# Field Screening for Turfgrass Drought Tolerance

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**Objectives:** To evaluate relative drought tolerance among *Festulolium* and tall fescue experimental lines, tall fescue commercial varieties, and commercial seed mixtures in the field using variable irrigation regimes.

**Location:** UCR Turf Facility

**Experimental Design:** Split-plot with 3 replications per treatment combination; irrigation regimes represent main plots or cells; cultivar or experimental line represent sub-plots.

**Irrigation Cell Size:** 20' by 20'

**Seeding Date:** 7/11/2008

**Seeding Rate:** *Festulolium* was seeded at 4.4 lbs/1000 $ft^2$; all other treatments were seeded at 7 lbs/1000 $ft^2$

**Fertility:** 1 lb N/1000 $ft^2$ at planting; 0.5 lb N/1000 $ft^2$/wk thereafter

**Mowing Height:** 2.5 inches

**Irrigation Regimes:** Once established, turfgrasses will be subjected to variable irrigation regimes chosen to evaluate drought tolerance in Riverside climatic conditions. Regimes will likely range from 60-80% $ET_o$/distribution uniformity (DU). Turf quality, color, density, leaf firing/wilting, and rooting will be evaluated periodically throughout the study.

**Acknowledgments:** Special thanks to West Coast Turf for donating sod for the plot borders and to Stover Seed Company for donating the commercial tall fescue varieties.

**NORTH**

**Cell 12**

| | | | |
|---|---|---|---|
| 11 | 1 | 15 | 14 |
| 5 | 13 | 8 | 10 |
| 2 | 9 | 12 | 4 |
| 16 | 6 | 3 | 7 |

**Cell 11**

| | | | |
|---|---|---|---|
| 11 | 5 | 16 | 1 |
| 4 | 10 | 12 | 15 |
| 9 | 14 | 3 | 8 |
| 2 | 7 | 13 | 6 |

**Cell 10**

| | | | |
|---|---|---|---|
| 12 | 9 | 20 | 18 |
| 4 | 1 | 8 | 10 |
| 5 | 3 | 2 | 11 |
| 17 | 7 | 6 | 19 |

**Cell 9**

| | | | |
|---|---|---|---|
| 3 | 6 | 5 | 12 |
| 9 | 10 | 19 | 11 |
| 2 | 4 | 8 | 7 |
| 18 | 20 | 17 | 1 |

**Cell 8**

| | | | |
|---|---|---|---|
| 20 | 5 | 8 | 1 |
| 10 | 6 | 7 | 9 |
| 12 | 18 | 2 | 3 |
| 17 | 4 | 11 | 19 |

**Cell 7**

| | |
|---|---|
| **d** | **a** |
| **c** | **b** |

**Cell 6**

| | | | |
|---|---|---|---|
| 20 | 6 | 9 | 12 |
| 1 | 3 | 11 | 7 |
| 4 | 18 | 10 | 5 |
| 19 | 8 | 2 | 17 |

**Cell 5**

| | |
|---|---|
| **a** | **b** |
| **d** | **c** |

**Cell 4**

| | | | |
|---|---|---|---|
| 19 | 11 | 8 | 17 |
| 3 | 20 | 1 | 7 |
| 12 | 4 | 6 | 5 |
| 9 | 2 | 18 | 10 |

**Cell 3**

| | | | |
|---|---|---|---|
| 3 | 7 | 9 | 12 |
| 13 | 8 | 11 | 5 |
| 15 | 14 | 16 | 4 |
| 6 | 10 | 2 | 1 |

**Cell 2**

| | |
|---|---|
| **d** | **c** |
| **b** | **a** |

**Cell 1**

| | | | |
|---|---|---|---|
| 8 | 18 | 7 | 19 |
| 11 | 17 | 4 | 5 |
| 2 | 20 | 6 | 3 |
| 10 | 1 | 9 | 12 |

**Treatments:**

To be subjected to three irrigation regimes (likely 60, 70, 80% $Et_o$/DU); 5' by 5' plots

1. B7.1143 *Festulolium*
2. B7.1142 *Festulolium*
3. 6.1657 tall fescue
4. 6.0891 tall fescue
5. 6.1534 tall fescue
6. 5.0541 tall fescue
7. 6.0726 tall fescue
8. 7.0536 tall fescue
9. 7.0537 tall fescue
10. 7.0535 tall fescue
11. 7.0534 tall fescue
12. Fawn tall fescue

To be subjected to one irrigation regime (likely 70% $Et_o$/DU); 5' by 5' plots

13. 7.0543 tall fescue
14. 8.0151 tall fescue
15. 7.0542 tall fescue
16. 7.1359 tall fescue

To be subjected to two irrigation regimes (likely 70, 80% $Et_o$/DU); 5' by 5' plots

17. Avenger tall fescue
18. Firenza tall fescue
19. Bonsai 3000 tall fescue
20. 2nd Millenium tall fescue

To be subjected to one irrigation regime (likely 70% $Et_o$/DU); 10' by 10' plots

The following seed were purchased at Lowe's

a. Pennington Turf Type Tall Fescue
(39% Forte tall fescue; 29%Duranna tall fescue; 29% Signia tall fescue)

**b.** Pennington Sun and Shade Mix
(68% Integra perennial ryegrass; 10% Blue Bonnet K. bluegrass; 10% Flyer creeping red fescue; 10% Shadow II chewings fescue)

**c.** Scotts Select Turf Landscapers' Mix
(44% Adobe tall fescue; 44% Chinook tall fescue; 4% Gulf annual ryegrass)

**d.** Scotts Pure Premium High Traffic Mix
(30% Roadrunner perennial ryegrass; 25% Inspire perennial ryegrass; 25% Abbey K. bluegrass; 19% Showtime perennial ryegrass)