day during the golf season," Gabe adds. "It's a challenge. It's not boring. That's what I like about it. We tackle all kinds of problems from a simple fuse to a major lightning claim."

In fact, a good percentage of their work comes from lightning damage. "A golf course is one of the worst places to be during an electrical storm because of all the wiring that's in the ground," Gabe points out. "When lightning hits a course it will be induced into the wiring system and it can damage the field controllers, the power supplies, the pump stations - anything electrical."

When summer storms roll across the state, it generally takes two or three days before Gabe starts receiving calls about lightning damage. "Usually there's a fair amount of rain with a storm, and the courses won't check their irrigation system until they

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need to irrigate again. That's when they find out there's a problem and they call us."

Gabe also spends a fair amount of time on lightning protection. "We want to minimize the damage to the irrigation system when lightning does strike," he says. "There is built-in surge protection on the newer controllers. But even with the new controllers, if you don't have good grounding, all the surge protection in the world doesn't do any good because the lightning can't find the path of least resistance. So we'll go in and assess a course that has been hit numerous times and we'll add more components to the electrical system to try to minimize the damage the next time a storm comes through. We can't prevent it from being hit - that's up to the Man upstairs. But we can minimize the amount of damage to the irrigation systems."

Gabe is often called in to fix problems caused by lightning storms because the course can submit an insurance claim to pay for the repairs. But other times the superintendents do what they can before having Gabe make a house call. "Generally speaking, the course staff is fairly knowledgeable on how the irrigation system operates," he says. "But they may not have either the manpower or the testing equipment required to troubleshoot the issue. So we'll do over-the-phone support to try to pin down where the

problem is. If we determine that simply changing out components will get them up and running, then we'll send parts out. But when it's beyond their abilities or equipment, it is then our turn to come in and resolve the issue."

Every now and then, even Gabe is stumped. That's when he calls in the Reinders in-house techs for advice or the factory service reps from Toro or Rainbird. "Once in a while there's an unusual circumstance when the damage is so severe that we may need to start from scratch and track every wire nut connection," he explains. "I don't have to call them often, but there are some things that baffle my mind and give me gray hairs."

**National Service Person of the Year...**

For his ability to solve most problems on his own, in October of 2002 The Toro Company honored Gabe with its National Service Person of the Year Award. The award was given at a special banquet on the last night of the company's week-long service and sales school in Orlando.

During the off season when work slows down, Gabe attends service schools for the various equipment manufacturers that Reinders carries. "We're updated on the new equipment," he explains. "For me, one of the perks of this job is that I get to travel all over the

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8:00 am - 3:00 pm

at the

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#### Pre-Registered by August 1st

WTA Member \$ 30.00

Non-Member \$ 35.00

#### After August 1st & On-Site Registration

WTA Member \$ 35.00

Non-Member \$ 40.00

#### Directions from Beltline Hwy 12-18

Take the Mineral Point Road exit. Go West on Mineral Point Rd 1 block to Highway M. Turn south on Highway M 2.5 miles. Facility is on right.



### Schedule of Events

6:00 - 8:00 am	Trade Show Setup
8:00 - 9:00 am	Attendee Registration
9:00 - 9:10 am	Welcome Session
9:15 - 11:45 am	Research Tours
11:00 - 3:00 pm	Trade Show Open
Noon - 1:00 pm	Lunch
1:00 - 2:30 pm	One-on-One questions with Professors & Researchers
1:30 - 2:30 pm	Equipment Demos
1:00 - 2:00 pm	Audubon Cooperative Sanctuary Tour
2:45 pm	Final Auction Bids
3:00 pm	Auction Results

### Research Featured

- ◆ NTEP Cultivar Evaluations
- ◆ Portable Tee Boxes
- ◆ Herbicide Trials
- ◆ Soil Amendments
- ◆ Texas Bluegrass
- ◆ Fungicide Trials
- ◆ Additional Research Will Be Displayed and Discussed

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- ◆ Trade Show
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- ◆ Come see how the new land addition is progressing.
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Phone (        ) \_\_\_\_\_

WTA members \_\_\_\_\_ x \$30 = \_\_\_\_\_

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**Grand Total** = \_\_\_\_\_

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country for these schools. Also, my previous driving experience with semi-trucks allows me to deliver the Watertronics show booth at the GCSAA national conventions throughout the country.”

Speaking of new equipment, Gabe doesn't spend all of his time on service calls. He also assists courses that upgrade their irrigation or purchase new systems. The amount of this type of work varies with the market and economy. “As we are all painfully aware, the current economy has taken a toll on course budgets, a far cry from just a few years ago,” Gabe points out. “A good portion of our business now is renovating irrigation systems. We'll upgrade their old existing controllers and put in new centrals, sometimes in phases.”

**His life story...**

As you may be able to tell from his accent, Gabe was not born in the U.S. He was born in Mexico City in 1967. His family was well to do and therefore able to send him to a private Catholic grade school. At that school, his parents learned of an exchange program with the U.S. So when Gabe was just 12 years old, in the spring of 1979, he moved to Elkhorn, Wis. to attend school. His mother came with, and they lived with an uncle who was on a farm near Elkhorn. With a student visa, he became a permanent resident and finished high school in Elkhorn. Eventually, most of his family joined him in Wisconsin.

Gabe knew very little English when he moved here, so he went to a special class so he could learn English while in the 6th and 7th grades. He was the only Hispanic in the school for four years. Was he accepted by the other students? “There weren't any major problems, but it wasn't all peaches and roses either,” Gabe answers. “But that's life. Not everybody is going to like you. It wasn't really bad, it wasn't great - it was just fine. I did have some great, wonderful teachers who helped me get through the language barrier.”

Besides learning English, Gabe also had to adjust to the colder climate of Wisconsin. “When I came up here there was still snow on the ground in spring. It was fun to see my first snow,” he says. “But in winter I had to clear our long driveway with a dinky little snow blower. It took three hours. That wasn't so much fun. Now I enjoy Wisconsin. I enjoy the changing seasons.”

He also had to adjust from living in one of the largest cities in the world to living in the country. “Going from a big city, where everything is concrete, to a small town in mid America - at first I hated it because there were corn fields all around me. But I eventually learned to enjoy the peace and quiet of living out in the country,” Gabe recalls.

**A family man now...**

Another big change for Gabe was becoming a family man in 2001 when he married Christine, the woman

he had dated for five years. They now have two very young children - Anthony, who is one and one-half years old; and Charlie, who was born in May of this year. He also has two step-children from Christine's previous marriage - Jessica, 13, and Joey, 11. He has a full house.

When he's not working or spending time with family, Gabe likes to watch car racing on TV - (F1, IRL, Cart and NASCAR). He also likes to watch super bike racing. “Before I got married I had a motorcycle and used to go riding quite a bit,” he says. “I'm getting the middle-age itch to get a motorcycle again. But I've got to talk my wife into it first.”

All in all, not a bad life for someone who was drafted into the golf course business. Gabe is glad he turned in his penny loafers for mud boots 15 years ago. He's glad he turned in his desk job for one that lets him work outside and on the road. And golf course superintendents across the state are glad Gabe is working on their side to fix irrigation problems and help keep their little part of the world green. ♣



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# Product Formulation Can Make a Difference!



By Dr. R. Chris Williamson, Department of Entomology, University of Wisconsin-Madison

Regardless of the chemical classification, all pesticides (fungicides, herbicides, and insecticides) are manufactured in their relatively pure form (i.e., technical grade material). The next step in the manufacturing of pesticides is product formulation. Product formulation involves the processing of the technical grade material into usable form for dilution or direct application.

In the United States, pesticides are sold in over 35,000 formulations. Pesticide formulations are designed (engineered) to improve efficacy (performance), application, handling, properties of storage, and safety.

However, the true test of a pes-

ticide formulation is by the end-user! To be accepted, pesticides must be formulated into usable forms that are effective, economical, easy to handle and apply, satisfactory for storage, as well as safe to the applicator and the environment. Unfortunately, these goals are not easily accomplished. Factors such as chemical and physical properties of technical grade material often make pesticide formulating a challenge.

For example, some pesticides in their raw form are either liquids or solids; some are stable to air and sunlight while others are highly unstable; some are volatile, while others are not; some are oil sol-

uble, and others are insoluble in water and/or oil. As a result, one or a combination of these characteristics can present difficult obstacles to overcome in order to develop product formulations that are widely accepted by the turfgrass industry.

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