Project: Phytotoxicity of rye removal herbicides to seashore paspalum

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Summary

A small plot replicated trial was conducted to evaluate the phytotoxicity of rye removal herbicides to seashore paspalum. Of the treatments tested, Kerb and Revolver produced no significant damage to paspalum, with or without the addition of a chelated iron supplement (Sprint 330). Monument produced significant damage to paspalum that lasted approximately 4 weeks at both rates tested. The addition of Sprint 330 did not alleviate this effect.

Materials and Methods

Treatments: Treatments tested are listed in Table 1 below.

Experimental design and application: The trial was conducted at Fairbanks Ranch Country Club, Rancho Santa Fe, CA (Brian Darrock, superintendent) on a seashore paspalum fairway (variety Sea Isle I).

Plots measured 3 feet by 3 feet and treatments were replicated three times, in a randomized design. The plots in replicate 2 were overseeded with perennial ryegrass, while the plots in replicates 1 and 3 were not.

Applications were made with a CO_2 backpack sprayer equipped with 8004 VS flat fan nozzles and delivering 0.98 gallons of water per 1000 square feet, with 30 psi at the boom. Calibration of each nozzle was confirmed prior to application to be within 5% of the desired nozzle flow rate. Boom height was 17 inches above the ground. The spray swath was 3 feet. Speed was 3 mph. Spray bottles were agitated by shaking 20 times prior to charging with compressed CO_2. Spray lines were purged with CO_2 and then water prior to changing treatments.

A single application of each product was made to the plots on 6/4/03.

Evaluations: Overall turf quality was measured 2 and 4 weeks after the first treatment. Quality was rated using a Spectrum Field Scout chlorophyll meter (Spectrum Technology; Field Scout CM1000) that measures ambient and reflected 700 nm and 840 nm light to calculate a relative chlorophyll index. After extensive use of the meter in variety trials and fertilizer trials, it has proven to be an objective and highly sensitive method for rating turf quality (Figure 1). Three readings per plot were taken on each evaluation date and averaged.

Data analysis: Data was subjected to analysis of variance, and treatment means were separated using Fisher's LSD, where $P<0.05$.

Table 1. Quality ratings. Treatments significantly worse ($P<0.05$) than the untreated check on each date are highlighted in red.

Trt #	Product	Rate/1000 sq ft	Application Date	6/18		7/2	
1	No treatment			286	abc	304	ab
2	Revolver 22.5 SC	0.2 oz	6/4/03	261	abcd	290	ab
3	Revolver 22.5 SC	0.4 oz	6/4/03	253	abcd	278	ab
4	Kerb WSP	1.1 oz	6/4/03	314	ab	307	a
5	Kerb WSP	2.2 oz	6/4/03	275	abc	269	ab
6	Monument 75WG	0.0046 oz	6/4/03	224	cd	163	cd
7	Monument 75WG	0.0092 oz	6/4/03	219	cd	146	d
8	Sprint 330	2.0 oz	6/4/03	312	ab	319	a
9	Revolver + Sprint	0.2 oz + 2.0 oz	6/4/03	251	bcd	272	ab
10	Revolver + Sprint	0.4 oz + 2.0 oz	6/4/03	235	cd	228	bc
11	Kerb + Sprint	1.1 oz + 2.0 oz	6/4/03	318	a	279	ab
12	Kerb + Sprint	2.2 oz + 2.0 oz	6/4/03	275	abc	265	ab
13	Monument + Sprint	0.0046 oz + 2.0 oz	6/4/03	205	d	153	cd
14	Monument + Sprint	0.0092 oz + 2.0 oz	6/4/03	219	cd	143	d

Figures 1 – 4. 6/18/03 (2 WAT)

Figures 5 – 10. 7/2/03 (4WAT). The overall shots illustrate the yellowing of paspalum that was produced by Monument in plots 6 and 7.