

2002 NTEP Zoysiagrass Cultivar Evaluation – 2004

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Objective

The objective of this study was to determine the survivability, performance, and susceptibility to *Rhizoctonia* large patch (zoysia patch) of seeded and vegetatively established zoysiagrass for use on golf courses in Indiana.

Rationale

Zoysia is ideal for southern IN fairways and tees because of reduced irrigation, and pesticide inputs. Zoysia has long been established vegetatively, but seeded cultivars are now being developed and are commercially available. With the reduced establishment costs of seeded varieties compared to vegetative varieties, zoysia may now fit into budgets of many more golf courses. It is important to evaluate the feasibility of zoysiagrass in terms of winter survivability, summer performance, and susceptibility to *Rhizoctonia* large patch.

How It Was Done

Twenty-four varieties of zoysiagrass were established in the third week of June 2002 at the William H. Daniel Research and Diagnostic Center on a silt loam soil. The experimental area was tilled and fumigated prior to establishment to minimize competition from annual grasses and broadleaf weeds. The area was then smoothed and leveled to prepare the seedbed. A starter fertilizer (8-22-16) was applied prior to seeding at 1.5 lbs P₂O₅/1000 ft². Seed rate was approximately 0.5 lb/1000 ft² for the 11 seeded cultivars and the 13 vegetative cultivars were established with 1.5 in by 1.5 in plugs on 12 inch centers. The seeded varieties were covered with AgroFabric to encourage germination, and then the entire area was watered 2 to 3 times daily to encourage germination and establishment. Maintenance on the area is typical of fairways and includes mowing at 0.5 inch 3 times per week, irrigation to prevent moisture stress, and 3 lbs N/1000 ft²/yr (1 lb in June, July, and August). This study was also inoculated with *Rhizoctonia* large patch (zoysia patch) in fall of 2003 and susceptibility to this disease will be monitored throughout the life of the experiment.

Results to Date

- Five cultivars did not survive two Indiana winters and those cultivars included DALZ0105, DALZ9604, GN-2, 6186, and DALZ0104 (Table 1).
- Of the surviving cultivars that are commercially available, Emerald, Zorro, Meyer, and Zenith were the best performers in terms of visual quality.
- The Achilles Heel of zoysia is *Rhizoctonia* large patch (RLP), also known as zoysia patch. Many of the cultivars showed tolerance to RLP including Emerald, Zorro, and Meyer. We expect RLP to become more widespread as the stand matures, which should provide a better estimate of the differences in susceptibility among the cultivars
- When making cultivar selections, it is best to consult the NTEP web page at www.ntep.org for complete performance data from around the country on cultivars, placing special emphasis on how cultivars perform in IN, IL, KY, MI and/or OH (depending if you are located in northern, central, or southern IN) under the specific maintenance regime you intend for that grass.

Table 1. Color, texture, zoysia patch infection, and quality of 24 zoysiagrass cultivars in 2004

	Estab- lishment	Color ^a			Leaf texture ^b	Zoysia patch ^c	Quality ^d				
		Apr	Aug	Oct			June	July	Aug	Sep	Avg
Emerald ^e	Veg	4.7	5.3	5.0	8.7	9.0	5.3	8.3	8.3	8.0	7.5
Zorro ^e	Veg	5.3	4.0	4.7	8.7	9.0	6.0	8.0	7.3	7.7	7.3
PST-R7ZM	Seeded	5.7	5.0	3.7	4.7	9.0	6.0	7.0	7.0	5.0	6.3
DALZ0101	Veg	3.0	4.3	4.7	8.7	6.7	4.0	8.0	5.7	6.0	5.9
PST-R7MA	Seeded	6.7	5.7	3.7	4.0	7.7	5.3	6.0	6.3	6.0	5.9
PZA32	Seeded	7.7	5.3	3.0	4.3	9.0	4.3	6.3	6.3	6.0	5.8
Himeno	Veg	4.0	7.0	3.3	4.7	4.7	6.7	5.3	6.7	3.7	5.6
Meyer ^e	Veg	6.3	5.7	3.7	6.0	9.0	4.7	6.3	6.3	5.0	5.6
PST-R7TH	Seeded	6.7	5.7	3.7	4.7	6.7	5.3	5.7	5.3	5.0	5.3
PST-R7LT	Seeded	6.7	5.3	2.7	5.7	9.0	4.7	6.3	5.3	4.7	5.3
Zenith ^e	Seeded	7.3	5.0	3.7	4.3	7.3	5.0	5.7	5.0	4.7	5.1
DALZ0102	Veg	6.3	4.0	3.3	2.3	9.0	6.7	4.7	4.0	4.3	4.9
Companion ^e	Seeded	8.0	4.7	4.0	2.7	6.3	5.0	5.3	4.3	4.3	4.8
J-37 ^e	Seeded	7.3	5.0	4.7	2.7	9.0	4.0	5.7	4.7	3.7	4.5
PZB33	Seeded	6.3	4.0	3.0	3.7	7.7	4.7	5.3	4.3	3.7	4.5
BMZ230	Veg	6.3	7.3	6.7	2.7	7.0	4.0	4.3	5.0	3.7	4.3
Chinese Common ^e	Seeded	6.7	4.7	3.7	2.7	5.0	3.7	5.7	4.7	3.0	4.3
Zen400 ^e	Seeded ^f	7.0	5.3	2.7	2.7	8.3	3.7	4.0	3.7	3.3	3.7
El Torro ^e	Veg	2.7	7.0	5.0	3.3	5.0	2.0	2.7	2.3	2.3	2.3
DALZ0105	Veg	1.0	1.0	1.0	1.0	1.0	1.3	1.0	1.0	1.0	1.1
DALZ9604	Veg	1.0	1.0	1.0	1.0	1.0	1.3	1.0	1.0	1.0	1.1
GN-2	Veg	1.0	1.0	1.0	1.0	1.0	1.0	1.3	1.0	1.0	1.1
6186	Veg	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
DALZ0104	Veg	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
LSD (0.05)		1.7	1.6	1.7	1.4	3.4	1.6	1.2	1.7	1.4	0.9

^a Color was rated on 23 Apr (spring green-up), 19 Aug, and 28 Oct (winter color) on a scale of 9 to 1 with 9=dark green and 1=chlorotic yellow.

^b Leaf texture was rated on 26 Aug with 9=fine bladed and 1=coarse bladed.

^c Zoysia patch was rated on 27 Aug with 9=highly resistant and 1=highly susceptible

^d Quality was rated on 8 June, 27 July, 26 August, and 25 Sep on a 9 to 1 scale with 9=excellent, 5=acceptable and 1=dead.

^e Commercially available as of Feb 2004.

^f Zen 400 was available as a seeded cultivar, but we established it vegetatively from a local source for this study.