



## **Performance of Stocker Cattle grazing a Brown midrib Sorghum x Sudan Hybrid in either a Continuous or Rotational Grazing System**

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This study was conducted at the Texas Agricultural Experiment Station in Bushland during the summer of 2001. Performance of stocker heifers grazing Seed Resources BMR 200 (brown midrib sorghum x sudan hybrid) in either a continuous or rotational grazing system was evaluated along with production per acre.

The study consisted of four 5.5 acre pastures (continuous) and four 8.25 acre pastures (rotational). The four 8.25 acre pastures were divided into three 2.75 acre cells within each pasture. Pastures were fertilized with 80 lbs. of N and 30 lbs. of P<sub>2</sub>O<sub>5</sub> per acre between April 23 and 27. All pastures were planted at a rate of 25 lb./acre. The continuously grazed pastures along with the first cell of each rotationally grazed pasture were planted on May 23, and the remaining two cells of the rotationally grazed pastures were planted on June 4, and June 14, respectively. Pastures were furrow irrigated once between June 12 and June 25. No further irrigation occurred. Rainfall and irrigation levels during the study are shown in Table 2. The pastures were then grazed from July 9 to September 27 at a stocking rate of 1.80 hd/acre using put and take grazing. Heifers were rotated from cell to cell in the rotational pastures approximately every 10 to 14 days allowing about 20 to 28 days rest per cell between grazing periods.

Heifers that had been grazing rangeland were individually weighed and assigned to pastures so that average weight per pasture would be similar. The pastures were grazed with two groups of heifers consisting of a tester group and a grazer group. The tester group consisted of 83 heifers that remained on the pastures throughout the study. The grazer group consisted of 31 heifers that were used to adjust grazing pressure as forage availability changed. During the grazing period cattle had free access to mineral.

Average daily gain was calculated based on the weight change of the tester heifers only. Gain/acre was calculated as the product of average daily gain and total grazing days/acre. Total grazing days was the sum of both the tester and grazer heifers.

In addition, samples were taken to calculate forage availability at the beginning of each grazing period and the end of the trial. Animal performance and forage availability results can be found in Tables 1 and 3 respectively.

## Results

**Table 1.** Performance of stocker heifers grazing a sorghum x sudan hybrid in either a continuous or rotational system.

	<b>Continuous</b>	<b>Rotational</b>
Initial weight, lbs.	455	451
Average daily gain, lbs.	2.44	2.45
Gain per acre, lbs.	320	345
Head days/acre	130.8	140.8
Grazing length, days	72	80

There was no difference for ADG for the two treatments ( $P = 0.96$ ). However, a difference ( $P = 0.002$ ) in head days/acre was observed. Consequently, the rotational grazing system tended ( $P = 0.08$ ) to improve gain/acre by 25 lbs.

**Table 2.** Irrigation and rainfall amounts, Bush Farm, 2001.

<b>Pasture #</b>	<b>Irrigation (Net inches)</b>	<b>Month</b>	<b>Rainfall, inches</b>
1	3.24	May	3.57
2	2.94	June	0.78
3	3.03	July	0.57
4	2.78	August	3.08
5	3.50	September	0.50
6	2.77	October	0.07
7	2.64		
8	2.61		

**Table 3.** Forage availability (lbs. of dry matter/acre) at the beginning and end of the trial.

<b>Days from start</b>	<b>Grazing cell</b>	<b>Rotational</b>			<b>Continuous</b>		
		<b>Leaf</b>	<b>Stem</b>	<b>Total</b>	<b>Leaf</b>	<b>Stem</b>	<b>Total</b>
<b>0</b>	1	1846	1736	3582	1984	1417	3400
<b>14</b>	2	1732	1081	2813			
<b>25</b>	3	1112	684	1796			
<b>35</b>	1	1578	1556	3134	1576	1879	3455
<b>45</b>	2	1256	1279	2535			
<b>57</b>	3	882	1052	1933			
<b>Final</b>		252	812	1064	164	1281	1445

No differences ( $P > 0.10$ ) were observed in leaf, stem, or total forage availability measurements at the onset of grazing (Continuous compared to Cell 1 of Rotational). Total forage availability at the end of the trial was different ( $P = 0.04$ ). However, this was because of a larger quantity of the stem fraction ( $P=0.02$ ) which is generally considered to contain less digestible nutrients than the leaf portion. At the termination of grazing leaf availability was tended to be higher ( $P = 0.18$ ) for the rotational grazing system.

### **Implications**

Staggered planting dates combined with rotational grazing is a potential option for managing summer annuals. Although individual heifer performance was not improved, gain per acre was increased as a result of having more leaf available and hence an extended grazing period. This management system also lends itself to a combined grazing and hay production program.