



BREEDER

NJAES / Rutgers University / RJ Peterson

DESCRIPTION

Shenandoah III is a new and improved, heat and disease resistant, double-dwarf tall fescue variety developed for superior turf quality across a wide area of adaptation. It is dark green in color, moderately fine textured with excellent wear tolerance. Shenandoah III exhibits a unique combination of traits including short dwarf dense growth, improved turf quality and resistance to brown patch incited by *Rhizoctonia solani*. Shenandoah III is an endophyte enhanced tall fescue with 90% *Neotyphodium coenophialum* endophyte which provides resistance to a number of leaf and crown feeding insects and nematodes. The presence of endophyte also contribute to improved biotic and abiotic stress tolerance, faster seedling establishment, enhanced fall recover and reduced summer weed invasion.

APPLICATION

Shenandoah III is recommended for permanent turf in full sun or partial shade, on home lawns, commercial sites, parks, sod farms and golf course roughs. It was developed for the discriminating superintendent, landscaper and top grounds maintenance professionals in a range of environments. Shenandoah III is best utilized in grass seed mixtures maintained at a high height of cut with Kentucky bluegrass, perennial ryegrass, hard fescue, sheep fescue or strong creeping red fescue.

PERFORMANCE

Shenandoah III statistically ranked #1 (no statistical difference with LSD values) in turf quality across 16 locations in the 2009 NTEP trials (see data chart). Shenandoah III also showed high performance under wear tolerance trials in 2008 CTBT trial data. Shenandoah III, with its superior turf density, also responded successfully to wear. (See CTBT chart on reverse)

Mean Turfgrass Ratings of Tall Fescue Cultivars
Grown at 16 locations in the US.
2009 Data

| Variety | Mean 1-9; 9=ideal turf |
|-----------------------|---------------------------|
| Falcon IV | 6.5 |
| Rk 5 | 6.4 |
| Wolfpack II | 6.3 |
| Shenandoah III | 6.3 |
| 3rd Millennium | 6.2 |
| Mustang 4 | 6.0 |
| *LSD | — — — — — 0.2 |
| CV% | — — — — — 9.6 |

SEEDING

Dates: Spring and fall when soil temperatures are 60°F or higher. Turf type tall fescue is generally slow to tiller once germinated so higher soil temperatures and increasing photoperiod in spring or warm soils with decreasing photoperiod in the fall provide an optimal environment for seedling establishment.

Rates: 6-8 lb./1,000 sq.ft. on new seeding and 2-3 lb./1,000 sq.ft. on established turf. Seed count of Shenandoah III is 230,000 seeds per pound and is dependent on the year of harvest, location of production and seed production practices.

Characteristics

| Growth Habit | Estab. Rate days | LHC Tol. 1/2" | Mowing Freq. | Traffic Tol. | Thatch prod | Comp Mix | N. Req. | Shade Tol. | Cold Tol. | Drought Tol. | ET rate mm/day | Endophyte | Salinity Tol. mmhos |
|--------------|------------------|---------------|--------------|--------------|-------------|-----------|------------|------------|-----------|--------------|----------------|-----------|---------------------|
| Bunch | Med 14-21 | Poor | 2x week | Very Good | Low-Med | Very Good | Med-6 lbs* | Very Good | Very Good | Excell. | Very High >10% | Yes >90% | 11 good |

LHC=low height of cut, ET=evapotranspiration, N=Nitrogen, * per 1000 sq. ft.; rates may increase or decrease based on location, soil type, irrigation practices, desired turf quality, humidity and other abiotic and biotic factors.

Depth: Sow at ¼ to ½ inch. Slice seeding of existing turf may require lowered mowing height or growth regulator to reduce canopy height of existing turf. This management practice enhances establishment of newly emerging tall fescues seedlings.

CULTURAL PRACTICES

Soil preparation: Prepare firm seed bed free of clods, sticks and vegetative debris. Seed should be in contact with the soil. Tall fescues are best established in well drained soils, but will tolerate heavy soil conditions better than many other cool season grasses.

pH: Soil is best maintained at a neutral pH of 7.0. However, Shenandoah III is adapted to a range of soil pH conditions and will perform relatively well in moderately acidic or alkaline soils.

NPK requirements: Shenandoah III is described as a medium to high user of fertilizer. In Northern regions 4-5 lbs. N/year; in transitional climates 5-7 lbs. N/year. In Southern regions 5-7 lbs. N/year with minimal utilization in summer months to discourage foliar turfgrass diseases such as brown patch. NPK ratios are generally recognized as 5-1-3 with clippings retained on the turf.

Water use: Tall fescue is recognized as a dehydration avoidant species (Beard, 1986) with improved drought tolerance. Tall fescue has an abundant deep and fibrous root mass which mines available subsoil moisture during stress periods. ET rate of >10 mm per day is highest among cool season turfgrass. Infrequent but heavy irrigation to stimulate deep subsoil root growth is recommended.

Thatch management: Requires little thatch management. Only high N levels with minimal traffic pressure encourages thatch accumulation. Verticutting, lower mowing heights and dethatching are recommended for dormant sod or grass breaking dormancy in the spring. At any given dethatching, never remove more than ½ inch of thatch layer. If the thatch layer is greater than 1 inch, removal must be done over a period of years.

Mowing height: Shenandoah III should be mowed at 1.5-3.0 inch.

Weed Control: (From NCSU Pest Control Recommendations for Turfgrass Managers, 2009). In established turf for post-emergent broadleaf control 2, 4-D and *dicamba* (Banvel). Spring pre-emergent control DCPA or *bensulide* (dacthal). Pre-emergent crabgrass and goosegrass control on established tall fescue with *pendimethalin* (Pre-M), *prodiamine* (Barricade), *oxadiazon+benefin*, or *oryzalin* (Surflan), *benefin* (Balan), *siduron* (Tupersan), *dithiopyr* (Dimension).

| CTBT: 2005 Trial Tall Fescue Turf Trial, Adelphia New Jersey Dr. William Meyer | | | | | |
|--|-------------|-------------|--------------|----------------------|-------------|
| Variety | Density | Wear | Average Wear | Average Turf Quality | |
| | | | | 2008 | 2006-2008 |
| 3rd Millenium | 7.67 | 5.33 | 5.00 | 6.60 | 6.43 |
| IF-TF-151 | 6.33 | 5.33 | 4.33 | 6.50 | 6.00 |
| SHENANDOAH III | 8.00 | 6.00 | 5.47 | 6.20 | 5.97 |
| Shenandoah Elite | 7.33 | 5.67 | 5.53 | 6.10 | 5.93 |
| Hounddog VI | 4.33 | 3.33 | 3.73 | 6.10 | 4.53 |

Density = 1-9; 9=Most Dense
Wear = 1-9; 9=Tolerant
Average Wear 2006-2008 = 1-9; 9= Tolerant (5 ratings, 3 years of data)
Average Turf Quality 2008 = 1-9; 9=Best (8 ratings)
Average Turf Quality 2006-2008 = 1-9; 9=Best (21 ratings, 3 years of data)

