STOVER SEED®

Teaming confidence with nature since 1922

Technical Data and Information Product Sheet

MANHATTAN 7GLR Perennial Ryegrass

DESCRIPTION

Perennial ryegrasses are very competitive cool season grasses that grow in a wide range of climates. It does best in full sun but will tolerate light shade. Desirable traits of perennial ryegrass are high wear tolerance and rapid establishment making it popular for sportsfields, playgrounds and parks. Manhattan 7GLR has improved tolerance to gray leaf spot disease and possesses improved salt tolerance. Manhattan 7GLR is a certified "TWCA" product meaning that it has been bred and tested to show improved drought tolerance. (See reverse side for information on TWCA standards for certification.)

CHARACTERISTICS

Features	Benefits
Best in class drought tolerance	**Less water use vs other perennial ryegrasses**
Fine texture & high density	Low poa invasion
Excellent seedling vigor	Fast establishment
Gray leaf spot resistance	Less susceptible to warm weather disease
Endophyte enhanced	Improved insect and disease tolerance
Improved mowability	Reduced shredding during mowing

USES

Manhattan 7GLR is a natural for sportsfields and high traffic areas such as:

* Golf Courses	* Playgrounds	*Parks
* Sportsfields	* Sod Production	*Lawns

SEEDING RATES

New turf: 10 pounds per 1,000 square feet or 400 pounds per acre.
Overseeding existing turf: 6 to 10 pounds per 1,000 square feet or 250-400 pounds per acre.

ESTABLISHMENT

Emergence: 3-5 days under optimum temperature range between 68-86 degrees, longer under cooler temperatures.
First mowing approximately 14 days after emergence (may be longer under cooler temperatures).
First limited use approximately 21 days after emergence.

SPECIFICATIONS

MANHATTAN 7GLR PERENNIAL RYEGRASS
98% Minimum purity
90% Minimum germination
230,000 seeds per pound

Manhattan 5GLR is protected under the US Plant Variety Protection Act.

STOVER SEED®
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CULTURAL INFORMATION

Water Requirements

Frequent, light watering is necessary for seed to germinate and become established. Perennial Ryegrass is a cool season (C3) grass. **Once the grass becomes established it has the ability to withstand summer drought conditions under reduced irrigation schedules.** For landscape professionals that use irrigation systems and calculations, perennial ryegrass can be irrigated at 80% of average ET_0 (Reference Evotranspiration) rates. Specific information on Turfgrass irrigation schedules and ET rates can be found at http://ucanr.edu/sites/UrbanHort/ and at http://ag.arizona.edu/pubs/water/az1195.pdf and http://anrcatalog.ucdavis.edu/pdf/8395.pdf General irrigation guidelines dictate that turf should be watered in early morning hours and that about 3/4 of an inch of water should be applied but not to the point of runoff.

Climate Conditions

Perennial Ryegrass is suitable to all climate conditions. Water usage is lowest in coastal climates with highest use in desert regions. Once it becomes established it can withstand periods of increased heat and drought.

Soil Conditions

Perennial Ryegrass prefers well drained soil (clay or sandy) with a pH of 5.5 to 8.5.

Fertilization

Use of a starter fertilizer when seeding is highly recommended. After establishment fertilize during periods of active growth in Spring and Fall with a balanced fertilizer. Avoid using products with a high nitrogen (N) content as such use increases water use. Apply no more than 4 pounds of N per 1,000 square feet per year.

Mowing

Ideal mowing height is between 1.5 and 2.5 inches. Higher mowing heights are recommended in summer to reduce heat and drought stress. Never mow more than 1/3 off of the height at one time.

AQUAWISE

Manhattan 7GLR™ is a certified "TWCA" product that has been bred and tested to withstand longer periods of drought stress. The testing involves the establishment of the turf grass under optimal conditions allowing the full expression of above-ground and below ground growth and then impose a long term water deficit stress. During the development of drought stress, turf grass plots are monitored for their ability to maintain green cover under protracted drought stress, a process which Identifies those cultivars with either low water use or extensive root systems. Cultivars or selections that maintain green cover for longer periods can reduce overall water needs.

Drought tests are conducted by the Turf Grass Water Conservation Alliance (TWCA). This non-profit organization has established a science-based method for qualifying cultivars for drought tolerance and other characteristics related to water conservation of grass seeds at low cost.

Studies are conducted in approved structures that restrict natural rainfall on the plot area during the drought stress period. The entries are replicated four times in a randomized complete block design. Planting rates for each species reflect industry standards. Following establishment, each species is maintained appropriately and fertilized according to standard practices. Plots are maintained for a single growing season prior to initiating drought stress. Drought stress is replicated for two years in one location, or one year at multiple locations. The response of entries to drought stress is evaluated two times weekly using digital image analysis techniques to quantify the percent of green turf cover for each plot as drought becomes more severe. When all plots fall below a 25% green turf cover, the experimental area is saturated to initiate drought recovery. Thereafter, the experimental area is irrigated weekly and recovery of entries from drought evaluated weekly using digital image analysis until plots reach 100% green cover.

PRODUCT PICTURES

Pictures of this product can be found at our website at www.stoverseed.com

RECENT PLANTING SITES

HELPFUL LINKS

www.aquawise.org wwwtgwca.org

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