



BREEDER

NJAES/Rutgers University

DESCRIPTION

Palmer IV is an elite, new generation, heat and humidity tolerant perennial ryegrass developed with improved gray leaf spot resistance. Gray leaf spot disease has been a limiting factor to the establishment and persistence of perennial ryegrass in the past ½ decade in the Mid Atlantic, Mid South and Midwestern U.S. Palmer IV is also an endophyte enhanced perennial ryegrass with >90% *Neotyphodium lolii* endophyte which provides resistance to a number of leaf and crown feeding pests and improved tolerance to abiotic (non-living) and biotic (living) stress. It is highly recommended for permanent turf application in the Mid-Atlantic and U.S. transition zone where heat and humidity may limit the adaptation of perennial ryegrass turf. It is recommended for winter overseeding of dormant bermudagrass.

APPLICATION

Developed for permanent poly species turfgrass blends and mixtures containing improved perennial ryegrass, Kentucky bluegrass, chewing, slender creeping and strong creeping red fescue, colonial bentgrass and turf type tall fescue. Palmer IV is also used extensively in winter overseeding programs on greens, tees and fairways either alone or in species mixtures.

PERFORMANCE

Palmer IV has been tested at Rutgers University for turf quality, disease resistance and persistence with tremendous preliminary results. Palmer IV will be entered into the 2004 NTEP Perennial Ryegrass Test across multiple sites in the U.S. and Canada and at regional overseeding trials in the Southeastern and Southwestern U.S.

SEEDING

Date: Spring and fall when soil temperatures are 60°F or higher. Perennial ryegrass is the fastest establishing cool-season turfgrass species available to the lawn care professional and homeowner. Late autumn and winter turf quality ratings of newer varieties like Palmer IV demonstrate that they can rapidly develop and maintain an attractive turf cover into late autumn early winter

Rates: 6.0-8.0 lbs./1,000 sq.ft. Seed count of Palmer IV is approximately 270,000 seeds per pound and dependent on year of harvest, location of production and seed production practices.

Depth: Sow at ¼ to ½ inches.

CULTURAL PRACTICES

Soil preparation: Prepare firm seedbed free of clods, sticks and vegetative debris. Seed should be in contact with soil. Improved elite perennial ryegrass such as Palmer IV prefers well-drained loamy soils but perform better in high bulk density soils than Kentucky bluegrass and fine fescue.

pH: Should be slightly acidic (5.5 -6.5) for favorable growth. High pH soils (alkaline) often contribute to yellow chlorotic leaf color and are a direct result of iron chlorosis. Foliar applications of iron, chelated iron or soil amelioration to decrease soil pH are used to reduce or eliminate iron chlorosis in perennial ryegrass turf.

NPK requirement: Of the cool-season grasses used for turf improved perennial ryegrass requires moderately high to high levels of available soil nitrogen to maintain proper basal tillering and growth. When soil nitrogen levels are low or absent,

TURF CHARACTERISTICS

Growth Habit	Estab. Rate days	LHC Tol. ½"	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	Fast 7-10	Very good	2x week	Very Good	None	Fair Good	Med High 6-8 lbs*	Fair-Good	Fair-Good	Fair	High 9-10	Yes >90%	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.



New Variety Comparison

	Turf Quality 2002 Avg.	Grey Leaf Spot	
		2001 Avg.	2002 Avg.
1GH*	6.9	7.2	8.7
1G2*	6.9	7.5	8.3
PALMER IV	6.7	7.2	8.0
Peregrine	6.4	7.0	7.3
Top Hat 2	6.3	6.7	6.3
PR-187-	6.1	5.7	6.7
All* Star2	6.0	4.8	7.7
01-2*	5.9	6.0	5.0
Applaud	5.7	4.2	7.3
APR-1461*	5.6	5.0	7.0
Gator 3	5.5	3.8	7.3
LSD @ 5% =	0.7	1.4	1.5

Rutgers University
Adelphia, NJ

Performance of Perennial
Ryegrass in Turf Trial
established 2001.

* Represents varieties not yet commercially named.

perennial ryegrass turf will gradually thin and be replaced by low nitrogen adapted grasses, and unsightly weed species. In northern regions 5-7 lbs. N/year; transitional climates 7-9 lbs; N/year; overseeding 2-4 lbs. N/growing month.

Water use: Palmer IV and other improved perennial ryegrasses are recognized as high water users with ET rate of 9-10 mm per day. Lower mowing heights, regulated soil nitrogen levels and infrequent but deep soil profile irrigation practices will help reduce perennial ryegrass water requirements.



Palmer IV will enter summer induced dormancy and premature senescence or die if not properly hydrated (irrigated) during persistent low moisture soil conditions.

Mowing height: Palmer IV recommended mowing height for permanent turf in blends and mixtures is 1.0-1.5 inch. On permanent turf or winter overseeded golf course fairways recommended mowing height is ¾- ½ inch. On overseeded greens and tightly mowed tees Palmer IV can be mowed at 125,000ths of an inch to 180,000ths of an inch.

Growth regulators: New growth regulators such as Primo® (*Trinexapac-ethyl*) can be used to inhibit growth of warm season grass such as bermudagrass and zoysia during early season overseeding. This provides an excellent option for superintendents, landscapers and turfgrass managers that must overseed early when soil temperatures and day lengths are still beneficial to bermudagrass growth and tillering.

Weed control: From NCSU Pest Control Recommendations for Turfgrass Managers 2003. In established turf for general broadleaf control: 2, 4-D+dicamba, 2, 4-D+MCPP, 2, 4-D+MCPP+dicamba, 2, 4-D+2, 4-DP and others. Pre-emergent herbicides to control annual grassy weeds in established turf: *benflin* (Balan), *bensulide* (Pre-Far), *dithiopyr+trifluralin*, *pendimethalin* (Pre-M), *proflaminate* (Barricade). Annual bluegrass *Poa annua* can be controlled pre and post-emergent on golf course fairways, tees and roughs with *ethofumesate* (Prograss).

