

Turf Conversion Using Seeded Zoysia and Bermuda

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Objective

Determine if bermudagrass and zoysiagrass can be overseeded more effectively into an existing cool season turf at higher seeding rates with and without the use of non-selective herbicides.

Rationale

Historically, bermudagrass and zoysiagrass have not been widely used on golf courses and athletic fields in the transition zone. Labor requirements and expense of vegetative establishment limited widespread use of these grasses. Fortunately, improved seeded bermudagrass and zoysiagrass varieties have become available in the last few years increasing their feasibility for more athletic fields and golf courses. Many managers have not converted their existing cool season turfgrass stands into warm season stands. This is mainly because facilities must be closed down during renovation using current renovation strategies. Further research in conversion methods will enable managers to take advantage of these new seeded varieties.

How it was Done

This experiment was a 2 X 3 factorial with two herbicide treatments (glyphosate and no glyphosate) and three seeding rates. Two separate studies were conducted, one bermudagrass and one zoysiagrass study. Perennial ryegrass plots with a mowing height of 0.75 inches were delineated this spring. Half of the plots were treated with glyphosate and the other half were left untreated. Four days following the glyphosate application all plots were core aerified and verticut in two directions. Bermudagrass was seeded at 0.5, 1.0 and 1.5 lbs. pure live seed (PLS)/1000ft² and zoysiagrass was seeded at 1.0, 2.0 and 3.0 lbs. PLS/1000ft². Plots were fertilized with 1.0 lb N/1000ft² after seeding and monthly during the summer. Plots were irrigated frequently to promote germination. One week after seeding, plots were scalped to 0.5 inches to favor germination and kept at that height for the remainder of the experiment. Data was collected visually as percent cover or using the line-intersect method.

Results

It is too early in the experiment to draw any definite conclusions. However, it appears that both zoysia and bermudagrass require very thin turf to be successfully overseeded. To date, zoysia and bermudagrass have established only in the glyphosate-treated plots (Tables 1-4). Due to inadequate kill of perennial ryegrass, zoysiagrass did not fully establish. Although the second year of the experiment has not yet been established, there appears to be differences among the seeding rates during first year trials. Hopefully, this work will allow golf courses and athletic fields in the transition zone to convert their turf at a lower cost while reducing pesticide and fertilizer use. This study will be repeated in 2002.

Table 1. Mean percent cover from 2001 fairway conversion using ‘Mirage’ bermudagrass.

Treatments	Glyphosate Timing	Seeding Rate ^a	25 June	23 July	28 Aug	25 Sept	18 Oct
			----- % Cover ^b -----				
1	prior to seeding	0.5	15	73	91	91	91
2	prior to seeding	1.0	18	84	98	96	93
3	prior to seeding	1.5	21	89	97	99	95
4	none	0.5	0	0	1	1	0
5	none	1.0	0	0	1	1	0
6	none	1.5	0	0	1	1	0

^a Rate is pure live seed/1000ft²^b Visual rating of percent of plot covered by bermudagrass.**Table 2.** Mean number transects from 2001 fairway conversion using ‘Mirage’ bermudagrass.

Treatments	Glyphosate Timing	Seeding Rate ^a	25 June	23 July	28 Aug	25 Sept	18 Oct
			----- # Transects ^b -----				
1	prior to seeding	0.5	29	72	79	78	72
2	prior to seeding	1.0	39	71	81	80	76
3	prior to seeding	1.5	46	76	81	80	76
4	none	0.5	0	0	2	1	0
5	none	1.0	0	0	2	0	0
6	none	1.5	0	0	2	1	0

^a Rate is pure live seed/1000ft²^b Number of intersections where bermudagrass was growing out of a possible 81 intersections.

Table 3. Mean percent cover from 2001 fairway conversion using ‘Zenith’ zoysiagrass.

Treatments	Glyphosate Timing	Seeding Rate ^a	25 June	23 July	28 Aug	25 Sept	18 Oct
			----- % Cover ^b -----				
1	prior to seeding	1.0	1	4	17	23	19
2	prior to seeding	2.0	1	5	29	29	25
3	prior to seeding	3.0	1	7	35	38	33
4	none	1.0	0	0	1	1	0
5	none	2.0	0	0	1	1	0
6	none	3.0	0	0	1	1	0

^a Rate is pure live seed/1000ft²^b Visual rating of percent of plot covered by zoysiagrass.**Table 4.** Mean number transects from 2001 fairway conversion using ‘Zenith’ zoysiagrass.

Treatments	Glyphosate Timing	Seeding Rate ^a	25 June	23 July	28 Aug	25 Sept	18 Oct
			----- # Transects ^b -----				
1	prior to seeding	1.0	3	7	22	26	18
2	prior to seeding	2.0	6	11	36	34	24
3	prior to seeding	3.0	8	16	45	42	29
4	none	1.0	0	0	0	0	0
5	none	2.0	0	0	1	0	0
6	none	3.0	0	0	1	0	0

^a Rate is pure live seed/1000ft²^b Number of intersections where zoysiagrass was growing out of a possible 81 intersections.