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1972

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1972

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Recommended Citation

Slyter, A. L., "Influence of Mating and Management Systems on the Performance of Beef Cows and Calves" (1972). *South Dakota Cow-Calf Field Day Proceedings, 1972*. Paper 8.

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Brookings, South Dakota

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A. S. Series 72-5

Influence of Mating and Management Systems on the
Performance of Beef Cows and Calves

Progress Report

A. L. Slyter

Research was initiated at the Newell Field Station in 1968 to study the influence of certain mating and management systems of crossbred beef cows on subsequent beef production. Factors under investigation include year-round drylotting vs. summer pasturing and backcrossing vs. outcrossing. Preweaning calf treatments, creep feeding and stilbestrol implantation are being studied.

Ninety crossbred (Angus x Hereford) heifer calves were purchased in the spring of 1968 and allotted into three main permanent treatment groups. Eighteen replacement heifers were added to the study in 1971. Two groups are summered on pasture and wintered in drylot, while the remaining group is maintained in drylot year round. Cows were randomly allotted to groups and mated to Hereford or Angus sires in 1968; Hereford, Angus or Charolais sires in 1969; Hereford or Angus sires in 1970 and Hereford, Angus or Charolais sires in 1971. One-half of the calves were implanted with 12 mg. of stilbestrol at approximately 6 weeks of age starting with the 1970 calf crop. Also, one-half of the calves in drylot received a creep. Post-weaning feedlot and carcass data are collected on all steer calves.

Calving results for the first three calf crops are shown in table 1. Percent calves born and weaned has been higher for the pasture system with the exception of the 1971 calf crop.

The effects of management system and breed of sire on birth weight, calving score and actual weaning weight are shown in table 2. Charolais-sired calves were heaviest at birth and had a higher calving score, indicating greater calving difficulty.

Average actual weaning weight was higher for the calves under the pasture management system in all three years when compared to the drylot calves not receiving creep feed. Creep feeding drylot calves increased actual weaning weights by an average of 46.0 lb. and 58.5 lb. in 1970 and 1971, respectively. Creep-fed calves consumed an average of 595 lb. and 1,000 lb. of creep feed in 1970 and 1971.

The results of stilbestrol implantation of suckling calves are shown in table 3.

Post-weaning data from the 1970 calf crop indicate no detrimental effect on feedlot performance or carcass traits as a result of implantation as a suckling calf. Total gain, rib eye area and adjusted cutability were highest for the Charolais-sired calves. Breed of sire had little effect on carcass grade (Hereford, Angus or Charolais). Data presented in this report are preliminary and generalized conclusions should not be drawn pending further results and analyses.

Prepared for Cow-Calf Field Day, Highmore, South Dakota, August 25, 1972.

Table 1. Calving Percentages as Affected by Management System

Year	Management system							
	Pasture-Drylot				Continuous-Drylot			
	No. cows exposed	Dropped	Live 3 wk.	Weaned	No. cows exposed	Dropped	Live 3 wk.	Weaned
	%	%	%	%	%	%	%	%
1969	60	85	--	75	30	80	--	70
1970	56	89	71	68	29	79	48	48
1971	56	96	86	86	27	100	96	96

Table 2. Effect of Management System and Breed of Sire on Birth Weight, Calving Score and Actual Weaning Weight

Management system		Pasture-Drylot				Continuous-Drylot			
Year	Breed of sire	No. ^a	Birth wt., lb.	Calving score ^b	Weaning wt., lb. ^c	No.	Birth wt., lb.	Calving score	Weaning wt., lb.
1969	Her.	18	--	--	444.2	8	--	--	456.2
	Angus	22	--	--	453.2	13	--	--	437.7
		<u>40</u>			<u>449.1</u>	<u>21</u>			<u>444.8</u>
1970	Her.	14	70.0	1.6	484.3	5	67.5	1.3	381.0
	Angus	16	61.4	1.1	424.4	6	64.4	1.0	405.0
	Char.	7	<u>75.0</u>	<u>1.8</u>	<u>492.6</u>	3	<u>78.8</u>	<u>2.3</u>	<u>451.7</u>
		<u>37</u>			<u>460.0</u>	<u>14</u>			<u>406.4</u>
1971	Her.	2	52.5	1.0	397.5	12	78.4	1.2	424.2
	Angus	46	<u>66.9</u>	<u>1.1</u>	<u>430.9</u>	14	<u>70.1</u>	<u>1.1</u>	<u>445.1</u>
		<u>48</u>		<u>1.1</u>	<u>429.5</u>	<u>26</u>		<u>1.1</u>	<u>435.4</u>

^a Number of calves weaned.

^b One = no difficulty; 2 = slightly difficult; 3 = difficult, mechanical puller needed; 4 = extremely difficult.

^c Drylot weaning weights shown have not been adjusted for the calves that were creep fed; 26.0 lb. should be taken off drylot average in 1970 and 31.5 lb. in 1971.

Table 3. Effect of Stilbestrol Implantation on Calf Weaning Weight (Actual)

Year	Treatment	Management System							
		Pasture-Drylot		Continuous-Drylot				Noncreep	
		Heifer	Steer	Creep		Heifer	Steer	Heifer	Steer
1970	Implant	1b. 458 (11) ^a	1b. 490 (7)	1b. 360 (1)	1b. 520 (1)	1b. 403 (2)	1b. 361 (3)		
	Nonimplant	435 (9)	464 (10)	375 (1)	431 (5)	--	390 (1)		
	Difference	23	26	-15	89		-29		
1971	Implant	440 (13)	408 (12)	470 (4)	467 (3)	368 (4)	453 (2)		
	Nonimplant	420 (13)	454 (10)	416 (4)	493 (3)	409 (4)	398 (2)		
	Difference	20	-46	54	-26	-41	55		

84

^a Numbers in parentheses are number of calves.