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PRODUCTION SYSTEMS TO REDUCE THE COST OF PRODUCTION & IMPROVE REPRODUCTIVE PERFORMANCE OF BEEF COWS

OBJECTIVES: Evaluate management systems to reduce cost per unit of production of calves weaned and determine the effect of these management changes on performance and value of calves through slaughter.

APPROACH: Studies will involve approximately 126 crossbred cows grazing native range pastures at the SDSU Range and Livestock **Research Station** near **Cottonwood**, SD, from November to May and pastures near Sturgis, SD, during the summer. In the spring of 1996 cows were allotted by age and breed composition to one of the following three management groups: 1) Breeding season begins 6/5 and calves are weaned 10/31, 2) Breeding season starts 6/5 and calves are weaned 9/14, 3) Breeding season starts 7/22 and calves are weaned on 10/31. For 3 years, steer calves will be fed for maximum gain from weaning to slaughter. Data to be collected include cow weight, body condition, and reproductive performance. Performance of calves from birth through slaughter will be evaluated.

PROGRESS: 1997/10 TO 2003/09

The effect of management system on pregnancy rate was year dependent. In the third year cows in the March calving/October weaned group had the lowest pregnancy rate ($p=.07$) but the following year the May calving group had the lowest pregnancy rate ($p=.11$). After 5 years of the study, there was no consistent advantage for any particular group. Days from calving to the beginning of the breeding season to conception was the shortest for the May calving group in year 4 (p higher calf death loss ($p=.07$) that resulted in a lower weaning percentage for the March calving groups compared to the May calving group ($p=.10$). The overall health status of calves was low and no differences were observed between treatments. The weaning percentage favored the March calving groups in year 4 ($p=.05$). With the exception of the first year, the pounds of calf weaned per cow exposed were greater for the March calving/October weaned group compared to the other two systems. An estimate of overall calf income was \$8 higher per cow exposed for the March calving group weaned in mid September

compared to the May calving group wean in late October. The March calving group weaned in late October generated \$37 more per cow exposed than the March calving group weaned in mid September. In deciding the optimum time to calve, the potential to reduce cost of winter feed, equipment, facilities and labor for a specific situation would need to be considered. For steers on an accelerated feeding program post weaning, calving time and weaning time did not affect average daily gain. For the mid March calving groups, steers weaned in mid September required less feed per unit of gain ($p=.02$) than steers weaned in late October. Mean marbling score was the highest for the March born/September weaned group ($p=.02$) but yield grade and the % choice was not affected by calving time or weaning time. For steers that were backgrounded on a high roughage diet after weaning, neither average daily gain or feed efficiency was affected when calves were fed to a common age.

IMPACT: 1997/10 TO 2003/09

The results of this study provide information on the impact of time of calving and weaning age on performance of cows and their calves. This information combined with evaluation of an individual producers cost of production and available resources will enhance decision making that affects profitability.

PUBLICATIONS: 1997/10 TO 2003/09

1. Dunn, B, E. Hamilton and D. Pruitt. 2003. Characterization of the beef cow-calf enterprise of the northern great plains. SD Beef Rpt. BEEF 2003-09.
 2. Pruitt, D., K. VanderWal, and A. Drew. 2003. SDSU Cow/Calf Teaching & Research Unit. SD Beef Rpt. BEEF 2003-06.
 3. R. J. Pruitt, R. Haigh, W. B. Epperson, S. W. Fausti and D. Young. 2003. Effect of calving time and weaning time on cow and calf performance - a preliminary Report. SD Beef Rpt. BEEF 2003-08.
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