Weed Control During Conversion from Tall Fescue to Buffalograss for Water Conservation

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Water use restrictions for irrigation of landscapes are likely to continue to increase throughout much of California. As a result, it is becoming increasingly difficult to maintain turf quality and desirable green color of cool-season turfgrasses like tall fescue. One strategy for decreasing water use on turf is to convert to warm-season turfgrass species that require at least 20% less water. Removing the existing sod and replacing sod of a warm-season species would be the ideal remedy, but this may be cost prohibitive for many homeowners. An alternative approach would be to seed or plug the warm-season species directly into the existing lawn. Results from a study conducted last year demonstrated that tall fescue must be eradicated to allow successful establishment of warm-season turf. In addition, we found that weed competition can adversely affect stand establishment unless managed properly.

Objectives:

1. Determine efficacy of tall fescue eradication, weed control, and safety to buffalograss established from seed or by plugs.
2. Determine herbicide (combinations) that can be used to transition eradication of tall fescue to minimize turf discoloration while not compromising establishment rate of buffalograss.
3. Evaluate new herbicides that are soon to be registered on turfgrass in California.

Location:	UCR Turfgrass Research Facility
Soil:	Hanford fine sandy loam
Experimental Design:	Randomized complete block with 3 replications
Plot Size:	7' by 7'
Species/Cultivars:	West Coaster' tall fescue turf; „UC Verde' buffalograss (plugs) and (33:33:33) mixture of University of Nebraska NE BFG07-03, NE BFG 07-01, and NE BFG 07-4E experimental seed
Application Information:	CO_2 Bicycle sprayer TeeJet 8002DG nozzles 19" nozzle spacing 22" boom height Speed: 2 mph Output: 30GPA Pressure: 42 psi @ Tank Calibration: 732 ml/nozzle/minute

Roundup QuikPro applied at 1.5 oz product per gallon in backpack sprayer (spray to wet)

Application Timing: A: 7/27/2010
B: 9/2/2010

Plugs and Seed: Established on 8/4/2010; plugs on 15-inch spacing; 2 lbs/1000 ft^2 seed

Fertility: 0.5 lb N/1000 ft^2 approximately monthly

Mowing Height: 2.25 inches; 3 times weekly

Irrigation Regimes: Established for 8 weeks at 160% ET_o replacement, then irrigation was lowered to (60% ET_o*K_c)/DU

Data Collection: Total plot turf quality, percent weed cover by species, and percent cover buffalograss using 18" by 18" 1" grid pattern counting grass at intersection.

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Preliminary Results:

- ✓ Thus far, none of the herbicide treatments have resulted in injury to buffalograss seedlings or plugs.
- ✓ Although Tenacity, applied before planting at 5 oz/A (trts 19-20, 23-24) was helpful in transitioning tall fescue from green toward dead turf, it appeared that the Tenacity-treated tall fescue turf was still vigorous enough to reduce buffalograss stand establishment (Table 1).
- ✓ Celsius, applied at 2.9 or 4.5 oz/A, was effective in transitioning tall fescue turf while not impeding buffalograss establishment (Table 1).
- ✓ Weed competition in the plots was mounting and will be discussed at Field Day.

Table 1. Buffalograss and green tall fescue cover (0-100%) on September 1, 2010. Riverside, CA.

Trt	Method	Herbicide(s)	Rate(s)	Timing	Buffalo Cover	Tall Fescue Color
1	Seed	Roundup QuikPro	1.5 oz/gal	A	2.0 c	0 d
2	Plugs	Roundup QuikPro	1.5 oz/gal	A	10.0 a	0 d
3	Seed	Roundup QuikPro	1.5 oz/gal	A	2.7 c	0 d
		Imprelis	1.5 oz/A	B		
4	Plugs	Roundup QuikPro	1.5 oz/gal	A	10.0 a	0 d
		Imprelis	1.5 oz/A	B		
5	Seed	Roundup QuikPro	1.5 oz/gal	A	1.3 c	0 d
		Imprelis	3.0 oz/A	B		
6	Plugs	Roundup QuikPro	1.5 oz/gal	A	10.0 a	0 d
		Imprelis	3.0 oz/A	B		
7	Seed	Roundup QuikPro	1.5 oz/gal	A	1.7 c	0 d
		Imprelis	4.5 oz/A	B		
8	Plugs	Roundup QuikPro	1.5 oz/gal	A	11.7 a	0 d
		Imprelis	4.5 oz/A	B		
9	Seed	Roundup QuikPro	1.5 oz/gal	A	2.0 c	0 d
		Speedzone Southern	4.0 pt/A	B		
10	Plugs	Roundup QuikPro	1.5 oz/gal	A	11.7 a	0 d
		Speedzone Southern	4.0 pt/A	B		
11	Seed	Roundup QuikPro	1.5 oz/gal	A	1.3 c	0 d
		Celsius	2.45 oz/A	B		
		Revolver	4.5 oz/A	B		
12	Plugs	Roundup QuikPro	1.5 oz/gal	A	10.0 a	0 d
		Celsius	2.45 oz/A	B		
		Revolver	4.5 oz/A	B		
13	Seed	Roundup QuikPro	1.5 oz/gal	A	1.3 c	0 d
		Tenacity	5 oz/A	B		
		Monument	10 g/A	B		
14	Plugs	Roundup QuikPro	1.5 oz/gal	A	10.0 a	0 d
		Tenacity	5 oz/A	B		
		Monument	10 g/A	B		
15	Seed	Roundup QuikPro	1.5 oz/gal	A	2.0 a	0 d
		Tenacity	5 oz/A	A		
		Monument	10 g/A	B		
16	Plugs	Roundup QuikPro	1.5 oz/gal	A	10.0 a	0 d
		Tenacity	5 oz/A	A		
		Monument	10 g/A	B		
17	Seed	Celsius	2.5 oz/A	A	1.3 c	43.3 b
		Celsius	4.0 oz/A	B		
18	Plugs	Celsius	2.5 oz/A	A	10.0 a	30.0 c
		Celsius	4.0 oz/A	B		
19	Seed	Tenacity	5.0 oz/A	A	0.3 c	84.7 a
		Tenacity	5.0 oz/A	B		
		Monument	10.0 g/A	B		
20	Plugs	Tenacity	5.0 oz/A	A	5.7 b	88.3 a
		Tenacity	5.0 oz/A	B		
		Monument	10g/A	B		
21	Seed	Celsius	4.9 oz/A	A	1.7 c	10.0 d
		Revolver	9.0 oz/A	A		
22	Plugs	Celsius	4.9 oz/A	A	10.0 a	21.7 c
		Revolver	9.0 oz/A	A		
23	Seed	Tenacity	5.0 oz/A	A	0.0 c	89.7 a
		Monument	15.0 g/A	B		
24	Plugs	Tenacity	5.0 oz/A	A	7.0 b	76.7 a
		Monument	15.0 g/A	B		

Means followed by same letter do not significantly differ (P =0.05, Fisher's Protected LSD).

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Plot Plan

North

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
11	4	5	3	12	6	13	10
16	14	22	7	19	20	1	21
18	24	8	15	23	9	17	2
7	21	10	14	12	1	18	3
16	11	15	24	23	4	6	17
5	8	12	20	2	19	22	9