

**TABLE 2: MANAGEMENT CHECKLIST**

Dos and don'ts when managing glyphosate-tolerant perennial ryegrass.	
DO	DON'T
Allow for a border to minimize spray drift onto sensitive species.	During establishment, do not apply glyphosate when perennial ryegrass is between the 3rd and 4th leaf stage.
Minimize traffic after a glyphosate application until the foliage has dried.	Do not apply glyphosate at rates exceeding 0.26 lb. acid equivalent per acre.
Remove dew the following morning to minimize glyphosate tracking to sensitive species.	Do not apply glyphosate when the four-week forecast is for daily low air temperatures below 50 degrees F.
Consult the label of the selected glyphosate product used to obtain information regarding user safety recommendations, environmental hazards, personal protective equipment, storage and disposal.	Do not tank mix glyphosate with a plant growth regulator.
	Do not apply glyphosate when mowing heights are below 0.5 inch.
	Do not reapply glyphosate within 4 weeks after a previous glyphosate application.

**Ad Index**

Advertiser	Page
The Andersons	8
Audubon	45
B A S F Corp	5, 19, 24
Bayer	15A, 31A, CV4
Becker Underwood	3
Buffalo Turbine	39
FMC Professional	10, 11, 37
Greenleaf Technologies	2
Grigg Bros	7
Jacobsen	13
John Deere	Insert
Kochek	4
Nufarm	26-27, 29
Petro Canada	CV3
Project Evergreen	31B
Smithco	Insert
Syngenta	CV2
Toro	Supplement
Turco Mfg	4

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

*Continued from page 43*  
 Maryland in 1999. One plot was not killed by the normal application of glyphosate, so plants were plugged and brought to Post Falls, Idaho, for breeding. Several cycles of recurrent selection for glyphosate tolerance and turf quality led to the development of JS501 and Replay. Before release they underwent DNA fingerprinting that showed a single mutation that led to glyphosate tolerance.

An earlier release, 'Aurora Gold,' bred by Crystal Rose-Fricker, was a conventionally bred hard fescue that has shown tolerance to glyphosate. Likewise, the Scotts Company has recently been granted approval by USDA/APHIS for the release of its GMO Roundup Ready Kentucky bluegrass.

Dr. Baldwin spent three years developing a management program for use of glyphosate-tolerant perennial ryegrass. Since they still can be injured by high doses of glyphosate, the program includes "watch-outs" for

these varieties (Table 2).

"This grass is not a magic bullet," Baldwin says of the program he helped develop for JS501 and Replay. Instead, he envisions them as part of a comprehensive IPM program to help manage *Poa annua*. He reasons that when one approach is the only tool, it has the potential to create problems or resistant types of *Poa annua* over time.

Baldwin believes that the use of glyphosate-tolerant grasses, cultural practices, pre-emergent herbicides and other chemistries, can give the golf course superintendent another tool to control *Poa annua*.

This was one of several tests conducted with glyphosate-tolerant perennial ryegrasses on golf courses.

Jonathan Schnore is working toward his M.S. degree in Crop Science at Washington State University and is an assistant plant breeder at Jacklin Seed. He can be reached at jonathon.schnore@simplot.com.