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## KENTUCKY BLUEGRASSES FOR TURF

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The performance of Kentucky bluegrass (*Poa pratensis*) as a turfgrass in Kansas concerns many growers. In some situations bluegrass has produced a high quality, excellent turf for many years; in other instances growers have had problems maintaining an acceptable turf.

One reason for poor performance is that Kentucky bluegrass, a cool season turf, is best adapted to cool, humid environments. Kansas, in the transition zone between cool and warm climates, is at the southern area of adaptation for bluegrasses. Thus, the high-temperature and drought stresses could cause the grass, particularly under improper maintenance, to decline in quality.

Another major reason for variability in performance is that cultivars differ. Many cultivars of Kentucky bluegrass are available and new ones continue to be developed. Cultivars differ greatly with respect to environmental and pest tolerances. Also, fertilization and irrigation requirements differ. If the proper bluegrass cultivar is not selected for a particular site, inferior performance may result; a cultivar better adapted to the site, however, might grow very well. Several factors

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should be considered when recommending which particular bluegrass cultivar to use: quality desired, maintenance level, shade level, mowing height, possibility of iron deficiency, and pests.

Cultivars have been evaluated at two Kansas sites: the Horticulture Research Center near Wichita and the Rocky Ford Turf Area near Manhattan. Wichita, in USDA hardiness zone 6, has a fine sandy loam soil (pH 6.5 - 6.8); Manhattan, in hardiness zone 5, has a silty clay loam soil (pH 7.1 - 7.4). Trials were conducted under both medium to high maintenance and low maintenance conditions.

Table 1. Visual quality, disease, and thatch accumulation

Cultivar	Visual quality <sup>a</sup>		6 year average	Disease problems <sup>b</sup>	Thatch accumulation <sup>d</sup>
	1977	1978			
Sodco	6.5	6.3	7.6	DS	M
Victa	5.8	5.3	7.1	DS,L	VE
Majestic	6.8	5.8	7.1	L	A
Windsor	7.1	5.2	7.0	SS	M
Baron	5.8	5.5	7.0	DS	E
Vantage	6.3	6.7	6.9	DS,L,R	S
Bonnieblue	5.4	5.8	6.9	DS,L	E
A-20	6.3	6.3	6.8	L	S
Merion	7.3	5.7	6.7	R	A
Fylking	6.7	4.7	6.7	DS,R	S
Pennstar	7.0	4.7	6.6	L	S
Prato	5.5	5.7	6.4	DS,L	S
Sydsport	3.4	6.0	6.4	DSC,L	VE
Primo	5.3	4.0	6.2	DS	A
Newport	5.2	5.0	5.9	DS	S
Captan	5.5	6.0	5.9	DS,L	A
A-10	4.3	4.3	5.6	DS,L	A
Park	4.2	4.7	5.3	DS,L,F	A
Common	4.2	4.7	5.2	DS,L,F	S
Code 95	3.5	4.3	5.1	DS,F	S
Delta	4.0	4.3	5.0	DS,L	A

<sup>a</sup> Visual quality rating: 9 = ideal turf, 6.5 acceptable, 1 = no live turf.

<sup>b</sup> Diseases that occurred and were moderate to severe on the cultivar: DS = dollar spot, L = leaf spot, F = Fusarium blight, SS = stripe smut, R = rust.

<sup>c</sup> Very serious infection of dollar spot in 1977.

<sup>d</sup> Thatch accumulation: A = acceptable (i.e., below 0.5 in); S = slight; M = moderate; E = excessive; VE = very excessive.

### Medium to High Maintenance

**Wichita Trial 1973 to 1978.** A trial of 21 cultivars was initiated in September 1971. Maintenance included 4 lb N/1000 sq. ft. per year, mowing at 2.5 inches with clippings removed, and irrigating to avoid excessive stress.

Visual quality ratings for a 6-year period (Table 1) revealed very good performance for Sodco, Victa, Majestic, Windsor, and Baron. Cultivars that rated low tended to be common-type bluegrasses. The 1978 ratings reflected a year of considerable drought stress on the turfgrasses.

for Kentucky bluegrass cultivars, Wichita, 1973 to 1978.

All the cultivars were susceptible to at least one major turfgrass disease (Table 1). *Fusarium* blight and stripe smut are considered particularly detrimental diseases on bluegrasses.

Vigorous, improved cultivars selected for medium to high maintenance may produce excessive thatch, which over a period of time could cause turf deterioration from poor rooting, drought and high temperature stresses, diseases, and insects. In this trial, these cultivars exhibited excessive thatch accumulation after 6 years: Victa, Sydsport, Baron, and Bonnieblue. They may require thatch control measures.

**Wichita Trial 1975 to 1980.** In September 1975 a trial containing 14 cultivars and 6 blends was initiated. Bluegrasses were evaluated under two fertility levels: 4 lbs N/1000 sq. ft. and 5 lb N/1000 sq. ft. applied annually. The extra 1 lb N/1000 sq. ft. for the highest N treatment was applied in early summer as a slow-release carrier. Mowing heights were 1.0 and 2.5 inches with clippings removed. The lower cutting height provided maintenance conditions similar to those for golf course tees and fairways as well as for athletic field turf; the 2.5-inch cutting height was typical for home lawns. Irrigation was as needed to avoid excessive moisture stress.

Table 2. Performance of Kentucky bluegrass varieties, Wichita, 1975 to 1980.

Cultivars	4 lbs N/1000 sq ft/yr		Visual quality <sup>b</sup>			
	1979	1980	5 year average	5 lbs N/1000 sq ft/yr		5 year average
				1979	1980	
Sodco	5.0 <sup>c</sup>	5.7	5.9	7.7 <sup>c</sup>	7.0	7.7
Baron	4.0	4.7	5.7	6.7	6.3	6.9
Merion + Baron	4.0	4.3	5.4	6.7	5.7	6.9
Pennstar + Sodco	3.7	4.3	5.4	6.3	6.3	6.7
Adelphi	4.3	6.7	6.0	6.0	5.3	6.5
Victa	5.0	6.0	6.1	5.7	4.7	6.5
K1-143	3.7	7.0	5.4	5.7	6.7	6.5
Fylking	3.3	3.3	4.9	5.0	4.6	6.4
Blend of 14 <sup>a</sup>	3.3	4.0	4.9	6.3	6.3	6.4
Pennstar + Nugget	4.3	5.0	4.8	6.3	6.0	6.3
Bonnieblue	4.3	6.0	5.4	5.0	4.3	6.1
Nugget	3.3	3.3	4.4	5.3	6.7	6.1
Vantage	3.3	6.3	5.0	5.3	4.7	6.1
Merion	2.0	3.3	4.4	5.7	6.3	5.9
1(8)G-22-988	2.7	4.3	4.6	5.7	5.0	5.8
Merion + Pennstar	3.7	4.3	5.1	5.7	6.0	5.7
K1-140	2.7	4.0	4.5	5.3	5.0	5.6
Pennstar	3.7	4.7	5.0	5.0	3.7	5.4
Kenblue	2.3	4.3	4.2	4.3	5.7	5.0
Merion + Kenblue	2.7	3.3	4.2	4.0	4.3	5.0

<sup>a</sup> Blend of 14 = all cultivars listed in the table.

<sup>b</sup> Visual quality rating: 9 = ideal turf, 6.5 = acceptable, 1

<sup>c</sup> 1979 ratings made after a severe drought and high temperature stress period.

mowed at 1.0 inch height, under two fertilization regimes,

= no live turf.

Observing data in Tables 2 and 3 reveal how maintenance can influence turfgrass performance. All cultivars grew better under 5.0 lb N/1000 sq. ft./yr. Evidently the extra N in the summer was beneficial on the light, sandy soil where frequent irrigation was necessary to reduce summer stresses. Under the 2.5 inch height, turf quality was higher than the 1.0 inch. The lower N-rate combined with the 1.0-inch cutting height resulted in the lowest qualities of turf.

At the 1.0-inch cutting height plus high N-rate, several Kentucky bluegrasses exhibited acceptable quality: Sodco, Baron, Merion + Baron, Pennstar

+ Sodco, Adelphi, Victa, and K1-143 (Table 2). Blends performed well if a good quality bluegrass was in the blend; including a poor-quality bluegrass resulted in an inferior blend (i.e., Merion + Kenblue). No blend in this study contained all good-quality cultivars, as would be currently recommended.

With a 2.5-inch cutting height and high N-rate, several cultivars had acceptable quality (Table 3). Very good quality was apparent for Sodco, Merion + Baron, Adelphi, Bonnieblue, and Vantage. At the low N-rate, however, only Victa exhibited acceptable performance.

Table 3. Performance of bluegrass varieties, mowed at 1975 to 1980.

Cultivars	4 lbs N/1000 sq ft/yr		Visual quality <sup>b</sup>			
	1979	1980	5 year average	5 lbs N/1000 sq ft/yr		5 year average
				1979	1980	
Sodco	5.5 <sup>c</sup>	7.0	6.3	6.7 <sup>c</sup>	8.0	7.3
Merion + Baron	6.3	6.3	6.2	7.2	7.7	7.3
Adelphi	6.2	6.7	6.3	6.5	7.7	7.1
Bonnieblue	6.0	6.7	6.1	7.3	7.7	7.1
Vantage	6.3	7.3	6.3	6.9	7.7	7.0
Baron	6.4	6.0	6.3	6.1	7.3	6.9
Victa	6.5	6.7	6.7	6.0	7.7	6.9
Merion + Pennstar	5.5	6.0	5.7	6.7	7.7	6.9
Blend of 14 <sup>a</sup>	5.3	6.3	5.6	6.7	7.7	6.9
Fylking	5.5	6.7	6.3	5.5	6.7	6.7
Pennstar + Sodco	5.3	7.0	6.2	6.2	7.3	6.7
Merion	4.7	6.0	5.3	5.7	7.3	6.5
1(8)G-22-988	5.0	5.7	5.1	6.0	7.0	6.5
Pennstar + Nugget	5.7	6.3	5.6	6.5	6.7	6.5
K1-143	5.2	6.0	5.6	4.9	7.3	6.4
Nugget	6.5	6.3	5.8	6.7	6.7	6.3
K1-140	4.4	5.7	5.3	5.9	6.3	6.3
Pennstar	5.4	5.0	5.5	4.7	7.0	6.1
Kenblue	4.3	5.3	4.6	5.2	6.0	5.8
Merion + Kenblue	4.2	5.3	4.8	4.9	6.3	5.7

<sup>a</sup> Blend of 14 = all cultivars listed in the table.

<sup>b</sup> Visual quality rating: 9 = ideal turf, 6.5 = acceptable, 1

<sup>c</sup> 1979 ratings made after a severe drought and high temperature stress period.

2.5 inch height, under two fertilization regimes, Wichita,

= no live turf.  
rature stress period.

Table 4. Visual quality of Kentucky bluegrass cultivars, mowed at 2.0 inch height, Manhattan, 1976 to 1980.

Cultivar	Visual quality <sup>a</sup>					
	1.0 inch cutting height			2.0 inch cutting height		
	1979 Avg.	1980 Avg.	4-year Average	1979 Avg.	1980 Avg.	5-year Average
Ram I	7.3	7.6	7.6	8.0	7.9	8.2
Adelphi	7.7	7.5	7.8	8.2	7.7	8.1
K3-179	7.9	7.6	7.8	8.2	7.5	8.0
Glade	7.3	7.7	7.6	7.5	7.8	7.9
Sydsport	7.4	7.8	7.6	7.9	8.1	7.9
Pickseed	6.6	7.4	7.3	7.5	7.6	7.8
Fylking	7.4	7.4	7.5	7.7	7.6	7.7
K1-147	7.0	7.3	7.3	7.8	7.6	7.7
K3-167	7.3	7.3	7.4	7.6	7.4	7.7
K3-180	7.3	7.1	7.4	7.6	7.2	7.7
Touchdown	6.9	7.7	7.4	7.0	7.9	7.7
Baron	6.7	7.1	7.3	7.3	7.3	7.6
K1-157	6.9	7.0	7.3	7.4	7.1	7.6
Fanfare	7.8	7.3	7.6	7.8	7.5	7.5
Galaxy	6.3	7.0	7.1	7.2	7.4	7.5
K3-162	7.4	7.2	7.3	7.5	7.3	7.5
Arboretum	6.6	6.7	6.9	7.3	7.2	7.4
Birka	6.4	6.9	7.1	6.8	7.2	7.4
K3-171	6.7	6.8	7.2	7.3	6.7	7.4
K3-222	6.8	7.2	6.9	7.0	7.2	7.4
P-154	6.8	7.1	7.1	7.2	7.3	7.4
Bonnieblue	6.8	7.0	7.1	7.4	7.3	7.3
Pennstar	7.1	7.1	7.2	7.3	7.4	7.3
Rugby	6.6	6.8	7.0	7.3	7.3	7.3
K1-143	6.5	7.0	7.1	7.1	7.4	7.3
K3-170	7.0	7.0	7.2	7.2	7.1	7.3
K3-178	6.5	7.0	7.0	7.2	7.2	7.3
K3-181	7.1	7.0	7.2	7.7	7.4	7.3
K3-168	6.1	6.5	6.7	6.8	6.9	7.2
K3-169	6.5	6.9	7.0	6.9	6.9	7.2
Majestic	6.0	6.8	6.8	6.8	7.2	7.2
Parade	6.2	6.7	6.9	6.5	7.0	7.2
Park	6.7	6.9	6.9	7.1	7.2	7.2
P-66	6.9	6.8	7.0	7.5	7.2	7.1
Aquila	6.5	6.9	6.9	6.8	7.1	7.1
Arista	5.9	6.1	6.6	6.6	6.6	7.1
Continental	6.3	6.8	6.8	6.9	7.1	7.1
Nugget	5.6	6.2	6.5	5.9	6.4	6.7

<sup>a</sup> Visual quality rating: 9 = ideal turf, 6.5 = acceptable, 1 = no live turf.

**Manhattan Trial 1976 to 1980.** In September 1976 a trial containing 38 cultivars was established under 3.0 lb N/1000 sq. ft./yr. Due to the heavier and more fertile soil, this N-level would be considered a medium to high level. Clippings were returned after mowing and irrigation were applied to avoid excessive stress. Cutting heights were 1.0 (recreational turf) and 2.0 inches (home lawns).

In general the bluegrasses produced a better quality turf under the 2.0-inch than the 1.0-inch mowing (Table 4). At 2.0 inches, performance was outstanding for Ram I, Adelphi, K3-170, Glade, and Sydsport. Several others had very good quality. When maintained at a 1.0-inch height, Adelphi, and K3-179 were outstanding and several other cultivars rated very good.

Whenever a substantial disease infestation occurred, the plots were rated (Table 5). These cultivars exhibited moderate or greater disease susceptibility for at least one rating period:

Disease and cultivar	Disease rating <sup>a</sup>
Dollar spot ( <i>Sclerotinia homoeocarpa</i> )	
K3-168	3.3
K3-171	2.2
K3-170	2.0
Leaf spot ( <i>Helminthosporium</i> spp.)	
K3-169	4.5
Parade	3.8
K3-178	3.7
P-154	3.3
Nugget	3.2
K3-170	3.0
K3-168	2.7
Aquila	2.5
K3-181	2.3
P-66	2.3
Continental	2.2
Arboretum	2.2
Fusarium blight ( <i>Fusarium roseum</i> )	
Nugget	3.3
K3-168	2.3
Touchdown <sup>b</sup>	2.2
K3-171	2.2
Majestic	2.2
Parade	2.2
Aquila	2.2
Arista	2.0
Continental	2.0

Disease and cultivar	Disease rating <sup>a</sup>
Stripe smut ( <i>Ustilago striiformis</i> )	
K3-180	3.3
K3-179	2.0
Stem Rust ( <i>Puccinia graminis</i> )	
Rugby	3.8
K3-178	2.8
Parade	2.7
Fanfare	2.0
K1-143	2.0

<sup>a</sup> See footnote on Table 5.

<sup>b</sup> Touchdown exhibited moderate *Fusarium* blight symptoms in August 19, 1979; however, recovery was rapid, while for the other infected cultivars recovery was slow.

Cultivars with moderate or greater susceptibility to dollar spot, leaf spot, *Fusarium* blight, or stripe smut should be avoided in bluegrass monostands or blends. These are serious diseases on Kentucky bluegrasses in Kansas. Stem rust is less serious than the other diseases and can normally be corrected with adequate nitrogen.

#### Low Maintenance

In some situations, growers desire a low maintenance turf that requires infrequent mowing, very little fertilization, and limited irrigation. Even so, growers still want a certain quality of turf. In the past most breeding and selection of bluegrasses were for medium to high maintenance conditions. In recent years, however, low maintenance adaptation has received attention.

In a trial of 32 cultivars, established at Manhattan in March 1977, each cultivar was evaluated under cutting heights of 1.0 and 2.0 inches. Fertilization was at 0.75 lb N/1000 sq. ft./yr., applied in early fall. Turf was irrigated only for survival; for example, in the hot, dry summer of 1980 the area was irrigated with 1.5 inches of water. Clippings were returned and a preemergence crabgrass herbicide was applied each spring. Selection of cultivars for this trial was based on information from breeders that a cultivar had potential for low maintenance conditions.

Due to the low maintenance conditions, none of the cultivars formed a dense, dark green turf

Table 5. Disease ratings for Kentucky bluegrass cultivars, Manhattan, 1977 to 1980.

Cultivar <sup>a</sup>	Dollar <sup>b</sup> spot		Hel. <sup>b</sup> leaf spot		Fusarium <sup>b</sup> blight		Stripe <sup>b</sup> smut			Stem <sup>b</sup> rust	
	9/78	8/77	7/79	9/78	8/79	9/78	5/80	9/79	9/78	9/78	8/77
Ram I	1.0	0.3	1.3	0.8	1.2	0.7	0	0	0	0	0.3
Adelphi	0.5	0	1.3	1.3	0.3	0.8	0	1.2	0	0	0.3
K3-179	0	0	0.5	0.7	0.3	0	2.0	0.3	0	0	0.7
Glade	0.2	0	1.2	1.0	1.2	0.2	0	0	0	0	0.7
Sydsport	1.3	0	1.0	0.5	0.7	0	0	0	0.2	0	1.0
Pickseed	0.2	0.3	1.5	0.8	1.7	0.8	0	0	0	0	1.7
Fylking	0	0	0.7	0.8	0.5	0	0.7	0	0	0	1.3
K1-147	0.2	0	1.2	0.8	0.3	0.2	0	0	0	0	1.7
K3-167	1.7	0.3	0.8	1.3	1.3	0	0	0	0	0	0.7
K3-180	0.3	0	1.0	1.3	0.7	0	3.3	3.0	0.7	0	0
Touchdown	0	0	1.3	0.7	2.2	0	0	0	0	0	1.3
Baron	0.2	0	1.8	1.2	1.2	0	0	0	0	0.8	1.0
K1-157	1.2	0.3	1.3	1.7	1.2	0	0	0	0	0	0.3
Fanfare	0.3	0	0.8	0.8	0.3	0	0	0	0	0	2.0
Galaxy	0	0.3	1.8	1.7	1.3	1.0	0.3	0	0	0	1.0
K3-162	0	0.3	1.8	1.7	0.7	1.8	0	0	0	0	1.0
Arboretum	0.5	1.3	2.2	1.8	0.7	0.3	0	0	0	0	1.0
Birka	0.7	0	1.2	0.3	1.7	2.0	0	0	0	0	1.7
K3-171	2.2	1.7	1.7	1.3	2.2	0	1.2	1.5	0	0	1.0
K3-222	0	0	1.2	0.8	1.0	0.8	0	0	0	0	1.3
P-154	0	0	1.3	3.3	1.0	0.2	0	0	0	0.2	0.3
Bonnieblue	0.2	0	1.3	0.5	1.3	1.8	0	0	0	0	0.7
Pennstar	0	0.3	1.2	0.2	1.2	1.3	0	0	0	0.5	1.3
Rugby	0	0.3	3.0	1.3	0.8	0.7	0	0	0	3.8	0
K1-143	0.2	0.3	1.0	1.0	1.0	0.2	0.3	0	0.2	0.8	2.0
K3-170	2.0	1.0	1.7	3.0	1.3	0	0	0	0	0	0.3
K3-178	0	0	3.7	1.2	1.3	1.3	0.3	0	0	2.8	0
K3-181	0.2	0	2.3	1.0	0.5	0.3	0	0	0	0.5	0.3
K3-168	3.3	0.3	2.3	2.7	2.3	0	0	0	0	0.2	0.7
K3-169	0.3	0.7	1.7	4.5	1.8	0	0	0	0	0	0.7
Majestic	0	0	1.7	1.3	2.2	1.3	0	0	0	0	0.3
Parade	0.2	0	3.8	1.3	2.2	0.3	0	0	0	2.7	0.3
Park	0	—	0.5	1.3	1.0	0.2	0	0	0	0.2	—
P-66	0	0	2.3	1.5	1.2	0.7	0	0	0.7	0	0.3
Aquila	0	0.7	2.5	2.2	1.7	2.2	0.7	0.3	0	0	1.3
Arista	0.2	0.7	1.5	0.3	2.0	0.8	0.3	0	0.7	0	1.7
Continental	0.8	0.3	1.3	2.2	2.0	0.5	0.2	0	0	0.8	1.3
Nugget	0	0.3	3.2	2.3	3.3	0.5	0	0.3	0	0.5	0.7
LSD (.05) =	1.3	0.8	1.5	1.5	1.4	1.4	0.8	0.6	0.4	1.2	1.1

<sup>a</sup> Cultivars are listed in order of their 5-year average quality ratings when mowed at 2.0 inches. (i.e. Ram I ranked highest at 8.2, and Nugget lowest at 6.7).

<sup>b</sup> Disease ratings: 0 = no disease, 1 = slight, 2 = moderate, 3 = severe, 4 = very severe, 5 = 100% kill of turf.

stand. An acceptable low maintenance turf would have a quality rating of 5.0.

The quality ratings for 1977 were omitted because residual soil nitrogen was present even though the site had been fallowed for one year. During the first year, grasses that respond to higher

nitrogen tend to perform very well; truly low maintenance conditions occur only after the first year.

Cultivars tested tended to have slightly better quality ratings at the 2.0-inch than at the 1.0 inch mowing height (Table 6). At the 2.0 inch height only four cultivars (Arboretum, Park, Baron, and Merion)

Table 6. Visual quality of Kentucky bluegrasses under low 1980.

Cultivar	1.0 inch cutting height			3-year average
	1978	1979	1980	
Arboretum	5.5	5.5	5.2	5.4
Park	5.5	5.3	4.7	5.2
Baron	5.2	4.8	4.8	4.9
Merion	4.8	4.9	4.8	4.8
Aquila	5.2	4.8	4.5	4.8
Windsor	4.7	4.8	3.1	4.2
K1-140	4.9	5.0	4.2	4.7
Fylking	4.6	4.7	4.7	4.7
Vantage	4.5	4.4	4.6	4.5
Plush	5.0	4.7	3.8	4.5
K3-157	4.4	4.2	4.7	4.4
Adelphi	4.7	4.4	4.1	4.4
Galaxy	4.9	4.5	4.1	4.5
Majestic	4.8	4.4	3.9	4.4
P-148	4.5	4.1	4.3	4.3
Glade	4.9	4.3	4.0	4.4
P-154	4.7	4.2	3.9	4.3
K8-176	4.6	4.3	3.7	4.2
Arista	4.5	4.4	3.9	4.3
Enoble	4.8	4.3	3.5	4.2
P-92	4.5	4.5	3.5	4.2
Holiday	4.5	4.1	3.5	4.0
Rugby	5.0	4.3	3.6	4.3
Touchdown	4.2	4.1	3.2	3.8
307-5	3.9	4.0	4.1	4.0
Victa	4.4	3.9	4.0	4.1
Birka	3.9	3.8	3.7	3.8
Bonnieblue	4.3	4.0	3.6	4.0
Brunswick	4.5	4.0	3.2	3.9
Bono (Ag 412)	4.0	3.7	3.7	3.8
Sydsport	4.7	3.7	2.9	3.8
Ag 452	3.8	3.5	3.5	3.6

maintenance and two cutting heights, Manhattan, 1978 to

Cultivar	Visual quality <sup>a</sup>			
	2.0 inch cutting height			3-year average
	1978	1979	1980	
Arboretum	5.4	5.5	5.2	5.4
Park	5.5	5.4	5.1	5.3
Baron	5.2	5.0	4.9	5.0
Merion	4.8	5.2	4.9	5.0
Aquila	5.0	4.9	4.4	4.8
Windsor	4.8	4.8	4.8	4.8
K1-140	4.9	5.1	4.5	4.8
Fylking	4.7	4.7	4.3	4.6
Vantage	5.0	4.4	4.4	4.6
Plush	5.0	4.6	3.9	4.5
K3-157	4.5	4.3	4.6	4.5
Adelphi	4.7	4.6	4.0	4.4
Galaxy	4.8	4.5	4.0	4.4
Majestic	4.8	4.5	3.9	4.4
P-148	4.7	4.4	4.2	4.4
Glade	4.9	4.2	4.0	4.3
P-154	4.7	4.2	4.0	4.3
K8-176	4.7	4.3	3.8	4.3
Arista	4.7	4.4	3.9	4.3
Enoble	4.9	4.3	3.7	4.3
P-92	4.4	4.5	3.7	4.2
Holiday	4.8	4.2	3.6	4.2
Rugby	4.6	4.3	3.8	4.2
Touchdown	4.6	4.3	3.4	4.1
307-5	4.3	4.1	4.0	4.1
Victa	4.6	3.9	3.8	4.1
Birka	4.4	4.2	3.6	4.1
Bonnieblue	4.6	4.0	3.7	4.1
Brunswick	4.6	3.9	3.3	3.9
Bono (Ag 412)	4.0	3.8	3.6	3.8
Sydsport	4.7	3.7	3.1	3.8
Ag 452	4.1	3.6	3.7	3.8

<sup>a</sup> Visual quality rating: 9 = ideal turf, 5.0 = acceptable for

a low maintenance situation, 1 = no live turf.

exhibited acceptable quality; under 1.0 inch, only Arboretum and Park were acceptable. Certain cultivars, such as Adelphi, Touchdown, and Sydsport, that rate very high under medium to high maintenance, perform poorly under low maintenance. These cultivars were bred and selected specifically for higher maintenance. On the other hand "common-type" cultivars, such as Park, may do well under low maintenance but deteriorate under high maintenance. Thus, among bluegrass cultivars, performance varies greatly under different cultural regimes.

In the fall of 1977 disease activity was noted on the plots. These cultivars exhibited moderate-to-severe diseases:

Cultivar	Disease	Rating <sup>a</sup>
Vantage	Stem rust	2.3
Touchdown	Stem rust	2.0
307-5	Stem rust	2.0
Enoble	Stem rust	2.0
Ag 452	Stem rust	2.0
Sydsport	Dollar Spot	2.0

<sup>a</sup> See footnote on Table 5.

### Summary

Kentucky bluegrass cultivars evaluated at Wichita and Manhattan from 1973 to 1980 differed greatly in performance. Under medium to high maintenance these cultivars rated very good (visual quality of 7.6 or above) at one or both locations: Adelphi, Baron, Fylking, Glade, Ram I, Sodco, Sydsport and Touchdown. However, since no Kentucky bluegrass is completely resistant to all diseases, these bluegrasses would best be used in a blend of 2 to 4 cultivars. Under low maintenance the acceptable cultivars were Arboretum, Baron, Merion and Park.

Further cultivar evaluations are being conducted at both sites with 40 to 60 cultivars. Based on two years' data from these trials, several other Kentucky bluegrasses have good potential for Kansas.

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