

# **Comparison of Three Fertility Rates and Two Mowing Heights Effects on Cultivars of *Zoysia japonica* and *Zoysia matrella* to Determine the Optimum Management Scheme and Divot Recovery Rate**

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## **OBJECTIVE**

The objective of this trial is to maintain zoysiagrass cultivars at different fertility regimes and different mowing heights and record quality ratings and divot recovery

## **TREATMENTS**

Nine different zoysiagrasses were studied at the Turfgrass Field Lab at the Lake Wheeler Research Station. The nitrogen rates were 1.5, 3.5, and 5.5 lbs N/1000 ft<sup>2</sup>/year. The fertilizer treatment was started on 4-2-08 and 4-1-09 with a complete fertilizer (16-4-8) at a rate of 0.5 lbs N/1000 ft<sup>2</sup>/year. The remainder of the nitrogen for each treatment was supplied using sulfur-coated urea (SCU 42-0-0) in four equal applications five weeks apart.

The mowing heights for the *Zoysia japonica* cultivars were 1 inch and 2 inches. The mowing heights for the *Zoysia matrella* cultivars were 0.25 inch and 0.5 inch.

Divots were initiated 6-30-08 and 6-19-09. The divots were cut using a modified edger with the edger blade replaced by a stack of skill saw blades. The dimensions of the divots are 0.625 inch deep, 2.5 inches wide and 4.75 inches long. The divots were filled with topdressing sand.

## **RATINGS**

The cultivars are evaluated by visual means for quality, color, percent cover, and density. A Crop Circle Handheld Plot Scanner was used to obtain normalized difference vegetative index (NDVI), infrared band reflectance (RNIR), and visible band reflectance (RVIS) readings to compare to the visual ratings. Divots are visually rated for percent recovery. Analysis of digital pictures will also be used as a measure of divot recovery. Dollarspot was also rated by spot counts.

## ***Zoysia japonica* CULTIVARS:**

**JaMur** : The low fertility rate did not seem sufficient for JaMur, with both the medium and high rates having good quality. The texture is coarse. JaMur seems to be only slightly susceptible to dollarspot from ratings obtained in 2008 and 2009. Using divot recovery and

sprigging data, JaMur seems to be very fast in growth with the low fertility rate being slower than the other rates. JaMur has shown a good tolerance to freezing from growth chamber research.

**Palisades:** The low fertility rate was insufficient for Palisades, with both the medium and high rates having good quality. The texture is coarse. Palisades seems to be moderately susceptible to dollarspot from ratings obtained in 2008. Using divot recovery and sprigging data, Palisades seems to be fast in growth with the low fertility rate being slower than the other rates. Palisades has shown a good tolerance to freezing from growth chamber research.

**Empire:** The low fertility rate did not seem sufficient for Empire, with both the medium and high rates having good quality. The texture is very coarse. Empire seems to be only slightly susceptible to dollarspot from ratings obtained in 2008 and 2009. Using divot recovery and sprigging data, Empire seems to be fast in growth with the low fertility rate being the slowest, the high rate being the fastest and the middle rate in between. Empire has shown a good tolerance to freezing from growth chamber research.

**Ultimate:** The low fertility rate was insufficient for Ultimate, with both the medium and high rates having good quality with an occasional improvement with the high rate. The texture is fine. Ultimate seems to be moderately susceptible to dollarspot from ratings obtained in 2008 and 2009. Using divot recovery and sprigging data, Ultimate seems to be very fast in growth with the low fertility rate being slower than the other rates. Ultimate has shown a good tolerance to freezing from growth chamber research.

#### ***Zoysia matrella* CULTIVARS:**

**Pristine:** The low fertility rate was only slightly insufficient for Pristine, with both the medium and high rates having good quality. The texture is very fine. Pristine seems to be susceptible to dollarspot from ratings obtained in 2008 and less susceptible in 2009. Using divot recovery and 2009 sprigging data, Pristine seems to be moderately fast in growth with the low fertility rate being slower than the other rates. Pristine has shown a poor tolerance to freezing from growth chamber research.

**Zeon:** The low fertility rate seems sufficient for Zeon, with all rates having good quality. The texture is very fine. Zeon does not appear to be susceptible to dollarspot. Using divot recovery and sprigging data, Zeon seems to be moderately fast in growth with the low fertility rate being slightly slower than the other rates. Zeon has shown a good tolerance to freezing from growth chamber research.

**Cavalier:** The low fertility rate did not seem sufficient for Cavalier, with both the medium and high rates having good quality. The texture is very fine. Cavalier seems to be susceptible to dollarspot from ratings obtained in 2008 and 2009. Using divot recovery and sprigging data, Cavalier seems to be moderately fast in growth with the low fertility rate being slower than the other rates. Cavalier has shown a good tolerance to freezing from growth chamber research.

**Diamond:** The low fertility rate did not seem sufficient for Diamond, with both the medium and high rates having good quality. The texture is extremely fine. Diamond seems to be highly susceptible to dollarspot from ratings obtained in 2008 and 2009. Using divot recovery data, Diamond seems to be moderately fast in growth with the low fertility rate being slower than the other rates. Using sprigging data, Diamond seems to be slow in growth. Diamond has shown a moderate to poor tolerance to freezing from growth chamber research.

**Zorro:** The low fertility rate was only slightly insufficient for Zorro, with both the medium and high rates having good quality. The texture is very fine. From 2009 data, Zorro does not appear to be susceptible to dollarspot. Using sprigging data, Zorro seems to be fast in growth. Zorro has shown a good tolerance to freezing from growth chamber research.