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PERENNIAL RYEGRASSES FOR TURF

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Use of perennial ryegrass (*Lolium perenne*) has increased in Kansas in the past few years. Until the early 1970's the available perennial ryegrass cultivars were not well adapted for fine turf. Turfgrass breeders have now developed cultivars with improved shoot density, mowing ease, finer leaf texture, slower shoot growth rate, and tolerances to heat, cold, and drought stresses.

Currently improved cultivars of perennial ryegrasses are recommended for these fine turf uses: quick cover when the turf is lost from an injury; periodic overseeding of athletic fields and golf course tees during the playing season so long as the ryegrass is not the dominant species; and in seed mixtures with Kentucky bluegrass to promote rapid establishment. If the perennial ryegrass is for temporary cover only, then nonturf types may be used.

Perennial ryegrasses are not recommended for use alone, because, when injured, they have poor recuperative potential. Also, they commonly deteriorate from brown patch, *Pythium, Helminthosporium* leaf spot, snow molds, high temperature, and drought injuries.

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Table 4. Quality ratings for perennial ryegrass varieties, Manhattan, 1977 to 1980.

Cultivar[b]	Quality rating[a] 1980 Ave.	1979 Ave.	1978 Ave.	1977 Ave.	4-year Ave.
Citation	7.6	8.1	8.1	8.3	8.0
Derby	7.6	8.2	7.8	8.4	8.0
Diplomat	7.2	8.2	7.9	8.2	7.9
Yorktown	7.4	7.8	8.0	7.9	7.8
Manhattan	7.2	7.9	7.3	8.0	7.6
Pennfine	6.8	7.7	7.8	8.0	7.6
Regal	7.1	7.9	7.6	7.1	7.4
Springfield	6.8	6.7	6.8	7.2	6.9
KO-15	6.6	7.1	7.0	7.1	6.9
Wendy	6.8	7.1	6.7	6.6	6.8
Epic	6.7	7.0	6.6	6.5	6.7
KO-12	6.4	6.7	6.3	7.4	6.7
KO-13	7.0	6.8	6.5	6.6	6.7
Pelo	6.8	6.8	6.4	7.0	6.7
NK-200	6.4	6.7	6.5	6.4	6.5
Angela	6.5	6.5	6.0	6.6	6.4
Tolbert	6.0	6.9	6.6	6.3	6.4
Cropper	6.2	6.5	5.9	6.7	6.3

[a]Visual quality rating: 9 = ideal turf, 6.5 = acceptable, 1 = no livi Based on density, color, uniformity.

[b]Cultivars mowed at 2.0 inches.

Table 5. Disease and cutting quality ratings for perennial ryegrass varieties, Manhattan, 1977 to 1980.

Cultivar	Brown patch[a] June 77	Hel. leaf spot[a] Aug. 80	Cutting quality[b] Oct. 77	May 79
Citation	0	2.5	8.3	6.8
Derby	0	1.8	8.0	6.8
Diplomat	0.3	2.0	8.3	7.8
Yorktown	0.3	2.2	7.5	7.8
Manhattan	0.3	2.5	7.5	7.8
Pennfine	0.3	3.2	8.0	3.9
Regal	1.3	1.7	8.7	7.9
Springfield	1.0	2.3	6.2	4.9
KO-15	0.3	2.3	7.3	7.8
Wendy	1.7	2.5	7.0	6.0
Epic	1.0	2.7	7.0	7.4
KO-12	0.3	3.0	7.2	6.5
KO-13	1.3	2.3	6.2	4.9
Pelo	0.7	2.5	6.3	3.9
NK-200	1.3	2.5	5.7	3.3
Angela	1.0	2.0	6.2	4.2
Tolbert	1.7	2.8	6.8	6.0
Cropper	1.0	2.3	6.3	2.0
LSD (.05) =	0.9	1.3	1.1	1.1

[a]Disease ratings: O = none, 2 = moderate, 5 = kill of 80 to 100% of the plants by the disease.

[b]Cutting quality: 9 = less than 10% leaves frayed after mowing, 5 = 50% leaves frayed, 1 = 90% + leaves frayed.

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Cultivars were evaluated at two Kansas sites: the Horticulture Research Center in Wichita (USDA hardiness zone 6 with a fine sandy loam soil pH 6.5-6.8), and the Rocky Ford Research Area at Manhattan (zone 5 with a silty clay loam of pH 7.1-7.4).

Wichita trial 1973 to 1978. Six cultivars were evaluated under medium to high maintenance. Fertilization was 4.0 lbs N/1000 sq ft per year. Clippings were returned after mowing at 2.5 inches, and irrigation was to prevent excessive drought stress. Pennturf had the best quality, but none of the six cultivars consistently exhibited an acceptable visual quality of 6.5 expected of a high maintenance turf (Table 1). Quality ratings of all ryegrasses were substantially reduced by the hot, dry 1978 growing conditions.

Table 1. Visual quality and disease ratings for perennial ryegrass varieties, Wichita, 1973 to 1978.

	Visual quality[a]			
Cultivar	1977	1978	6-year Average	Disease ratings[b]
Pennturf	7.5	5.0	6.2	— —
Pennfine	6.5	3.5	5.9	— —
Manhattan	6.2	4.3	5.7	R
Lynn	6.0	7.0	5.6	— —
Sceempter	4.5	5.0	5.1	DS,L
Common	4.3	3.5	4.8	DS,R

[a]Visual quality rating: 9 = ideal turf, 6.5 = acceptable, 1 = no live turf. Based on density, color, uniformity.

[b]Moderate to severe disease infection was observed for the diseases listed. DS = dollar spot, L = leaf spot, R = stem rust.

Manhattan trial 1971 to 1976. In 1971 nine cultivars were established under a mowing height of 2.0 inches with clippings returned. Nitrogen was applied at 3.0 lbs N/1000 sq ft per year and excessive stress was avoided by irrigation.

Pennfine and Pennturf had very good quality turf; Pelo, Manhattan, and NK-100, acceptable quality (Table 2). Early spring greenup was best for Pennfine.

Manhattan trial 1977 to 1980. Eighteen perennial ryegrass cultivars were seeded in the fall of 19

Table 2. Visual quality ratings and spring greenup for perennial ryegrass varieties, Manhattan, 1971 to 1976.

Cultivar[b]	Visual quality[a]							Spring greenup
	1971	1972	1973	1974	1975	1976	Ave.	3/72
Pennfine	8.0	8.5	8.0	8.5	8.1	6.4	7.9	8.0
Pennturf	8.0	7.9	8.5	8.0	7.3	6.4	7.7	7.5
Pelo	7.3	7.6	6.5	7.5	5.8	5.8	6.8	7.5
Manhattan	— —	7.3	5.0	5.5	7.0	6.6	6.6	— —
NK-100	7.1	6.4	6.0	6.0	6.4	7.3	6.5	6.5
Lynn	7.0	7.3	5.0	6.0	5.4	5.7	6.1	7.5
Sceempter	6.8	7.1	5.5	5.5	5.4	6.2	6.1	7.0
Barenza	— —	6.0	5.5	6.0	5.9	5.6	5.8	— —
Common	7.3	7.5	5.5	5.0	5.3	4.1	5.8	7.0

[a]Visual quality rating: 9 = ideal turf, 6.5 = acceptable, 1 = no live turf. Based on density, color, uniformity.
[b]Cultivars mowed at 2.0 inches.

year with irrigation as needed to avoid excessive stress. Cutting heights were 1.0 inch (for golf course tees, athletic fields) and 2.0 inches (for home lawns) with clippings returned.

At the 1.0-inch mowing height, performance was outstanding for Citation and Diplomat. Derby, Yorktown, Manhattan, and Pennfine did very well (Table 3). When maintained at 2.0 inches, Citation, Derby, Diplomat, and Yorktown were outstanding (Table 4). Manhattan and Pennfine exhibited very good quality.

Only brown patch (*Rhizoctonia solani*) and leaf spot (*Helminthosporium* spp.) caused serious disease problems. Tolbert and Wendy had the greatest brown patch infection (Table 5). All cultivars except Derby and Regal exhibited at least moderate leaf spot infection. Most susceptible were Pennfine and KO-12.

Mowing quality is of particular concern for perennial ryegrasses. The tough, fibrous veins often result in a ragged cut that reduces the stand's visual quality. These cultivars had good mowing qualities: Regal, Diplomat, Manhattan, Yorktown, KO-15, Epic (Table 5).

SUMMARY

Perennial ryegrass cultivars varied widely in performance. Cultivars with outstanding visual quality were Citation and Diplomat. Derby, Yorktown, Manhattan, and Pennfine performed very

Table 3. Quality ratings for perennial ryegrass varieties, Manhattan, 1977 to 1980.

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Springfield	6.8	6.7	6.5	6.7	6.6
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KO-12	6.4	6.6	6.1	7.2	6.6
KO-13	6.9	6.5	6.3	6.1	6.4
Pelo	7.1	6.6	6.3	6.6	6.6
NK-200	6.2	6.5	6.0	6.0	6.2
Angela	6.7	6.2	6.1	6.3	6.3
Tolbert	6.5	6.7	6.4	5.8	6.3
Cropper	6.4	5.9	5.6	6.2	6.0

[a]Visual quality rating: 9 = ideal turf, 6.5 = acceptable, 1 = no live turf [illegible] density, color, uniformity.