

STOP 1

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Perennial Ryegrass Cultivar Evaluation and Fine Leafed Fescue Breeding Program

The perennial ryegrass cultivar evaluation plots were established September 17, 1968. The plot size is 5 x 7 feet with three replications. The area is maintained at a cutting height of 1.2 inches and is mowed twice per week with clippings returned. Irrigation is applied as needed to prevent wilt. Sub-plot nitrogen levels of 3 and 6 lbs of nitrogen per 1000 square feet per year are maintained over the plots. No pesticides have been applied to the area.

In perennial ryegrass cultivar tests (Table 1) Manhattan has shown good winter hardiness, fine texture, dark green color and good mowing quality. Pennfine has been established in two seasons, but has failed to survive the winter. Norlea has shown the greatest winter hardiness but has poor mowing quality and relatively poor appearance.

The traditional problem with most perennial ryegrasses for turfgrass use has been the excessive vertical shoot growth rate that results in the species being too aggressive to remain compatible in a turfgrass stand with Kentucky bluegrass. In addition, perennial ryegrass has lacked low temperature hardiness for winter survival under Michigan conditions. The former characteristics have been minimized with the development of the more diminutive, low growing cultivars which have a slower vertical shoot growth rate and improved compatibility with Kentucky bluegrass. The combination of a diminutive perennial ryegrass cultivar with Kentucky bluegrass does offer a new alternative for seed mixtures to be utilized on sports turfs.

A winterhardy turf-type meadow fescue has been developed at M.S.U. This selection has relatively fine texture, blends well with improved Kentucky bluegrass cultivars in mixtures, and has excellent winter survival. Plots of this strain may be seen at Stop 3.

A leaf spot tolerant cultivar of fine leaf fescue with creeping habit is the goal of the fescue breeding program. A screening-intercrossing-screening program is in the fifth cycle and a small number of plants have survived a severe inoculation and will be again intercrossed. Clones of the advanced selections can be viewed.

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Kentucky Bluegrass and Fine Leafed Fescue Cultivar 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 cultivars 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 applied across the plots at 3 and 6 lbs of nitrogen per 1000 square feet per growing season.

Table 1. Ryegrass Cultivar Evaluations
Michigan State University
East Lansing
1968-1973
Area H-5

| Cultivar | Fall Seedling Vigor | | Seedling Appearance (9) | Spring Green up 1969 (3) | Leafspot ⁴ Rating 1969 (3) | Winter ² Survival 4/22/71 (3) | Appearance ¹ | | | | | Weighted Average (54) |
|---------------|---------------------|---------|-------------------------|--------------------------|---------------------------------------|--|-------------------------|-----------|-----------|----------|----------|-----------------------|
| | (ht. in inches) | | | | | | 1969 (18) | 1970 (15) | 1971 (12) | 1972 (6) | 1973 (3) | |
| | 9/26/68 | 10/9/68 | | | | | | | | | | |
| Manhattan | 2.0 | 3.3 | 2.8 | 1.7 | 1.0 | 4.3 | 2.4 | 2.2 | 1.8 | 2.8 | 3.0 | 2.3 |
| Syn O. | 1.8 | 2.7 | 3.8 | 2.0 | 1.7 | 3.0 | 2.5 | 2.9 | 1.6 | 1.3 | 2.3 | 2.3 |
| Norlea | 2.0 | 2.8 | 3.2 | 3.3 | 1.7 | 3.0 | 2.7 | 3.5 | 2.8 | 5.0 | 4.3 | 3.2 |
| Pelo | 1.9 | 3.7 | 3.3 | 3.7 | 2.3 | 5.0 | 3.2 | 3.3 | 3.5 | 3.3 | 3.0 | 3.3 |
| Combi | 2.2 | 4.2 | 3.0 | 3.7 | 2.7 | 4.3 | 3.8 | 3.6 | 3.9 | 3.8 | 5.3 | 3.9 |
| Brabantia | 2.0 | 3.8 | 3.0 | 3.0 | 2.7 | 7.0 | 3.2 | 3.5 | 4.4 | 5.3 | 7.7 | 4.0 |
| S-23 | 1.8 | 3.2 | 2.7 | 5.0 | 2.3 | 8.3 | 3.3 | 3.5 | 5.2 | 4.8 | 7.3 | 4.2 |
| MSU (diploid) | 2.3 | 4.0 | 2.2 | 4.0 | 3.3 | 4.3 | 4.3 | 4.0 | 3.7 | 4.5 | 4.3 | 4.2 |
| Viris | 2.3 | 4.2 | 3.2 | 3.7 | 3.0 | 6.7 | 3.7 | 4.1 | 5.2 | 5.0 | 6.0 | 4.4 |
| Nr 42-34 | 2.0 | 4.2 | 3.1 | 4.0 | 3.3 | 6.0 | 4.1 | 4.1 | 4.8 | 4.7 | 5.7 | 4.4 |
| Bocage | 1.4 | 3.5 | 3.6 | 4.3 | 3.0 | 7.3 | 4.0 | 3.9 | 4.8 | 4.7 | 8.3 | 4.5 |
| Sceempter | 2.2 | 3.8 | 3.8 | 4.0 | 3.7 | 6.0 | 4.1 | 4.3 | 4.7 | 5.2 | 6.0 | 4.5 |
| NK-100 | 1.9 | 3.7 | 3.1 | 2.7 | 2.3 | 8.0 | 4.0 | 4.3 | 5.5 | 5.8 | 8.3 | 4.9 |
| Linn | 2.0 | 3.5 | 3.0 | 3.0 | 3.0 | 8.7 | 4.3 | 4.4 | 7.7 | 5.3 | 8.7 | 5.4 ₃ |
| Ruania | 1.7 | 3.3 | 3.4 | 4.0 | 2.0 | 9.0 | 3.6 | 4.9 | 8.6 | - | - | 5.4 ₃ |
| Ariki | 2.3 | 4.2 | 3.4 | 4.3 | 4.0 | 9.0 | 4.7 | 5.2 | 9.0 | - | - | 6.0 ³ |

Plant September 17, 1968

¹ 1 = best, 9 = poorest

² 1 = complete survival, 9 = complete kill

³ tests concluded 1972 with 45 observations.

⁴ 1 = resistant, 5 = susceptible

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