

Roundup-resistant bent due in '03

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grasses for the past several years, Meier said, using rights obtained to the Roundup-resistant gene from Monsanto and the gene gun insertion technology from its inventor, former Cornell University professor John Sanford.

Scotts is concentrating on these varieties because of the large market for these grasses. Bentgrass and Kentucky bluegrass are cool-season grasses used extensively on golf courses throughout the country. St. Augustinegrass is a warm-season turf used on some Southern courses.

Research expenses for genetically modified grasses are very high, Meier explained. Scotts hired 15 people in the past three years to work solely on this project. Even more costly are licensing expenses.

The problem with developing Roundup-resistant grasses, opponents argue, is that such species could become a super weed that farmers and homeowners could not control by conventional means. Meier countered that bentgrass and Kentucky bluegrass are generally not considered major weed problems in agricultural circles and can be controlled using other herbicides.

Bentgrass will not cross-germinate with other grasses that are considered agricultural weeds, he added.

What has Scotts' research shown? Scotts has applied Roundup to its test bentgrasses at rates of 256 ounces per acre, four to eight times the recommended rate of 32 to 64 ounces per acre for weed control.

"We looked for injury [to the bentgrass]," Meier said. "There wasn't any. We still have a lot of testing to do to make sure it performs the way we'd like to see a bentgrass variety perform."

Scotts' Kentucky bluegrass has withstood Roundup applications of 128 ounces per acre, two to four times the recommended rate, Meier said.

Scotts is also seeking genes that would provide genetically modified grasses with disease resistance. Those grasses may not be available for another 10 to 15 years, Meier said.

Are there drawbacks to genetically modified Roundup-resistant turfgrasses or GMOs in general? Could they somehow be toxic to people or animals? Could they present environmental or food production problems?

"At this point I'd just say there are issues about whether GMOs should be used at all," Meier said. "The Food and Drug Administration has approved Roundup-resistant and Bt-resistant [for insects] crops in foods and feeds."

The Roundup-resistant gene, Meier explained, is made up of proteins. The proteins are made up of amino acids. The gene is one of several hundred in a healthy-growing cell.

"I'm assuming that if you can eat the stuff, you should be able to walk or play golf on it... That's the assumption we're making and that's all the evidence at this point. We haven't found any detrimental aspect of the Roundup-resistant gene."

Welding table moves with ease

By TERRY BUCHEN

ARCADIA, Mich. — Because their welder, tank and welding table were difficult to move, the maintenance staff at Arcadia Bluffs Golf Club here devised a portable welding table on wheels.

Property maintenance person John Fisk and equipment manager Patrick Sullivan built a designated table on wheels that holds the welder tank off the bottom shelf in a horizontal position,

which has plenty of storage room for clamps, gloves, helmets, goggles, etc.

"We plan to install a permanent vise," said superintendent Paul Emling. "The welding table may be somewhat costly because we outfitted our shop in two areas and our cold-storage area with 220-volt welder outlets. We also purchased a long extension cord for the welder, as it is sometimes easier to take the welder to the equipment than it is the equipment to the welder."



The portable welding table is on wheels for easy movement.

Material costs for the portable welding table were:

- 2-by-2 by 1/4 angle - 55 feet \$47.25
- 72- by 36- by 1/2-inch plate \$171.00
- 72- by 36- by 1/8-inch plate \$36.00
- Four castor wheels \$52.00
- Total \$306.25

Figurella: 30 and counting

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stepdaughter at cosmetology school. Figurella concedes that the head superintendent's job is demanding, costing him time with his children and perhaps a marriage.

"There's something inside you that compels you to go there [the course] every morning, to be there at six o'clock," he said. "With my new assistant, I've started going home after eight or nine hours, but I always come back to baby-sit the course later in the day."

What is the major change he's seen in the past 40 years? Fungicides.

"We have things now that work," he said. "We used to use fungicides that came from the agricultural industry. They didn't work very well. Now we have specific fungicides that do work well. I'm concerned we may lose some of them. I don't see a new contact fungicide coming out. We have one right now, daconil. If they take daconil from us, I don't know what we're going to do."

"We also have more user-friendly products that are safer for the person applying them. We used to use things like lead arsenic that built up in your system. There's been a big improvement in quality."

As for the future of golf course design and maintenance, he said: "What I don't want to see is Donald Ross greens altered for the new grass cultivars. They have to soften up greens and soften slopes [at older courses] when they plant the new As and Gs. They have to change the contours so there are pin positions. If speed does that to golf, that's wrong. Ross built these greens. If he's the man they say he is, why would you want to alter them?"

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