

Mississippi Forage Crop Variety Trials, 2004

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INTRODUCTION

New, improved and standard varieties of forage crops are evaluated in MAFES small-plot trials each year. Seed for the trials are obtained from commercial seed companies and state universities and tested at a number of locations in Mississippi. All entries from privately owned companies are tested on a fee basis. The Forage Crop Evaluation Committee may enter varieties of interest or proven varieties to be used as standards. This report contains data collected in 2003-04 on the performance of annual ryegrass, tall fescue, other cool-season perennial grasses, bermudagrass, and bahiagrass.

A randomized complete block design consisting of 6x12-foot plots with three to four replications, depending on location, was used. Plot yield was adjusted to 95% dry matter. Visual notes on botanical composition were used to adjust total herbage yield to yield based upon the variety being evaluated unless noted in each particular table. These data were analyzed within locations and within harvest dates. The timing and number of harvests during the season varied by location because of different

planting dates and growing conditions. Protein and digestibility were determined on ryegrass harvested at Newton, MS, from last year's ryegrass test during the spring of 2003 (Table 6).

The summer of 2003 was very moist with adequate rainfall throughout the state; the winter of 2003-2004 was moist (Table 1). Data presented in Tables 2-20 can be used to evaluate the relative performance of each forage variety at each location. Comparisons can be statistically evaluated by using the LSD (Least Significant Difference). The LSD value represents the amount of yield which varieties must differ by in order to determine if the differences observed were due to chance variation alone.

Table 1. Rainfall at variety test locations in Mississippi, Jan. 2003 - June 2004.

| Month | Raymond | | Newton | | Starkville | |
|--------------|-------------|-------------|--------------|--------------|--------------|--------------|
| | 2003 | 2004 | 2003 | 2004 | 2003 | 2004 |
| January | <i>in</i> | <i>in</i> | <i>in</i> | <i>in</i> | <i>in</i> | <i>in</i> |
| February | 10.29 | 6.23 | 8.20 | 10.77 | 10.79 | 8.15 |
| March | 4.34 | 0.94 | 4.19 | 1.96 | 3.91 | 4.23 |
| April | 6.69 | 2.91 | 11.05 | 3.33 | 4.07 | 2.49 |
| May | 6.36 | 14.41 | 3.27 | 3.68 | 7.08 | 4.70 |
| June | 7.25 | 11.01 | 10.18 | 11.80 | 5.98 | 11.50 |
| July | 1.59 | | 11.11 | | 5.23 | |
| August | 3.05 | | 5.70 | | 6.79 | |
| September | 4.89 | | 2.88 | | 2.50 | |
| October | 1.53 | | 2.91 | | 3.28 | |
| November | 6.05 | | 5.63 | | 6.79 | |
| December | 3.82 | | 3.11 | | 3.23 | |
| Total | 57.2 | 40.6 | 71.61 | 35.63 | 65.10 | 34.67 |

Table 2. Yield of annual ryegrass at the Coastal Plain Branch Station, Newton, MS, 2003-2004.

| Variety | Harvest Dates | | | | | Total |
|--------------------------------|---|-------------|-------------|-------------|-------------|-------------|
| | 11/14/03 | 12/17/03 | 2/16/04 | 3/18/04 | 5/06/04 | |
| | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> |
| Bar 9 Tam | 1345 | 479 | 1460 | 1632 | 1615 | 6531 |
| BN-I-NA | 1461 | 750 | 1844 | 1323 | 1275 | 6653 |
| BN-N-IO | 1373 | 767 | 1834 | 1381 | 1368 | 6724 |
| BN-W-AO | 1562 | 837 | 1928 | 1596 | 1566 | 7490 |
| BN-W-YO | 1360 | 615 | 1889 | 1425 | 1382 | 6672 |
| Brigadier | 1615 | 854 | 1796 | 1489 | 1557 | 7311 |
| Ducado | 1294 | 527 | 1563 | 1318 | 1368 | 6070 |
| Ed | 1567 | 1004 | 1981 | 1580 | 1572 | 7704 |
| F1/NEX 2002 (New2) LRCT | 1536 | 1030 | 1886 | 1600 | 1468 | 7520 |
| F1/NEX 2003 4 X LRCT | 1311 | 1236 | 1825 | 1237 | 1302 | 7010 |
| F1/X 2002 (New) 4 X MR | 530 | 619 | 974 | 1873 | 1859 | 5856 |
| F1/X 2003 (BD) 4 X LRCT | 1458 | 1065 | 1956 | 1216 | 1461 | 7157 |
| FL X 2002 (DRU) LRCT | 1150 | 1124 | 1796 | 1323 | 1573 | 6966 |
| FL X 2002(New3)LRCT | 1461 | 1113 | 2001 | 1707 | 1550 | 7832 |
| FL/OK 2001 (newi) LRCT | 1518 | 1061 | 2023 | 1525 | 1480 | 7608 |
| Flying A | 1551 | 842 | 1739 | 1528 | 1584 | 7243 |
| Graze N Gro | 1477 | 892 | 1778 | 1307 | 1457 | 6910 |
| Gulf | 1271 | 773 | 1865 | 1239 | 1552 | 6700 |
| Harrison Oats | 1111 | 604 | 1455 | 1309 | 1290 | 5768 |
| Jackson | 1493 | 1171 | 1993 | 1542 | 1640 | 7840 |
| Jumbo | 1331 | 1176 | 1940 | 1291 | 1386 | 7125 |
| LM 9929D | 1365 | 921 | 1448 | 1147 | 1243 | 6124 |
| Marshall | 1398 | 1256 | 1943 | 1598 | 1581 | 7777 |
| Passerel Plus | 1556 | 1109 | 1858 | 1545 | 1670 | 7738 |
| Prine Tetraploid | 1290 | 1053 | 1652 | 1209 | 1419 | 6624 |
| Ribeye | 1324 | 952 | 1892 | 1360 | 1311 | 6839 |
| RIO | 1347 | 1040 | 1765 | 1400 | 1692 | 7244 |
| Special Blend (ME-94EXP) | 1541 | 1056 | 1962 | 1609 | 1618 | 7585 |
| Stampede | 1444 | 1013 | 1964 | 1362 | 1434 | 7217 |
| Tam 90 | 1424 | 761 | 1764 | 1501 | 1650 | 7099 |
| TRX 2000 T2 | 1376 | 651 | 1738 | 1596 | 1624 | 6985 |
| TXR 2003 B7 | 1498 | 720 | 1847 | 1624 | 1742 | 7430 |
| WD - 40 | 1366 | 693 | 1412 | 1354 | 1817 | 6642 |
| WMN 97 (LA 20-0-100232) | 1280 | 903 | 1975 | 1886 | 1843 | 7887 |
| Mean | 1411 | 912 | 1813 | 1447 | 1521 | 7106 |
| LSD (0.05) | 253 | 192 | 349 | 268 | 391 | 764 |
| CV % | 11 | 13 | 12 | 11 | 16 | 7 |
| Soil: | Prentiss Fine Sandy Loam | | | | | |
| Planting Date: | 10/01/2003 | | | | | |
| Seeding Rate: | 35 lb/A | | | | | |
| Fertilizer: | 500 lb/A 13-13-13 on 11/13/03 | | | | | |
| | 200 lb/A 34-0-0 on 1/17/04, 2/17/04 and 3/19/04 | | | | | |

Table 3. Yield of annual ryegrass at the Brown Loam Branch Station, Raymond, MS, 2003-2004.

| Variety | Harvest Date | | Total |
|--------------------------------|---|-------------|--------------|
| | 4/01/04 | 5/11/04 | |
| | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> |
| Bar 9 Tam | 5475 | 3630 | 9105 |
| BN-I-NA | 5491 | 5121 | 10612 |
| BN-N-IO | 3749 | 5428 | 9177 |
| BN-W-AO | 5229 | 4879 | 10108 |
| BN-W-YO | 4381 | 4282 | 8663 |
| Brigadier | 4631 | 4620 | 9251 |
| Ducado | 3999 | 4837 | 8836 |
| Ed | 4451 | 5930 | 10381 |
| F1/NEX 2002 (New2) LRCT | 3789 | 5339 | 9128 |
| F1/NEX 2003 4 X LRCT | 3802 | 4799 | 8601 |
| F1/X 2002 (New) 4 X MR | 4567 | 5858 | 10425 |
| F1/X 2003 (BD) 4 X LRCT | 4440 | 5080 | 9520 |
| FL X 2002(New3)LRCT | 4630 | 5046 | 9676 |
| FL X 2002 (DRU) LRCT | 4232 | 4564 | 8796 |
| FL/OK 2001 (newi) LRCT | 3855 | 4431 | 8286 |
| Flying A | 4863 | 4683 | 9546 |
| Graze N Gro | 4055 | 4810 | 8865 |
| Gulf | 4775 | 4205 | 8982 |
| Harrison Oats | 5039 | 2727 | 7766 |
| Jackson | 4531 | 4881 | 9412 |
| Jumbo | 3258 | 5597 | 8855 |
| LM 9929D | 3337 | 3480 | 6817 |
| Marshall | 3875 | 5216 | 9091 |
| Passerel Plus | 3041 | 4615 | 7656 |
| Prine Tetraploid | 3743 | 5287 | 9030 |
| Ribeye | 5086 | 4948 | 10034 |
| RIO | 2760 | 4634 | 7394 |
| Special Blend (ME-94EXP) | 3909 | 4589 | 8498 |
| Stampede | 3938 | 4768 | 8706 |
| Tam 90 | 4994 | 5218 | 10212 |
| TRX 2000 T2 | 3995 | 4201 | 8196 |
| TXR 2003 B7 | 4616 | 5135 | 9751 |
| WD - 40 | 4367 | 4802 | 9169 |
| WMN 97 (LA 20-0-100232) | 3374 | 5393 | 8767 |
| Mean | 4243 | 4795 | 9039 |
| LSD (0.05) | 1312 | 1257 | 1834 |
| CV % | 22 | 19 | 14 |
| Soil Type: | Loring silt loam | | |
| Planting Date: | 10/23/03 | | |
| Fertilizer: | 354 lb/A of 17-17-17 on 10/24/03 200 lb/A of 34-0-0 on 3/4/04 and 4/7/04 | | |

Table 4. Yield of annual ryegrass varieties at Mississippi State, MS, 2003-2004.

| Variety | Harvest Date | | | | | Total | Maturity ¹ Heading |
|---------------------------------|--|-------------|-------------|-------------|-------------|-------------|----------------------------------|
| | 2/04/04 | 3/10/04 | 4/6/04 | 5/5/04 | 6/11/04 | | |
| | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> | % |
| Bar 9 Tam | 243 | 381 | 1452 | 2792 | 182 | 5051 | 25 |
| BN-I-NA | 310 | 768 | 1201 | 1925 | 181 | 4384 | 66 |
| BN-N-IO | 187 | 834 | 1760 | 2591 | 174 | 5546 | 58 |
| BN-W-AO | 253 | 744 | 1337 | 2027 | 224 | 4584 | 75 |
| BN-W-YO | 331 | 980 | 1372 | 2304 | 274 | 5261 | 80 |
| Brigadier | 383 | 728 | 1835 | 2417 | 282 | 5645 | 32 |
| Ducado | 284 | 896 | 1564 | 2576 | 222 | 5540 | 25 |
| Ed | 389 | 601 | 1598 | 2627 | 206 | 5421 | 16 |
| F1/NEX 2002 (New2) LRCT | 303 | 581 | 1416 | 2467 | 210 | 4977 | 22 |
| F1/NEX 2003 4 X LRCT | 278 | 669 | 2171 | 2793 | 402 | 6313 | 22 |
| F1/X 2002 (New) 4 X MR | 234 | 851 | 1487 | 2374 | 233 | 5181 | 26 |
| F1/X 2003 (BD) 4 X LRCT | 252 | 516 | 1522 | 2514 | 178 | 4982 | 30 |
| FL X 2002 (DRU) LRCT | 603 | 562 | 1472 | 2007 | 218 | 4862 | 26 |
| FL X 2002(New3)LRCT | 355 | 448 | 1255 | 2645 | 284 | 4987 | 20 |
| FL/OK 2001 (newi) LRCT | 415 | 497 | 1339 | 2433 | 185 | 4870 | 26 |
| Flying A | 350 | 675 | 1492 | 2354 | 192 | 5063 | 32 |
| Graze N Gro | 323 | 578 | 1221 | 2595 | 289 | 5006 | 34 |
| Gulf | 388 | 643 | 1647 | 2528 | 176 | 5382 | 58 |
| Harrison Oat | 337 | 200 | 1021 | 1670 | 542 | 3770 | 88 |
| Jackson | 323 | 518 | 1247 | 2583 | 252 | 4924 | 19 |
| Jumbo | 459 | 528 | 1484 | 2358 | 344 | 5173 | 19 |
| LM 9929D | 209 | 540 | 657 | 1934 | 179 | 3519 | 6 |
| Marshall | 296 | 425 | 1832 | 2797 | 292 | 5641 | 28 |
| Passerel Plus | 746 | 493 | 1387 | 3460 | 269 | 6354 | 12 |
| Prine Tetraploid | 319 | 399 | 1295 | 2350 | 163 | 4526 | 55 |
| Ribeye | 150 | 547 | 1418 | 2272 | 279 | 4666 | 21 |
| RIO | 247 | 573 | 1861 | 2615 | 236 | 5533 | 20 |
| Special Blend (ME-94EXP) | 245 | 502 | 1301 | 2586 | 188 | 4821 | 18 |
| Stampede | 175 | 563 | 1757 | 2697 | 245 | 5437 | 21 |
| Tam 90 | 262 | 729 | 1872 | 2815 | 221 | 5899 | 20 |
| TRX 2000 T2 | 350 | 449 | 1333 | 2576 | 240 | 4948 | 25 |
| TXR 2003 B7 | 526 | 430 | 1494 | 2697 | 184 | 5332 | 24 |
| WD – 40 | 669 | 456 | 1488 | 2619 | 78 | 5310 | 56 |
| WMN 97 (LA 20-0-100232) | 506 | 325 | 1341 | 2582 | 200 | 4954 | 25 |
| Mean | 344 | 557 | 1469 | 2488 | 236 | 5114 | 33 |
| LSD (0.05) | 357 | 230 | 505 | 521 | 150 | 1077 | 12 |
| CV % | 74 | 28 | 24 | 15 | 45 | 15 | 25 |
| Soil: | Marietta Loam | | | | | | |
| Planting Date: | 10/1/04 | | | | | | |
| Fertilizer: | 300 lb/A 15-5-10 on 9/18/03 300 lb/A 0-0-60 and 1000 lb/A lime on 10/31/03 150 lb/A 46-0-0 on 1/28/04 425 lb/A 15-5-10 on 3/12/04 125 lb/A 46-0-0 on 4/12/04 | | | | | | |
| Herbicide: | Butyrac (2,4DB) at 1.5 pt/A on 11/10/04 | | | | | | |
| ¹ Maturity on 5/5/04 | | | | | | | |

Table 5. Total yield of annual ryegrass at three locations in Mississippi, 2003-2004.

| Variety | Newton | Raymond | Starkville | Average |
|--------------------------------|-------------|--------------|-------------|-------------|
| | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> | <i>lb/A</i> |
| Bar 9 Tam | 6531 | 9105 | 5051 | 6896 |
| BN-I-NA | 6653 | 10612 | 4384 | 7216 |
| BN-N-IO | 6724 | 9177 | 5546 | 7149 |
| BN-W-AO | 7490 | 10108 | 4584 | 7394 |
| BN-W-YO | 6672 | 8663 | 5261 | 6865 |
| Brigadier | 7311 | 9251 | 5645 | 7402 |
| Ducado | 6070 | 8836 | 5540 | 6815 |
| Ed | 7704 | 10381 | 5421 | 7835 |
| F1/NEX 2002 (New2) LRCT | 7520 | 9128 | 4977 | 7208 |
| F1/NEX 2003 4 X LRCT | 7010 | 8601 | 6313 | 7308 |
| F1/X 2002 (New) 4 X MR | 5856 | 10425 | 5181 | 7454 |
| F1/X 2003 (BD) 4 X LRCT | 7157 | 9520 | 4982 | 7220 |
| FL X 2002 (DRU) LRCT | 6966 | 8796 | 4862 | 6875 |
| FL X 2002(New3)LRCT | 7832 | 9676 | 4987 | 7498 |
| FL/OK 2001 (newi) LRCT | 7608 | 8286 | 4870 | 6921 |
| Flying A | 7243 | 9546 | 5063 | 7284 |
| Graze N Gro | 6910 | 8865 | 5006 | 6927 |
| Gulf | 6700 | 8982 | 5382 | 7021 |
| Harrison Oat | 5768 | 7766 | 3770 | 5768 |
| Jackson | 7840 | 9412 | 4924 | 7392 |
| Jumbo | 7125 | 8855 | 5173 | 7051 |
| LM 9929D | 6124 | 6817 | 3519 | 5487 |
| Marshall | 7777 | 9091 | 5641 | 7503 |
| Passerel Plus | 7738 | 7656 | 6354 | 7249 |
| Prine Tetraploid | 6624 | 9030 | 4526 | 6727 |
| Ribeye | 6839 | 10034 | 4666 | 7180 |
| RIO | 7244 | 7394 | 5533 | 6724 |
| Special Blend (ME-94EXP) | 7585 | 8498 | 4821 | 6968 |
| Stampede | 7217 | 8706 | 5437 | 7120 |
| Tam 90 | 7099 | 10212 | 5899 | 7737 |
| TRX 2000 T2 | 6985 | 8196 | 4948 | 6710 |
| TXR 2003 B7 | 7430 | 9751 | 5332 | 7504 |
| WD - 40 | 6642 | 9169 | 5310 | 7040 |
| WMN 97 (LA 20-0-100232) | 7887 | 8767 | 4954 | 7203 |
| Mean | 7106 | 9039 | 5114 | 7078 |
| LSD (0.05) | 764 | 1834 | 1077 | — |
| CV % | 7 | 14 | 15 | — |