



BREEDER

NJAES/Rutgers University

DESCRIPTION

Shenandoah Elite is a new addition to the family of improved turf type tall fescues. Following in the footsteps of Shenandoah this new generation of turf type tall fescue has deep dark green color, a dense uniform sword, drought tolerant turf along with the industries first ever multiple strain resistance to brown patch incited by *Rhizoctonia solani*. Multiple resistance to brown patch has been confirmed in CTBT (Commercial Turfgrass Breeders Test) conducted in Arkansas, New Jersey, North Carolina and Kentucky. Shenandoah Elite also exhibits exceptional turf quality, tremendous wear tolerance and is resistant to other diseases including leaf spot, winter brown blight and pythium blight. Shenandoah Elite is an Eco Smart® Certified variety that requires less cultural and management input which results in a reduced “carbon footprint”. Less water, less mowing, less fertilizer and is self repairing due to the presence of advantageous roots and pseudo-rhizomes. In addition, Shenandoah Elite is also endophyte enhanced with >95% Neotyphodium coenophialum endophyte which provides natural resistance to a number of leaf and crown feeding insects and nematodes. The presence of endophyte also contributes to improved biotic and abiotic stress tolerance, faster seedling establishment, enhanced fall recovery and reduced summer weed invasion.

APPLICATION

Shenandoah Elite is recommended for permanent turf in full sun or partial shade, on home lawns, commercial sites, parks and golf course roughs. It was developed for the discriminating superintendent, landscaper and top grounds maintenance professionals in a range of environments. Shenandoah Elite is

Variety Comparison

Progress Report NTEP 03-1
2003 National Tall Fescue Test



Variety	Rating
SC-1	6.4
3rd Millennium SRP	6.4
Shenandoah Elite	6.4
Monet	6.4
Shenandoah III	6.4
Falcon V	6.4
RKCL*	6.4

* Represents Varieties not yet commercially named

Top 7 Varieties in NTEP

(LSD @ 0.05 = 0.2)
1-9;9=Ideal Turf



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 Elite tied for first in mean turf quality among 113 entries tested at 28 locations over two (2) years in the NTEP Tall Fescue Progress Report 08-1. In CTBT trials at Lexington, KY, Urbana, IL, Raleigh NC, Fayetteville, AR, Adelphia and New Brunswick NJ Shenandoah Elite had the best turf quality and brown patch resistance under no fungicide management conditions. This multiple race resistance to different strains of brown patch is the first ever identified in the industry.

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 ft.sq. on new seeding and 2-3 lb./1,000 ft.sq. on

TURF 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	Fair Good	Med 6 lbs*	Very Good	Very Good	Excell.	Very High >10%	Yes >93%	11 good

*LHC=low height of cut, ET=evapotranspiration, N=nitrogen *per 1,000 ft²; rates may increase or decrease based on location, soil type, irrigation practices, desired turf quality, humidity & other abiotic and biotic factors.*





National Tall Fescue Test 2007

Turfgrass Quality Ratings 1-9, 9=best quality (LSD @ 0.05=0.3)
Transitional Zone Locations

TOP 9
VARIETIES

	AR1	KS2	KY1	MD1	MO1	NC1	TN1	VA1	MEAN
SC-1*	7.7	5.7	7.5	6.1	5.9	7.8	7.6	5.7	6.7
Shenandoah III	7.4	5.5	7.0	5.8	6.3	8.3	7.5	5.4	6.6
Shenandoah Elite	7.7	5.4	7.8	5.9	6.5	6.9	7.8	5.0	6.6
Turbo	7.5	5.5	7.5	5.9	6.3	7.4	7.5	5.4	6.6
Firecracker LS	7.5	5.3	7.9	6.1	5.8	8.0	7.4	4.8	6.6
3rd Millenium	7.5	5.3	7.2	6.2	6.3	7.9	7.5	4.9	6.6
NA-BT-1*	7.6	5.3	7.2	6.1	6.5	8.0	7.4	4.3	6.6
K06-WA	7.6	5.7	7.7	5.5	5.9	7.7	7.6	4.8	6.6
Spyder LS	7.6	5.0	7.3	6.2	6.2	7.8	7.5	4.9	6.6

* Represents varieties not yet commercially named

established turf. Seed count of Shenandoah Elite is 229,000 seeds per pound and is dependent on the year of harvest, location of production and seed production practices.

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 Elite is adapted to a range of soil pH conditions and will perform relatively well in moderately acidic or alkaline soils.

NPK requirements: Shenandoah Elite 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, 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 Elite should be mowed at 1.5-3.0 inch

Weed Control: (From NCSU Pest Control Recommendations for Turfgrass Managers, 2003). 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).

