The long term performance of the Kentucky bluegrass cultivars is summarized in Tables 2 and 3. In late summer of 1972, Fylking and Pennstar were severely thinned by Fusarium blight. The damage to these two cultivars was greater than on any of the others. The most striking observations at this Field Day are the differentials in annual bluegrass invasion among the cultivars. Annual bluegrass is now the dominate species in many of the more leaf spot susceptible cultivars. In contrast, certain top performing cultivars have essentially no annual bluegrass invasion.

The red and chewings fescues are best adapted to shaded sites and droughty, sandy soils maintained at a minimal nitrogen fertility and irrigation level. Forty-five fine leaf fescue cultivars were established September 13, 1968, for comparative evaluation under lawn-turf conditions. The plot size is 5 x 8 feet with 3 replications. The experimental area is cut at a height of 1.2 inches twice per week with clippings returned. Irrigation is supplied as needed to prevent wilt. A split-plot nitrogen application has been made across the plots at rates of 2 and 4 lbs nitrogen per 1000 square feet per year.

The long term performance of these chewings and red fescue cultivars is shown in Tables 4 and 5. As a group, the chewings fescues have ranked superior to the red fescues in monostands. The chewings fescues tend to have a more bunch type growth habit and high shoot density while the red fescues have a creeping (rhizomatous) growth habit and lower shoot density which makes them more compatible in mixtures. None of the cultivars being evaluated possesses adequate leaf spot resistance.

STOP 3

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Kentucky Bluegrass Blend, Fine-Leaf Fescue Blend, and Mixture Evaluations

A blend is a combination of two or more cultivars within one species only. Four 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 (Table 6). Subsequently, a more extensive series of 18 blends was established in September of 1971 (Table 7). Over this 11-year period of four studies the blends containing at least one Helminthosporium leaf spot resistant cultivar were not significantly different in terms of visual turfgrass quality. The only time when the blends containing only leaf spot susceptible cultivars ranked inferior was during the May-June period when leaf spot thinning was visually evident. Since no one Kentucky bluegrass cultivar ranks superior in all desired characteristics, it is desirable to combine three or four cultivars that 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.

A fine leaf fescue blend evaluation study was initiated in September of 1971. Nine combinations of chewings, hard, and red fescue were utilized. No significant differences have been evident since establishment of the study. All nine combinations have performed acceptably. Until recently, it has not been feasible to blend cultivars of fine leaf fescue because of the lack of improved cultivars available for use in the blend. However, a number of fine leaf fescue cultivars 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.

A mixture involves a combination of two or more different species. A third mixture evaluation study was established in September of 1971. The plot size is 5 x 9 feet with 3 replications. The experimental area is maintained as previously described for the Kentucky bluegrass cultivars. Merion Kentucky bluegrass was included as one of the basic components in combination with eight different fescues and three different ryegrasses. Representative results of this study are presented in Table 8. Compared to the earlier experiments involving relatively unimproved fescue and ryegrass species combined with Merion Kentucky bluegrass, the persistence of these improved fescues and ryegrasses is much better. Of particular note is the persistence of the MSU meadow fescue in comparison with tall fescue. To date most of the fine leaf fescues included in this study have performed exceptionally in combination with the Kentucky bluegrass.

Table 6. Kentucky Bluegrass Blend Evaluations - II
Michigan State University
East Lansing
1972-1973
Area F3a

% Blend	% Snowmold 4/8/73 Avg.	Leafspot[2] 4/26/73 Avg.	Appearance[1] 4/26/73 Avg.
50 Merion 50 Newport	18%	2.0	2.3
50 Merion 50 Windsor	8	2.0	2.7
50 Merion 50 Park	28	2.7	3.3
33 Merion 33 Newport 33 Park	28	3.0	3.3
33 Merion 33 Park 33 Fylking	53	3.3	3.7
50 Merion 50 Fylking	41	3.0	4.0
33 Merion 33 Fylking 33 Windsor	47	4.7	4.0
50 Merion 50 Prato	84	6.3	5.3
33 Newport 33 Park 33 Fylking	91	7.3	6.0
33 Fylking 33 Windsor 33 Prato	98	8.3	7.3
33 Newport 33 Windsor 33 Prato	98	9.0	7.7

Planted September, 1968.

1 1=best, 9=poorest.

2 1=resistant, 9=susceptible.

Table 7. Kentucky Bluegrass Blend Evaluations - IV
Michigan State University
East Lansing
1972-1973
Area E-2

Blend Percentage Composition	Appearance 4/26/73 Avg. (3) [1]
Merion Nugget Sydsport @ 33%	1.7
Fylking Merion Nugget @ 33%	2.0
Fylking, Nugget Merion, Pennstar @ 25%	2.0
Baron Pennstar Sodco @ 33%	2.3
Merion Sodco Sydsport @ 33%	2.7
Baron, Sodco Merion, Sydsport @ 25%	2.7
Merion Nugget Sodco @ 33%	3.0
Baron Sodco Sydsport @ 33%	3.0
Baron, Sodco Pennstar, Sydsport @ 25%	3.0
Pennstar Sodco Sydsport @ 33%	3.3
Baron Fylking Sodco @ 33%	3.3
Fylking, Park Nugget, Sydsport @ 25%	3.3
Fylking Nugget Park @ 33%	3.7
Fylking, Nugget Merion, Park @ 25%	4.0
Merion Nugget Park @ 33%	4.3
Baron Nugget Park @ 33%	4.3
Baron, Pennstar Park, Sodco @ 25%	4.3
Fylking Park Pennstar @ 33%	6.0

Planted September, 1971.

[1] Average of 3 replications.

Table 8. Turfgrass Mixture Evaluations - III
Michigan State University
East Lansing
1972-1973
Area F2b

Percent mixture composition[1]		Appearance[2] Rating avg.
50	Jamestown chewings fescue	1.3
50	Merion Kentucky bluegrass	
50	Dawson chewings fescue	1.3
50	Merion Kentucky bluegrass	
50	Pennfine perennial ryegrass	1.7
50	Merion Kentucky bluegrass	
50	MSU meadow fescue	2.0
50	Merion Kentucky bluegrass	
50	C-26 hard fescue	2.7
50	Merion Kentucky bluegrass	
50	Highlight chewings fescue	2.7
50	Merion Kentucky bluegrass	
50	Wintergreen chewings fescue	2.7
50	Merion Kentucky bluegrass	
50	Manhattan perennial ryegrass	3.0
50	Merion Kentucky bluegrass	
33	Pennlawn red fescue	
33	Manhattan perennial ryegrass	3.3
33	Merion Kentucky bluegrass	
50	Pennlawn red fescue	3.3
50	Merion Kentucky bluegrass	
50	Norlea perennial ryegrass	3.7
50	Merion Kentucky bluegrass	
50	Alta tall fescue	4.0
50	Merion Kentucky bluegrass	

[1] Expressed on a seed number basis.

[2] 1 = best, 9 = poorest.