BEEF CATTLE RESEARCH UPDATE

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Effect of Bunk Management Score on Feed Intake by Feedlot Steers

Mortality and morbidity associated with digestive disturbances in feedlot cattle are second only to those from respiratory diseases.[1] A survey of 121 feedlots in the Unites States during 1994 through 1999 showed that ~57% and ~23% of feedlot deaths were due to respiratory tract and digestive tract disorders, respectively.[2] A 2003 review suggested that digestive disorders account for approximately 25 to 33% of deaths in feedlot cattle and likely contribute to decreased performance and efficiency of production.[3] Bunk management systems that prevent cyclic intake patterns and/or overconsumption by feedlot cattle may be beneficial in controlling both clinical and subclinical digestive disorders.[4] Slick bunk management systems have become a common practice in the feedlot industry. The aim of such a system is for feed bunks to be slick for a certain duration of time prior to the next day's feed delivery. It is believed that this system reduces cyclic intake patterns thereby reducing the incidence of digestive disorders. However, a slick bunk system may reduce dry mater intake (DMI) and thus, feedlot performance.

Recent Colorado research evaluated the effect of bunk management score on DMI of feedlot steers.[5] These researchers used 125 crossbred steers (1096 lbs) housed in 12 pens (20 x 60 ft) with 12 ft bunks. All of the pens were fed a steam-flaked corn based finishing diet twice daily (7 a.m. and 11 a.m.). Three target bunk scores were evaluated: 0 – bunk devoid of all feed particles, ½ - bunk with trace to 5 lbs of feed remaining, and 1 – bunk with 5 to 20 lbs of feed remaining. At the start of the trial, each pen was randomly assigned to one of three groups (4 pens per group). Each group was fed to a different target bunk score over three periods. An adaptation period of nine days was implemented for each period prior to four days of data collection. In this trial, DMI was 13% greater for pens receiving a bunk score of 1 (24.71 lb/day) as compared to pens receiving a bunk score of 0 (21.49 lb/day). Pens receiving a bunk score of ½ had an average DMI of 22.86 lb/day. These data suggest that slick bunk management systems may severely restrict intake, thus reducing feedlot performance.

A New Mexico trial evaluated the effects of slick bunk management vs. ad libitum feeding of a steam-flaked corn based finishing diet in a 122 day trial with 190 Angus steers (864 lbs) fed in 16 pens.[6] The objective of the slick bunk treatment in this trial was for bunks to contain at least 0.5 lbs of feed per head at 10:30 p.m. and no feed at 7:00 a.m. before feeding at about 8:00 a.m. These researchers reported that DMI was reduced by only 2% with slick bunk management (21.43 vs. 20.99 lb/day). Feed efficiency did not differ between treatments. However, marbling scores were significantly reduced with slick bunk feeding suggesting that quality grade could be adversely affected by slick bunk management.

Calving vs. Time of Feeding

Recently published research investigated how the time of day that feed is provided to near-term beef cows (morning vs. evening) affects their patterns of parturition and if a pattern exist for time of day that parturition occurs on an individual cow basis.[7] In this study, an analysis of calving records from two separate spring calving beef cow herds with diverse feeding patterns were examined for parturition patterns. One herd consisted of Hereford and Charolais cows at the University of Idaho for which the time of partition was recorded to the nearest half-hour for 15 consecutive years. Each year the calving season began the third or fourth week of January and concluded the first week of April. During all years, these cows were fed alfalfa and pea or oat silage at near ad libitum levels daily from 6 a.m. to 8 a.m. beginning approximately two months before the expected calving season began. The second herd consisted of Hereford x Angus and Brahman x Hereford x Angus crossbred cows at the Kansas State University Agricultural Research Center in Hays for which the time of partition was recorded to the nearest half-hour for 5 consecutive years. Each year the calving season began the third or fourth week of January and concluded the third or fourth week of April. During all years, these cows were fed forage sorghum hay at near ad libitum levels daily from 4 p.m. to 6 p.m. beginning two weeks before the expected calving season began.

In the morning-fed Idaho herd, the distribution of calving was uniformly spread out over a 24-hour period (Figure 1), whereas, in the evening-fed Kansas herd, 85.4% of the cows gave birth during daylight hours (6 a.m. to 6 p.m., Figure 2). Based on these observations, these researchers concluded that the data suggest

that feeding near-term cows in the evening will result in a high incidence of births during daylight hours as compared to feeding in the morning (85.4 vs. 52.1%, respectively). The data also suggested that the time of day that a cow will give birth may be predictable. Based on the previous time of day that calving occurred, the time of day that evening-fed cows would give birth could be predicted within ± 3.00 hrs and the time of day that morning-fed cows would give birth could be predicted within ± 4.25 hrs. These researchers also noted that heifers appeared to pattern their time of parturition to that of their dams. If these observations are indeed true, one could utilize past calving data records to limit calf losses due to dystocia.

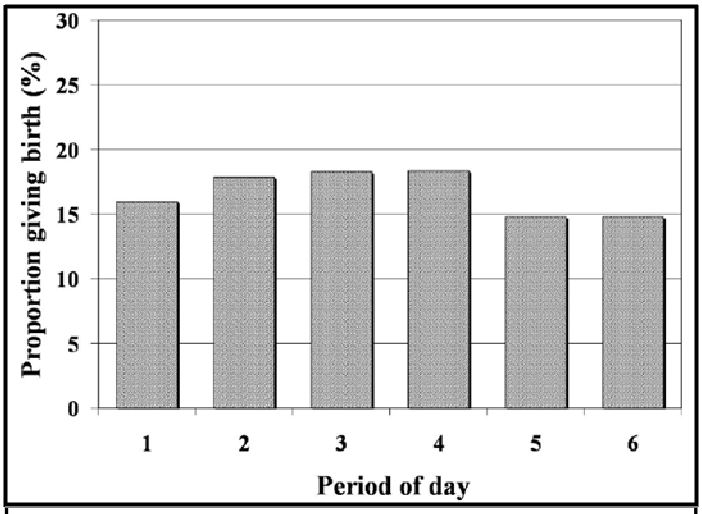

Figure 1. Distribution of all observed parturitions at University of Idaho by period of day (15 years of data, n = 1,210). Period 1: 6 a.m. to 10 a.m.; Period 2: 10 a.m. to 2 p.m.; Period 3: 2 p.m. to 6 p.m.; Period 4: 6 p.m. to 10 p.m.; Period 5: 10 p.m. to 2 a.m.; and Period 6: 2 a.m. to 6 a.m.
Source: Jaeger et al., 2008.

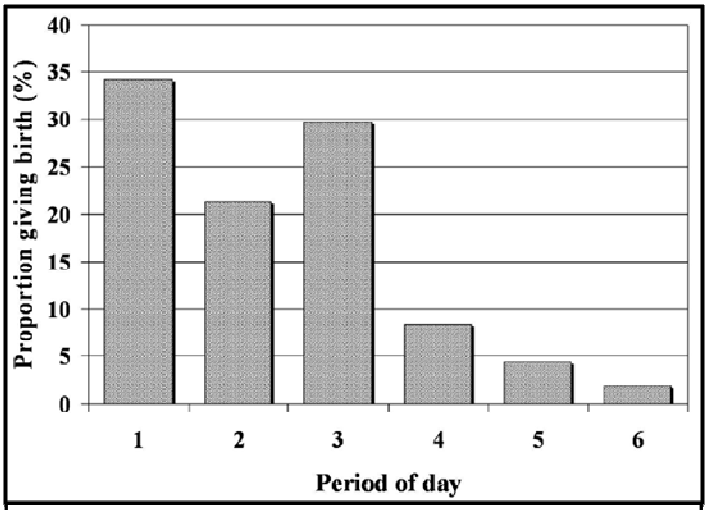

Figure 2. Distribution of all observed parturitions at Kansas State University-Hays by period of day (5 years of data, n = 537). Period 1: 6 a.m. to 10 a.m.; Period 2: 10 a.m. to 2 p.m.; Period 3: 2 p.m. to 6 p.m.; Period 4: 6 p.m. to 10 p.m.; Period 5: 10 p.m. to 2 a.m.; and Period 6: 2 a.m. to 6 a.m.
Source: Jaeger et al., 2008.

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