Enhancing or Replacing Dinitroaniline Herbicides for Annual Bluegrass (*Poa annua* L.) Control in Overseeded Golf Course Fairways

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Objective

Evaluate various annual bluegrass control options once DNA herbicides become ineffective by using alternative pre- and postemergent variations and their effects on the density/quality of overseeded perennial ryegrass [*Lolium perenne* L.]

Materials and Methods

Study 2 was conducted from 2010-2011 on 'Tifway 419' bermudagrass (*Cynodon dactylon* L. Pers. x *C. transvaalensis* Burtt-Davey 'Tifway') fairways overseeded with 392 kg/ha perennial ryegrass at Wild Dunes Golf Club in Isle of Palms, S.C. Prior use of DNA herbicides and overseeding practices have occurred at this site for numerous consecutive years (>20). Experimental design was a randomized complete block with three replications. Plot size was 3 m^2.

Table 1 shows the herbicide treatments, application rates, and timings in days before overseeding (DBO) and days after overseeding (DAO). Treatments were applied using a CO_2 backpack sprayer calibrated to deliver 187 L/ha and shaker canister.

Annual bluegrass control was visually assessed on a scale of 0 to 100% with > 70% being unacceptable. Turf quality was rated visually on a scale from 1 to 9, where 1 = brown turf and 9 = dark green turf, with < 7 being unacceptable. Turf density was visually assessed on a scale of 0 to 100% with 0% = brown turf, bare soil and 100% = completely dense, uniform, with > 80% being unacceptable. Data was analyzed using ANOVA, and means were compared using Fisher's protected LSD (α=0.05).

Results

Turf Density:

SUL at 0.082 lbs a.i./A and DIM at 1.68 + 1.68 lbs a.i./A were unacceptable 5 months after overseeding (MAO) in 2010. In 2011, SUL at 0.082 lbs a.i./A and DIM at 1.68 + 1.68 lbs a.i./A were unacceptable 4 and 5 MAO, respectively. All other treatments were acceptable for each rating date.

Turf Quality:

SUL at 0.082 lbs a.i./A was unacceptable 4 and 5 MAO in 2010. DIM at 1.68 + 1.68 lbs a.i./A was also unacceptable 5 MAO in 2010. All other treatments were acceptable for both rating dates in 2010.

Annual Bluegrass Control:

PRO at 0.75 lbs a.i./A, DIT at 0.56 + 0.56 lbs a.i./A, TRI at 0.014 lbs a.i./A, OXA at 1.96 lbs a.i./A, and both single and split applications of DIM at 3.37 and 1.68 + 1.68 lbs a.i./A had unacceptable control of annual bluegrass control 6 MAO during 2010 and 2011. All other treatments had acceptable control during 2010 and 2011.

Preemergent	Postemergent
Prodiamine (PRO) 0.75 lbs a.i./A 60 DBO	Foramsulfuron (FOR) 0.025 lbs a.i./A 7 DBO
Dithiopyr (DIT) 0.56 + 0.56 lbs a.i./A 45 DBO and 90 DAO	Trifloxysulfuron (TRI) 0.014 lbs a.i./A 21 DBO
Oxadiazon (OXA) 1.96 lbs a.i./A 60 DBO	Rimsulfuron (RIM) 0.016 lbs a.i./A 7 DBO
Dimethenamid (DIM) 3.37 lbs a.i./A 45 DBO	Sulfosulfuron (SUL) 0.082 lbs a.i./A 7 DBO
Dimethenamid 1.68 + 1.68 lbs a.i./A 45 DBO and 90 DAO	

Table 1. List of herbicides, rates, and application timings.

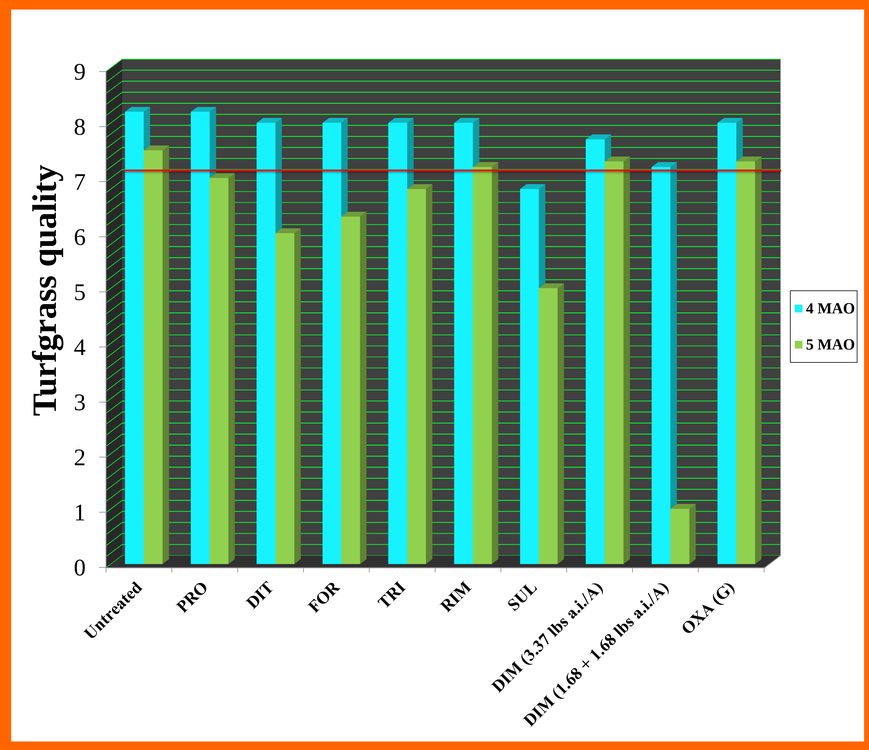

Figure 1. Turfgrass quality of perennial ryegrass 4 and 5 MAO in 2010.

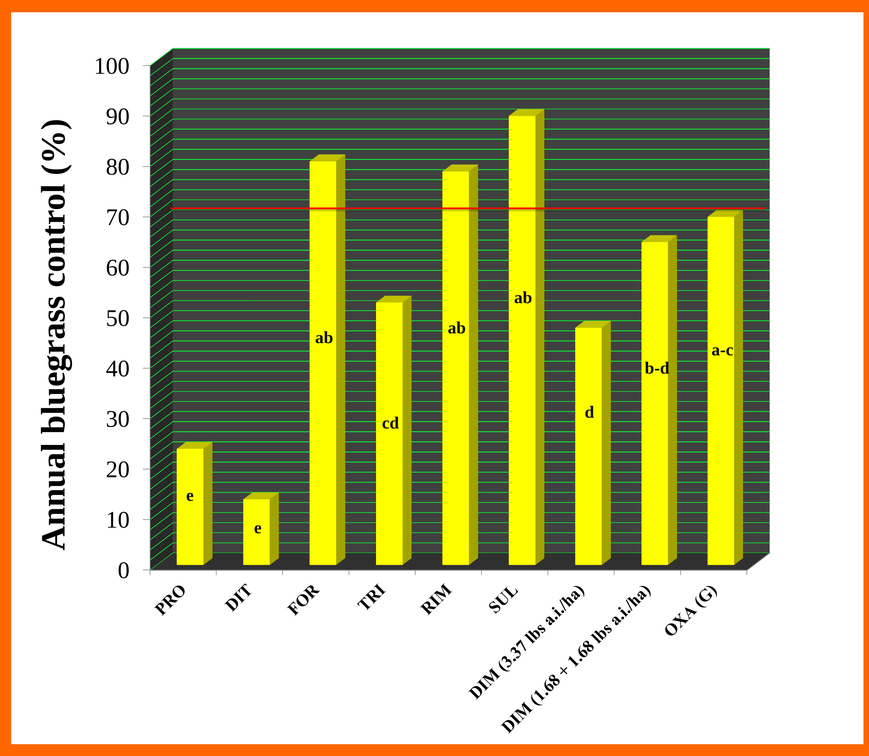

Figure 2. Annual bluegrass control 6 MAO during 2010 and 2011.

Dithiopyr

(0.56 + 0.56 lbs a.i./A)

45 DBO + 90 DAO

Oxadiazon (G)

(1.96 lbs a.i./A)

60 DBO

Rimsulfuron

(0.016 lbs a.i./A)

7 DBO