

1996 NTEP Zoysiagrass Test - 2000 Results

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Objective

The objective was to evaluate the performance of vegetative and seeded varieties of zoysiagrass in Indiana.

Rationale

Zoysiagrass is well adapted for golf course tees and fairways, and lawns in the transition zone in Indiana. New zoysiagrass varieties have been or will soon be introduced to the market including some seeded varieties. It is important to know the survivability, rate of establishment and performance of these varieties so turfgrass managers can make informed decisions regarding their use.

How It Was Done

Eight seeded and 11 vegetative varieties of zoysiagrass were planted on 10 July-96 at the Purdue Agronomy Research Center on silt loam soil. Seed was spread on plots using a hand shaker jar, lightly raked and rolled. Vegetative varieties were planted using 2 by 2 inch plugs of greenhouse grown zoysiagrass. Plugs were planted on 1-foot centers. A starter fertilizer was applied after seeding/planting at 0.3 lb N, 1.5 lbs P₂O₅, and 0.3 lb K₂O/1000 ft². Invasion of *Poa annua* in fall 1996, and spring and early summer 1997 necessitated the use of both preemergence and postemergence herbicides for *Poa annua* control. In 2000 the zoysiagrass was mowed at 0.75 inch three times/week with clippings returned. The site was irrigated to prevent drought stress. In addition to using herbicides to control *Poa annua*, herbicides have been applied to control crabgrass and broadleaf weeds. No insecticides or fungicides have been applied to the zoysiagrass.

Data collected in 2000 were color, spring green-up, leaf texture, percent cover spring and fall, and monthly visual quality ratings from May to Sep.

Results To Date

- The variety average visual quality rating after four years was 3.8 (Table 1). This provides a benchmark to compare the varieties to the average performance of all zoysia varieties in this test.
- J37, ZEN-400, and ZEN-500 were the best-performing seeded varieties.
- Meyer, Emerald and J-14 were the best-performing vegetative varieties.
- Meyer, Emerald, and Chinese common are some of the first to green-up in the spring (Table 2).
- Zoysia is slow to establish in West Lafayette, IN (Table 3). This is mainly due to a short growing season and injury to some varieties from the cold, sometimes open winters.

Table 1. Average yearly visual quality ratings of zoysia varieties for 1997, 1998, 1999, 2000, and four year average visual quality ratings.

Variety	Establishment method	1997	1998	1999	2000	Four year average
J-37	Seed	6.0 ^a	5.7	5.4	4.9	5.5
Emerald ^c	Vegetative	2.5	5.2	6.9	6.5	5.3
Meyer ^c	Vegetative	2.5	5.6	6.7	6.1	5.2
J-14	Vegetative	3.8	6.0	5.9	5.1	5.2
ZEN-400 ^c	Seed	3.7	5.7	5.7	5.4	5.1
ZEN-500 ^c	Seed	3.8	5.6	5.4	4.7	4.9
DALZ 9601	Vegetative	2.2	3.7	6.5	6.7	4.8
J-36	Seed	3.8	5.3	5.1	4.7	4.6
Chinese Common ^c	Seed	4.5	5.1	4.5	4.3	4.6
Zeon ^c	Vegetative	2.2	3.1	6.1	6.5	4.4
Zenith ^c	Seed	2.7	4.6	4.9	5.2	4.3
JaMur ^c	Vegetative	2.2	4.3	4.8	4.5	4.0
El Toro ^c	Vegetative	3.0	5.4	4.1	3.7	4.0
Miyako	Vegetative	2.0	2.4	3.9	4.1	3.1
Korean Common ^c	Seed	1.7	2.9	3.9	3.7	3.0
DeAnza ^c	Vegetative	1.7	1.9	2.1	2.7	2.1
Z-18	Seed	1.0	1.2	1.2	0.9	1.1
Victoria ^c	Vegetative	1.0	1.3	1.1	0.5	1.0
HT-210	Vegetative	1.0	1.0	0.8	0.3	0.8
Variety Average ^b		2.7	4.0	4.5	4.2	3.8

^a Visual quality ratings were taken using a scale of 1 to 0 with 1 = no living turf, 5 = acceptable turf, and 9 = ideal turf.

^b Variety average is the average visual quality rating of all 19 varieties of zoysiagrass in the test for a given year and the four year average.

^c Commercially available in 1999.

Table 2. Greenup ratings of zoysia varieties for 1997, 1998, 1999, 2000, and four year average green-up ratings.

Variety	Establishment method	1997	1998	1999	2000	Four year average
Meyer ^c	Vegetative	6.7 ^a	6.7	7.0	5.0	6.4
Emerald ^c	Vegetative	6.7	7.0	3.3	7.7	6.2
Chinese Common ^c	Seed	7.3	7.7	5.3	4.3	6.2
ZEN-500 ^c	Seed	6.0	6.7	5.7	5.0	5.9
J-36	Seed	5.0	7.0	6.0	5.3	5.8
ZEN-400 ^c	Seed	5.0	7.0	6.3	5.0	5.8
J-14	Vegetative	6.7	6.3	5.3	4.7	5.8
J-37	Seed	5.3	7.0	6.3	4.0	5.7
Zeon ^c	Vegetative	4.7	6.3	5.3	6.0	5.6
DALZ 9601	Vegetative	3.7	7.0	4.0	6.7	5.4
Zenith ^c	Seed	4.3	6.7	5.7	4.7	5.4
JaMur ^c	Vegetative	6.0	7.0	2.0	4.0	4.8
El Toro ^c	Vegetative	6.3	6.7	1.3	4.3	4.7
Korean Common ^c	Seed	1.0	4.3	6.7	6.0	4.5
Miyako	Vegetative	1.7	5.3	2.0	3.0	3.0
Z-18	Seed	1.0	0.0	2.0	4.7	1.9
DeAnza ^c	Vegetative	1.0	3.0	0.7	1.3	1.5
Victoria ^c	Vegetative	1.0	0.0	0.3	2.3	0.9
HT-210	Vegetative	1.0	0.0	0.0	1.7	0.7
Variety Average ^b		4.2	5.4	4.0	4.5	4.5

a Green-up is a spring rating of when varieties break dormancy and start growth. A scale of 1 to 9 is used with 1 = completely brown and 9 = fully green.

^b Variety average is the average green-up rating of all 19 varieties of zoysiagrass in the test for a given year and the four year average.

^c Commercially available in 1999.

Table 3. Percent of plot area covered by zoysia varieties in 1997, 1998, 1999, and 2000.

Variety	Establishment method	Summer	Fall	Spring	Spring	Spring	Fall
		1997	1997	1998	1999	2000	2000
		%					
ZEN-400 ^c	Seed	45.0 ^a	55.0	84.7	99.0	99.0	99.0
Emerald ^c	Vegetative	28.3	35.0	68.3	88.3	99.0	99.0
Meyer ^c	Vegetative	30.0	40.0	75.0	99.0	97.7	99.0
Zeon ^c	Vegetative	6.0	7.7	28.3	86.7	97.7	99.0
J-14	Vegetative	36.7	56.7	91.7	97.7	93.3	99.0
DALZ 9601	Vegetative	9.3	13.3	36.7	86.7	99.0	98.7
Zenith ^c	Seed	30.0	41.7	53.3	94.7	97.7	98.7
J-37	Seed	80.0	88.3	94.3	99.0	99.0	97.7
J-36	Seed	51.7	56.3	82.7	99.0	96.3	97.7
ZEN-500 ^c	Seed	45.0	58.3	86.7	99.0	97.7	97.3
Chinese Common ^c	Seed	68.3	73.3	91.7	99.0	97.7	96.3
JaMur ^c	Vegetative	13.3	13.3	51.7	50.0	86.7	96.3
Miyako	Vegetative	2.0	2.0	7.7	38.3	88.3	91.7
Korean Common ^c	Seed	6.7	6.0	25.3	76.0	85.0	89.3
El Toro ^c	Vegetative	31.7	38.3	81.7	18.3	78.3	88.3
DeAnza ^c	Vegetative	1.3	2.0	4.3	2.0	51.7	60.0
Z-18	Seed	0.0	0.0	0.0	1.7	8.3	11.7
Victoria ^c	Vegetative	0.0	0.0	0.0	0.0	1.7	1.7
HT-210	Vegetative	0.0	0.0	0.0	0.0	0.0	0.0
Variety Average ^b		25.5	30.9	50.7	65.0	77.6	80.0

^a Percent of plot area covered by zoysia.

^b Variety average is the average plot area of all 19 varieties of zoysiagrass in the test for a given year.

^c Commercially available in 1999.