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Forage Sorghum Performance Trial

J.L. Moyer and E.A. Adee

Summary

In our sorghum trials, production of forage was greater ($P < 0.05$) for 'FS 4' and 'AF 7401' than for 'AF 7202,' possibly related to differences in maturity. Estimated grain production was greater for 'AF 7401' than for all others, except for 'AF 7102.'

Introduction

Sorghums are an efficient genus of warm-season annual grasses. They are produced largely for forage but are considered a possible dedicated energy crop. This study was established to test cultivars for their adaptation to east central Kansas and to compare their productive and agronomic potential.

Procedures

Three sorghum hybrids entered by Advanta Seeds, Inc., and two other cultivars were planted at 100,000 seeds/a in 30-in. rows on May 29, 2014 at the East Central Kansas Agronomy Experiment Field. Plots were 30 ft \times 10 ft and were arranged in a randomized, complete block with three replications. The area was fertilized preplant with 150 lb nitrogen (N)/a as urea, and sprayed preemergence on May 22 with 1.6 lb a.i./a of S-metolachlor. Plants were thinned to 35,000 plants/a on June 17.

Date of half-bloom was recorded for each plot. Measurements of height to flag leaf, number of tillers per plant, and lodging were taken at harvest, along with an estimate of relative grain production. Two rows were harvested on September 23 at 2- to 3-in. height for a length of 20 ft per plot. Subsamples were dried at 140°F for moisture content.

Results

Maturity of the hybrids differed significantly ($P > 0.05$), in terms of both bloom date and forage dry matter content at harvest (Table 1). By both measurements, 'AF 7202' was earlier maturing than 'FS 4' and 'AF 7401.'

Forage production was greater for 'FS 4' and 'AF 7401' than for 'AF 7202,' perhaps partly because of the difference in maturity (Table 1). Estimated grain production was greater for 'AF 7401' and 'AF 7102' than for the other hybrids. Plant height was greater for 'FS4' than the other entries, and greater for 'Atlas' than for the rest. Although lodging differences were not significant, even at the 10% level, the greater height of 'FS 4' had no apparent effects on its tendency to lodge. The earlier maturity of 'AF 7202' may have contributed to its tendency to lodge.

Table 1. Bloom date, dry matter (DM), yield, and other agronomic traits in 2014 for forage sorghum, Ottawa Experiment Field, Department of Agronomy

| Cultivar | Bloom date, Julian day ¹ | DM, % | Yield, lb DM/a | Grain production, 0 to 10 ² | Plant height, in. | Lodging, % ³ |
|----------|--|-------|-------------------|--|----------------------|-------------------------|
| AF 7401 | 234 | 29.1 | 11809 | 8 | 50 | 3 |
| AF 7102 | 236 | 33.2 | 11148 | 7 | 50 | 4 |
| AF 7202 | 215 | 35.3 | 10761 | 5 | 49 | 16 |
| FS4 | 237 | 29.0 | 14129 | 5 | 102 | 6 |
| Atlas | 224 | 31.4 | 10838 | 5 | 73 | 11 |
| Average | 229 | 31.6 | 11737 | 6 | 64 | 7 |
| LSD 0.05 | 1 | 3.9 | 1025 | 2 | 5 | NS |

¹ Julian day 229 occurred on August 17.² Visually rated from 0 to 10, where 0 = no head and 10 = head fully filled with grain.³ Tillers lodged per 100 primary plants.