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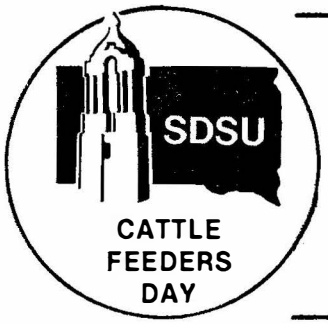

AN EVALUATION OF THREE FEEDING SCHEMES TO WINTER REPLACEMENT HEIFERS

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CATTLE 83-3

Summary

Three feeding schemes for wintering replacement heifers were evaluated in terms of cost and animal performance. Ninety-three Simmental-Angus crossbred heifers were divided into three groups of 31 head and fed the following diets: (1) .28 Mcal of net energy for gain per pound of feed, fed free choice; (2) .28 Mcal of net energy for gain per pound of feed limit fed to 13 lb dry matter per head per day and (3) .36 Mcal of net energy for gain per pound of feed limit fed to 13 lb of dry feed per head per day. The third diet (higher energy) was the best scheme. It resulted in the best gains and the lowest feed costs per pound of gain.

Introduction

Many different feeding practices have been used to grow out replacement heifers. The goal for replacement heifers is to overwinter at gains sufficiently high enough that they will be at 60% of mature body weight at breeding. This should be done as efficiently as possible and to meet all nutrient requirements.

This study was designed to evaluate three methods of growing replacements as to dollar efficiency and animal performance.

Methods

Ninety-three Simmental-Angus crossbred heifers were purchased at weaning and placed on trial at the James Valley Research and Extension Center at Redfield, SD. The heifers were divided into two groups, light and heavy (average of 510 lb and 600 lb, respectively). Each group was divided randomly into three groups, each receiving one of the following rations: (1) .28 Mcal of net energy for gain per pound of dry feed, fed free choice (low energy ration, free choice); (2) the same diet as in one but with intake limited to 13 lb of dry feed per head per day or (3) .36 Mcal of net energy for gain per pound of dry feed (high energy ration) intake limited to 13 lb of dry matter per head per day. Composition of the diets is shown in table 1. The cattle were weighed and treatments initiated February 4, 1982. The heifers were artificially inseminated in early June and dietary treatments were terminated resulting in a 144-day feeding period. Cattle were weighed every 28 days and feed measured on a pen basis each day. Subsequently, cattle were placed on pasture at Cottonwood, South Dakota.

Analyses of data included calculation of weight gain, average daily gain, feed consumption and feed cost per treatment group. The reproductive performance of the heifers will be monitored in future years.

TABLE 1. RATION COMPOSITION [a], ENERGY LEVEL AND DAILY INTAKE LEVEL FOR EACH OF THE DIETS

	Low energy Free Choice	Low energy Limit-fed	High energy Limit-fed
Composition, % [b]			
Corn, shelled	65	65	77
Prairie hay	34	34	22
Protein supplement	1	1	1
Energy, NEg Mcal/lb	.28	.28	.36
Lb intake per head/day	14.5	12.5	12.7

[a] All rations included free access to mineralized salt.

[b] All numbers are on a dry matter basis.

Results

Data representing total weight gain, average daily gain, total feed consumption, pounds of feed per pound of gain and feed cost are presented in table 2. The average daily gains and feed efficiencies were lower than what might be expected in all pens because of a month of severe weather compounded by recurring water problems. The most satisfactory overall performance was achieved by the high energy limit-fed group. They gained the most with the lowest feed cost per pound of gain. The animals in the low energy free-choice group consumed the highest amount of feed and had the poorest feed efficiency. They also had the highest total feed cost as well as feed cost per pound of gain. The low energy limit-fed group was more efficient than the free choice group but had the lowest gain rate. The limit-fed high energy group performed the best in total weight gain, average daily gain and feed conversion. They also were the most economical in feed cost per pound of gain. Limit feeding seems to decrease feed costs, but the energy level in the ration must be relatively high to sustain adequate gains.

TABLE 2. FEEDLOT PERFORMANCE[a] AS MEASURED BY WEIGHT GAIN, AVERAGE DAILY GAIN, FEED CONSUMPTION, FEED EFFICIENCY AND FEED COST OF SIMMENTAL-ANGUS CROSSBRED REPLACEMENT HEIFERS FED 144 DAYS

Item	Low energy Free choice	Low energy Limit-fed	High energy Limit-fed
Total wt. gained (lb)	189	171	195
ADG, lb/day	1.31 ± .12	1.22 ± .04	1.39 ± .03
Total lb feed consumed[b]	2099	1810	1839
Feed efficiency (lb feed, DMB/lb gain)	11.24 ± 1.22	10.64 ± .77	9.43 ± .07
Total feed cost/hd ($)[c]	73	63	65
Feed cost, $/lb gain	.39	.37	.33

[a] Values are averages on an individual basis.

[b] Dry basis.

[c] Based on corn at $2.40/bushel and prairie hay at $68/ton.