

The perennial ryegrass density on these sites was not significantly different. It is suspected that the perennial ryegrass in the rubber incorporated plots will be considerably healthier in the spring of 1991 due to decreased compaction. The study will be continued in 1991 as well as more extensive studies at the Hancock Turfgrass Research Center.

III. Effects of perennial ryegrass/Kentucky bluegrass seeding mixtures and compositions on wear tolerance.

In June 1989 a study was initiated at the Hancock Turfgrass Research Center to determine the effects of different perennial ryegrass/Kentucky bluegrass seeding mixtures, their eventual turf composition, and their subsequent ability to resist and recuperate from wear. Two studies were conducted in this area. The first study involved five perennial ryegrass/Kentucky bluegrass ('Citation II'/'Ram I') seeding mixture percentages (0/100, 20/80, 35/65, 50/50, and 80/20) and two priming procedures for Kentucky bluegrass seed (primed vs unprimed). All seeding rates totaled 2.0 lbs/1000 ft². The second study involved a 80/20 percentage mix of perennial ryegrass/Kentucky bluegrass at three seeding rates (2,4, and 6 lbs/1000 ft²) and the priming factor. All of these treatments were seeded June 30, 1989 and allowed to mature until a wear treatment was initiated May 15, 1990. The turf was subjected to wear using a Brinkman Traffic Simulator (BTS) purchased through funds donated by the Michigan Turfgrass Foundation. The BTS simulates athletic field traffic (soccer and/or football) and has an equivalency of two passes with a water-filled drum type roller with cleat-like appendages equaling traffic received at 40 yard line of one football game. This equivalency was developed by inventors of the BTS at the University of California - Riverside. From May 15 to June 25, 1990 there were two passes two times/week with the BTS. This was increased to four passes three times/week until August 30. This wear constituted what is referred to as Spring/Summer wear. On September 7, a Fall Wear treatment was initiated on a previously undisturbed portion of each plot. The wear was 12 passes/week until November 30, 1989.

Data collected in these studies included turfgrass density, quality resulting from wear treatment, color, and impact values measured with the Clegg Impact Soil Tester. The results of the turfgrass mixes study are presented in Table 3 while the results from the similar mix/different seeding rate study are presented in Table 4. Very little differences were found among the measured characteristics in relation to turfgrass rates (Table 4). The Kentucky bluegrass seed priming was unsuccessful. No significant differences between primed vs unprimed seed were recorded in either study.

In 1991, turfgrass wear will continue. In addition, plant species counts and change in species composition due to wear treatments will be collected and assessed.

IV. Effects of potassium on wear tolerance in turf grasses.

A study was begun in cooperation with Paul Rieke and Mike Saffel at the Hancock Turfgrass Research Center, Michigan State University, in 1989 to investigate the long term effects of annual potassium applications on wear

Table 3. The effects of seeding mixtures and BTS wear on turfgrass density, quality color and impact absorbtion-1989-1990.

% P.Rye/%K.Blue	Density (10/89)	Quality ¹				Color ²	Impact
		Spring/Summer Wear ³					
		4/20	7/21	8/10	9/17		
	-%-					6/4	-g _{max} -
0/100	51	3.5	4.5	4.3	3.7	4.1	94
20/80	58	4.5	4.8	4.7	5.2	3.0	91
35/65	67	5.5	4.2	5.5	4.8	2.8	91
50/50	61	5.7	4.2	5.3	4.8	2.4	93
80/20	68	6.5	3.7	3.5	4.5	2.2	86
LSD (0.05)	12	1.5	NS	NS	NS	0.1	NS

1 Quality on a scale of 1-9 with 1=bare ground and 9=ideal turf.

2 Color on a scale of 1-5 with 1=bare ground and 5=darkest green.
A score of 3 is acceptable color

3 Spring/summer wear began May 15 and ended August 30.
Fall wear began Sept. 7 and ended Nov. 30.

Table 4. The effects of seeding rates of a 80 percent perennial ryegrass/20 percent Kentucky bluegrass mixture and BTS wear on turfgrass density, quality, color, and impact absorption - 1989-1990.

<u>lbs/1000 ft²</u>	<u>Density (10/89)</u>	<u>Quality¹</u>						<u>Color² (6/4)</u>	<u>Impact</u>
		<u>Spring/Summer Wear³</u>				<u>Fall Wear³</u>			
		<u>4/20</u>	<u>7/21</u>	<u>8/10</u>	<u>9/17</u>	<u>9/17</u>	<u>10/30</u>		
	<u>-%-</u>								<u>-g_{max}-</u>
2	68	6.5	3.7	3.5	4.5	4.3	5.0	1.9	86
4	76	6.3	3.2	4.3	4.8	3.5	3.8	2.3	84
6	87	7.1	4.3	4.7	4.5	4.0	4.5	2.6	82
LDS (0.05)	8	NS	NS	1.0	NS	NS	NS	NS	NS

1 Quality on a scale of 1-9 with 1=bare ground and 9=ideal turf.

2 Color on a scale of 1-5 with 1=bare ground and 5=darkest green.
A score of 3 is acceptable color

3 Spring/summer wear began May 15 and ended August 30.
Fall wear began Sept. 7 and ended Nov. 30.