The chewings fescues, those possessing a minimal creeping growth habit, that have ranked above Pennlawn include Golfrood, Wintergreen, Dawson, Barfalla, Highlight, Jamestown, and Erika. Thus, there are now a number of chewings and red fescues that are ranking above Pennlawn in general performance. Of these, only C-26, Golfrood, Wintergreen, Highlight, and Jamestown are available commercially in North America. Several of these have been in seed production for only a limited period of time.

Although there are a number of improved red and chewings fescues now available, none yet possess adequate levels of Helminthosporium leaf spot resistance to provide satisfactory lawns in monostands. However, some plant materials recently incorporated into the red fescue breeding program at M. S. U. show promise as being superior in terms of this characteristic as well as in creeping habit for good sod strength. Until these superior varieties are adequately tested and seed supplies are increased to levels where commercial marketing can be achieved, the best alternate practice is to blend several fine leaf fescues in order to take advantage of some of the preferred characteristics in each. Blending of Kentucky bluegrass varieties has proven desirable since no one variety has all the superior characteristics desired. Until recently, it has not been feasible to blend varieties of red fescue because of the lack of improved varieties available for use in the blend. However, a number of fine leaf fescue varieties are now available and can be combined in a blend to provide a wider genetic base in terms of adaptation and tolerance to turfgrass pests.

STOP 6

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Kentucky Bluegrass Variety and Blend Evaluations

Kentucky bluegrass is best adapted to unshaded sites and moist, well-drained soils having a pH near neutral and a medium to high intensity of culture. Sixty-six Kentucky bluegrass varieties were planted September 13, 1968, in 4 x 6 foot plots with three replications. The experimental area is mowed twice a week at 1.2 inches with clippings returned. The area is irrigated as needed to prevent wilt. Sub-plot nitrogen treatments are made across the plots at 3 and 6 lbs of nitrogen per 1000 square feet per growing season. No herbicides or fungicides have been applied to the experimental area during the 1970 growing season.

The 1970 evaluations for 26 commercially available Kentucky bluegrass varieties are included in Table 6. Nugget ranks superior to all other Kentucky bluegrass varieties included in this test, primarily because of superior resistance to both Helminthosporium leaf spot and snow mold. Other varieties, in order of ranking, that were generally satisfactory during the 1969-70 season include Baron, Merion, A-34, Sodco, A-20, Fylking, Pennstar and A-10. Varieties which ranked decidedly inferior included South Dakota

Certified, Palouse, Delta, Arboretum, Troy, S-21, Kenblue and Geary.

Excellent evaluations for Helminthosporium leaf spot resistance were obtained during the 1970 growing season. Only Nugget ranked superior to Merion in this regard. Other varieties showing good leaf spot resistance included A-34, A-20, and Baron. These were followed by slightly lower rankings for Pennstar, Sodco, and Fylking. All other varieties possessed an objectionable degree of Helminthosporium leaf spot susceptibility and were seriously thinned to the extent that considerable weed invasion occurred.

Snow mold damage to the Kentucky bluegrass varieties at East Lansing, was the most severe that had been observed in the past ten years. This permitted some reliable information to be collected concerning relative susceptibilities. Nugget and Baron demonstrated the least susceptibility to snow mold. Others showing very minimal snow mold injury included Merion, Sodco, Delta, A-34, Delft, Pennstar, and Campus. Varieties which were highly susceptible to Helminthosporium damage included Prato, South Dakota Certified, Kenblue, Cougar and Geary.

The comparative evaluations for 38 additional Kentucky bluegrass varieties and selections are shown in Table 7. These varieties are not yet officially released for consumer utilization or are only available in Europe. Of these the NJE series from Rutgers University show excellent promise. Others ranking high include Belturf and Sydsport. A number of these varieties are being increased and will no doubt be released for consumer utilization within the next few years.

Kentucky Bluegrass Blends

Two studies concerning Kentucky bluegrass blend evaluations have been underway at East Lansing. One was established in 1962 and contained 11 different combinations of Merion, Newport, Park, Delta, and Kenblue. A second blend study was established in September of 1968, which included 11 different combinations of Merion, Newport, Park, Fylking, Windsor, and Prato. Over this period the blends containing at least one Helminthosporium leaf spot resistant variety were not significantly different in terms of visual turfgrass quality. The only time when the blends containing only leaf spot susceptible varieties ranked inferior was during the May-June period when leaf spot thinning was visually evident. Since no one Kentucky bluegrass variety ranks superior in all desired characteristics, it is desirable to combine three or four varieties which contain unique individual characteristics in terms of adaptation and disease resistance or appearance. The result is a turf that has better overall performance and adaptation to a range of soil and environmental conditions as well as a greater capability to persist under severe attacks from any one disease organism.

Table 6. 1970 KENTUCKY BLUEGRASS VARIETY EVALUATIONS* - East Lansing, Michigan

Selection or Variety	Percent Snowmold Infestation 4/8/71	Helminthosporium leafspot susceptibility (1-Best; 9-Poorest) 5/28/70	Visual Turfgrass Quality Rating*** (1-Best; 9-Poorest)
Nugget	7	1.0	1.9
Baron	10	3.3	2.3
Merion	23	2.3	2.5
A-34	28	3.0	2.7
Sodco	23	4.3	2.8
A-20	**	3.3	2.9
Fylking	48	4.7	3.1
Pennstar	33	4.0	3.1
A-10	**	6.0	3.2
Newport	47	6.3	3.8
Captan	42	6.0	3.8
Prato	100	5.3	4.2
Delft	30	5.7	4.2
Primo	53	6.7	4.3
Windsor	38	7.3	4.5
Campus	37	6.3	4.5
Cougar	92	7.0	4.6
Park	75	7.7	4.8
Geary	82	8.3	5.2
Kenblue	95	8.0	5.3

Table 6. (Continued)

Selection or Variety	Percent Snowmold Infestation 4/8/71	Helminthosporium leafspot susceptibility (1-Best; 9-Poorest) 5/28/70	Visual Turfgrass Quality Rating*** (1-Best; 9-Poorest)
S-21	73	5.7	5.3
Troy	**	7.7	5.3
Arboretum	**	6.7	5.7
Delta	23	7.7	5.8
Palouse	73	8.7	5.9
South Dakota Cert.	97	8.7	7.0

*These varieties are commercially available.
**No data available.
***Average of eight seasonal ratings.

TABLE 7. 1970 KENTUCKY BLUEGRASS VARIETY AND SELECTION EVALUATIONS* - East Lansing, Michigan

Selection or Variety	Helminthosporium leafspot susceptibility (1-Best; 9-Poorest) 5/28/70	Visual Turfgrass Quality Rating** (1-Best; 9-Poorest)
NJE P-56	1.3	1.8
NJE P-114	4.3	2.4
NJE P-35	4.0	2.4
NJE P-69	2.7	2.4
NJE P-27	2.7	2.6
Belturf	4.0	2.7
Sydsport	4.3	2.7
NJE P-5	2.0	2.7
WK-412 (Weibulls)	5.3	2.8
Golf	4.7	2.8
PSU-K-103	4.3	2.8
WK 412	2.3	2.9
N6-129	4.3	2.9
PSU-K-106	4.7	3.0
NJE-P-115	3.7	3.0
PSU-K-107	4.0	3.3
WK-411	5.3	3.3
N6-101	5.7	3.3
Ba 6 124	6.3	3.4
PP-1	3.7	3.4
Monopoly	5.3	3.4
Spaths	5.0	3.6
PSU-K-162	5.3	3.8
PSU-K-109	7.7	4.3
Zwartberg	7.0	4.4
Silverblu	7.0	4.5
Bar 643	6.3	4.6
Atlas	6.7	4.6
76 G 22-986	7.7	4.7
Arista	7.0	4.8
66 G 22-982	7.0	5.2
Hunsballe Soma	7.3	5.5
Minn-6	8.0	5.7
WK-408	8.3	5.7
Nike	7.3	6.0

(continued on reverse side)

Table 7. (Continued)

Selection or Variety	Helminthosporium leafspot susceptibility (1-Best; 9-Poorest) 5/28/70	Visual Turfgrass Quality Rating** (1-Best; 9-Poorest)
Fusa	8.0	6.0
SK-46	8.0	6.0
Skandia II	5.7	6.1

*These varieties and selections are not generally available in Michigan.

**Average of 8 seasonal ratings.