

## Bermuda Species Traffic Study

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This is the second part of a two year report. First year data appeared in the 2002 research report. Previous reports have shown that bermudagrass can be seeded in the summer on severely worn areas of practice football fields to provide better turf cover at least in the beginning of the fall playing season.

### Objectives

To evaluate seeded and sprigged bermudagrass varieties to repair intensively trafficked areas of northern athletic fields, and to evaluate mixtures of cool and warm season grasses in terms of color and coverage of turf through summer and fall.

### Methods

Two independent trials were established at the Horticulture Research Farm in Ames Iowa on July 11, 2001 (data already presented) and on June 14, 2002. Each trial was composed of 12 combinations of grass species, hybrids or individual species and 2 levels of traffic, for a total of 24 treatments. The experimental design was a randomized complete block with split-plot arrangement. Whole plots consisted of grass species and split plots were traffic levels. There were 3 replications for a total of 72 sample units of 2 ft x 12 ft. The species or combinations of species and the establishment method used in 2002 appear in Table 1.

**Table 1.** Description of species and cultivars and establishment method for 2002.

| Treat. | Species A               | Planting time | Species B               | Planting time | Establishment method |
|--------|-------------------------|---------------|-------------------------|---------------|----------------------|
| 1      | Yukon (Yk)              | Jun-12        | ~~~                     | ~~~           | Seed                 |
| 2      | Primo (Prm)             | Jun-12        | ~~~                     | ~~~           | Seed                 |
| 3      | Primo (Prm)             | Jun-12        | Perennial Rye (PR)      | Jun-12        | Seed                 |
| 4      | Primo (Prm)             | Jun-12        | Creeping Bentgrass (CB) | Jun-12        | Seed                 |
| 5      | Primo (Prm)             | Jun-12        | Kentucky Bluegrass (KB) | Jun-12        | Seed                 |
| 6      | Primo (Prm)             | Jun-12        | Perennial Rye (PRII)    | Aug-25        | Seed                 |
| 7      | Baby (Baby)             | Jun-12        | ~~~                     | ~~~           | Sprigging            |
| 8      | Westwood (Ww)           | Jun-12        | ~~~                     | ~~~           | Sprigging            |
| 9      | Quickstand (Qs)         | Jun-12        | ~~~                     | ~~~           | Sprigging            |
| 10     | Creeping Bentgrass (CB) | Jun-12        | ~~~                     | ~~~           | Seed                 |
| 11     | Perennial Rye (PR)      | Jun-12        | ~~~                     | ~~~           | Seed                 |
| 12     | Kentucky Bluegrass (KB) | Jun-12        | ~~~                     | ~~~           | Seed                 |

Traffic treatments were applied with a GA-SWC traffic simulator (Carrow et al., 2001) on September 16 with 2 and 4 passes (2x & 4x) each Monday, Wednesday and Friday until November 4. The variables measured were % turf cover, turf color and turf quality. Data was collected monthly, from August 19 to November 4, 2002.

### Results

Baby bermudagrass provided the most turf cover compared to all other grasses except PR on November 4 at the end of the traffic period. At this same time all of the bermudagrasses, including 'Baby', had poor turf color because of frost. Adding KB and PR to 'Primavera' seeded bermudagrass improved turf cover at the end of the traffic period compared with 'Primavera' alone.

**Table 2.** Percent turf cover for various grass combinations and two levels of traffic.

| Species                   | 19-Aug | 13-Sep | 15-Oct | 4-Nov |
|---------------------------|--------|--------|--------|-------|
| Turf cover (%)            |        |        |        |       |
| <b>Baby</b>               | 100.0  | 85.0   | 90.8   | 78.5  |
| <b>CB</b>                 | 78.3   | 56.7   | 64.2   | 57.5  |
| <b>KB</b>                 | 80.0   | 75.0   | 74.2   | 65.8  |
| <b>PR</b>                 | 94.7   | 91.7   | 80.8   | 78.3  |
| <b>Prm</b>                | 94.3   | 88.3   | 60.8   | 52.5  |
| <b>PrmCB</b>              | 97.0   | 88.3   | 65.0   | 55.8  |
| <b>PrmKB</b>              | 97.7   | 91.7   | 70.0   | 64.2  |
| <b>PrmPR</b>              | 98.0   | 78.3   | 74.2   | 65.0  |
| <b>PrmPRII</b>            | 95.3   | 91.7   | 68.3   | 62.5  |
| <b>Qs</b>                 | 99.3   | 80.0   | 75.8   | 64.2  |
| <b>WW</b>                 | 100.0  | 96.7   | 83.3   | 67.5  |
| <b>Yk</b>                 | 85.0   | 76.7   | 65.8   | 57.5  |
| <b>LSD<sub>0.05</sub></b> | 5.08   | 20.69  | 9.51   | 8.52  |
| Traffic Levels            |        |        |        |       |
| <b>2x</b>                 | N.D.   | N.D.   | 85.83  | 81.94 |
| <b>4x</b>                 | N.D.   | N.D.   | 59.72  | 46.25 |
| <b>LSD<sub>0.05</sub></b> |        |        | 3.88   | 3.48  |

**Table 3.** Turf color observed in different species under traffic stress.

| Species                   | 19-Aug                | 13-Sep | 15-Oct | 4-Nov |
|---------------------------|-----------------------|--------|--------|-------|
|                           | <b>Color*</b>         |        |        |       |
| <b>Baby</b>               | 7.0                   | 7.0    | 4.3    | 1.5   |
| <b>CB</b>                 | 5.3                   | 7.7    | 6.8    | 5.9   |
| <b>KB</b>                 | 4.7                   | 8.2    | 7.6    | 6.3   |
| <b>PR</b>                 | 9.0                   | 9.0    | 8.3    | 8.0   |
| <b>Prm</b>                | 7.0                   | 7.0    | 3.8    | 1.3   |
| <b>PrmCB</b>              | 7.3                   | 7.2    | 5.3    | 4.5   |
| <b>PrmKB</b>              | 7.3                   | 7.0    | 4.1    | 3.5   |
| <b>PrmPR</b>              | 9.0                   | 8.3    | 7.5    | 5.8   |
| <b>PrmPRII</b>            | 7.0                   | 7.2    | 4.0    | 4.3   |
| <b>Qs</b>                 | 7.0                   | 7.5    | 4.8    | 1.9   |
| <b>WW</b>                 | 7.0                   | 7.8    | 2.3    | 1.2   |
| <b>Yk</b>                 | 5.3                   | 7.7    | 6.5    | 2.5   |
| <b>LSD<sub>0.05</sub></b> | 1.09                  | 0.56   | 0.99   | 0.63  |
|                           | <b>Traffic Levels</b> |        |        |       |
| <b>2x</b>                 | N.D.                  | N.D.   | 5.88   | 4.31  |
| <b>4x</b>                 | N.D.                  | N.D.   | 5.02   | 3.47  |
| <b>LSD<sub>0.05</sub></b> |                       |        | 0.40   | 0.26  |

\*Color ratings based on a scale of 1-10, where 10 is the most desirable green and 6 the least acceptable; 1 is completely discolored grass

#### Literature cited

Carrow, R.N., R.R. Duncan, J.E. Worley and R.C. Shearman. 2001. Turfgrass traffic (soil compaction plus wear) simulator response of *Paspalum vaginatum* and *Cynodon* spp. p. 253-258. In K. Carey (ed.). Int. Turf. Soc. Research J. Vol. 9.