

Tolerance of Tall Fescue to Sulfentrazone When Applied with Various Fertilizers and Three-Way Herbicides

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Tall fescue (*Festuca arundinacea* Schreb.) is a widely used turfgrass in home lawns throughout the transition zone. It is common practice for lawn care operators to apply combination herbicides tank-mixed with various fertility regimes to reduce site visits. However, research has shown that applications of sulfentrazone tank-mixed with urea can injure tall fescue. Research was conducted to determine the tolerance of 'Confederate' tall fescue to Echelon (0.75 lb a.i./a) and Dismiss (0.375 lb a.i./a) with various liquid fertilizers (46-0-0, 34-0-0, and 20-20-20) applied independently (30-45 minutes after herbicide application) or tank-mixed together. Trials were initiated on May 22, 2008 and May 29, 2009 at the Lake Wheeler Turfgrass Experiment Lab. Results from 2008 indicated that Dismiss and Echelon plus 46-0-0 injured tall fescue the greatest (> 20%) regardless of independent or tank-mixed application (Table 1). Dismiss plus 34-0-0 or 20-20-20 applied independent or tank-mixed moderately injured tall fescue (> 10%). Echelon plus 34-0-0 or 20-20-20 had minimal injury (< 10%) regardless of independent or tank-mixed application. In 2009, all treatments containing a liquid fertilizer source injured tall fescue (12 - 28%). Differences in environmental conditions at time of application are speculated to have caused the variability between 2008 and 2009, with abnormally high temperatures following the initiation of the 2009 field trial. Regardless, it is recommended that liquid fertilizers should not be applied with or shortly after applications of sulfentrazone-containing herbicides.

An additional experiment was conducted in both 2008 and 2009 to determine the tolerance of 'Confederate' tall fescue to sulfentrazone tank-mixed with urea, three-way herbicides, and/or chelated iron. Treatments included Echelon (0.75 lb a.i./a) with or without 46-0-0, Trimec Classic (3.5 pt/a) or Triplet (3.5 pt/a), and 4-4-5 chelated iron (2 fl oz/1000 ft²). In both 2008 and 2009, treatments containing Echelon tank-mixed with 46-0-0 injured tall fescue the greatest; however, injury was reduced with the addition of chelated iron (Table 2). These data indicate that chelated iron could be used to safen the application of sulfentrazone-containing herbicides and 46-0-0 on tall fescue turf.

Table 1: Tall Fescue Injury to Echelon and Dismiss with Various Fertilizers: 5 Days After Initial Application

Treatment	2008	2009
Echelon	6.3	0
Echelon Tank-Mix 46-0-0	20	25
Echelon Tank-Mix 34-0-0	6.3	26.3
Echelon Tank-Mix 20-20-20	8.8	18.8
Echelon Not Tank-Mixed 46-0-0	22.5	16.3
Echelon Not Tank-Mixed 34-0-0	10	23.8
Echelon Not Tank-Mixed 20-20-20	7.5	22.5
Dismiss	10	0
Dismiss Tank-Mixed 46-0-0	26.3	22.5
Dismiss Tank-Mixed 34-0-0	17.5	28.8
Dismiss Tank-Mixed 20-20-20	11.3	25
Dismiss Not Tank-Mixed 46-0-0	23.8	16.3
Dismiss Not Tank-Mixed 34-0-0	15	22.5
Dismiss Not Tank-Mixed 20-20-20	13.8	15
46-0-0	0	12.5
34-0-0	0	18.8
20-20-20	0	13.8
Nontreated	0	0
LSD _(0.05)	7	9

Table 2: Tall Fescue Injury to Echelon Tank-Mixed with 46-0-0 and Three-Way Herbicides: 5 Days After Initial Application

Treatment	2008	2009
Echelon	6.3	6.3
Echelon 46-0-0	26.3	21.3
Echelon 46-0-0 4-4-5 w/ Iron	15	15
Echelon 4-4-5 w/ Iron	1	7.5
Echelon Trimec Classic 46-0-0 4-4-5 w/ Iron	18.8	10
Echelon Triplet 46-0-0 4-4-5 w/ Iron	7.5	12.5
Trimec Classic	0	2.5
Triplet	0	0
4-4-5 w/ Iron	0	0
Echelon Trimec Classic	1.3	0
Echelon Triplet	10	0
Echelon Trimec Classic 46-0-0	21.3	16.3
Echelon Triplet 46-0-0	12.5	18.8
46-0-0	0	8.8
Nontreated	0	0
LSD _(0.05)	4.2	6.2