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Forage Production of Hay-Type Sorghum Cultivars

Abstract

Forage production was measured from three cuttings of 14 hay-type sorghum-sudan entries. Total annual yield was greater from 'AS5201', 'Sweet Sioux WMR', and 'AS9302' than from five lower-yielding cultivars.

Keywords

pastures, hay

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Forage Production of Hay-Type Sorghum Cultivars

J.L. Moyer and J. Holman

Summary

Forage production was measured from three cuttings of 14 hay-type sorghum-sudan entries. Total annual yield was greater from 'AS5201', 'Sweet Sioux WMR', and 'AS9302' than from five lower-yielding cultivars.

Introduction

Finer-stemmed sorghums, particularly sudangrass hybrids, are often harvested multiple times as hay. Tests were conducted to compare cultivars for adaptation in eastern Kansas. Yield was measured, and other characteristics noted when differences were observed. Forage quality characteristics are being assayed from the first cutting.

Experimental Procedures

The hay-type sorghum test of 14 entries was seeded at Mound Valley on June 5. Individual plot size was 30 ft × 5 ft, arranged in a randomized complete block with three replications. Seeding was in 10-in rows at the rate of about 450,000 live seeds/a. The area was fertilized preplant with 60-50-60 lb/a of N-P₂O₅-K₂O, with an additional 50 lb N/acre applied after each of the first two cuttings. The plot area was treated preemergent with 1.5 lb/a metolachlor and 1.0 lb/a atrazine.

Forage was harvested when several cultivars passed the boot stage. A 3-ft × 16-ft strip was cut with a flail-type harvester at a 4-in height on July 16, August 17, and October 6. Forage was subsampled and dried at 140 °F for moisture content and for determination of forage quality.

Results and Discussion

Seeding was delayed because of wet soil conditions. Dry matter production in the first cutting averaged 2,722 lb/a (Table 1). Although analysis of variance for first-cut yields indicated a non-significant ($P > 0.10$) difference, Duncan's test indicated that yield of cultivars '747' and AS5201 was greater ($P < 0.05$) than that of the two lowest-yielding cultivars.

Production of the second cutting averaged 2,497 lb/a, led by Sweet Sioux WMR, which yielded more than six lower-yielding cultivars. Additionally, yields of 'Sweet Six BMR' and AS5201 were greater than those of 'AS6402' and 'AS6401'.

Growth of the third cutting was hindered by wet weather, which promoted development of leaf rust on some cultivars (Table 1). There was also an infestation of sugarcane aphid, but their feeding affected all cultivars similarly. These conditions produced the greatest disparity in cultivars of the three cuttings, with yields ranging from 865 lb/a of dry forage for 'KS Orange' to 3,768 lb/a for Sweet Sioux WMR (Table 1). It is probably no coincidence that the three cultivars worst affected by rust also had the lowest yields in cut 3.

Total annual production of AS5201, Sweet Sioux WMR, and AS9302 were greater than yields of five lower-yielding cultivars. Seven cultivars had greater total yields than those of 'AS6501' and KS Orange.

Table 1. Hay yield in 2015 for sudangrass types, Mound Valley Unit, Southeast Agricultural Research Center

Cultivar	Forage yield, lb dry matter/a				Rust
	Cut 1 ¹	Cut 2	Cut 3	Total	0 to 10 ²
AS5201	3388	2815	3469	9672	1.3
AS6201	3038	2124	1952	7114	2.3
AS6401	2321	1993	3273	7587	3.0
AS6402	2478	1856	1965	6299	1.7
AS6501	2333	2104	1109	5546	4.7
AS9301	2915	2544	2456	7915	2.0
AS9302	3115	2288	3520	8923	2.0
Sweet Sioux WMR	2585	2947	3678	9210	3.3
Sweet Sioux BMR	2762	2597	1393	6752	3.7
B-52	2929	2180	2311	7420	1.3
747	3494	2124	2379	7996	3.0
Wondergreen	3035	2348	950	6333	4.0
Sweet Six BMR	3213	2119	2497	8528	2.0
Kansas Orange	2504	2349	865	5718	6.0
Average	2865	2363	2273	7501	2.9
LSD (0.05)	n.s.	660	1804	1846	1.8

¹Harvested on July 16, August 17, and October 6.

²Where 0 = no rust, and 10 = complete coverage of leaf surface.