

AS 431 - Beef Cattle Production

2011 Cattle Feeding Exercise (CFEX)

Objectives :

1. To apply management techniques that are typically applied to feedlot cattle.
2. To adapt feeder cattle to a high-corn diet.
3. To determine the effect of concrete slatted flooring, covered or not covered with rubber matting, on feed intake, circumference of knees and hocks, and weight gain.

Materials and Methods:

Sixteen beef steers that grazed pasture this past summer were transported to the Livestock Laboratory on Thursday, October 13, 2011. In this class exercise, these steers will experience simulated feedlot conditions, in which rapid rates of weight gain are desirable. Rapid weight gain is possible when high-grain diets, which have a high-energy content, are fed. Since these steers have not consumed grain as a major component of their diet, they must be adapted to the high-corn, finishing diet in a manner which does not cause them to founder. A “step-up” strategy in grain content will be used to accomplish this dietary adaptation. The diet includes distillers grain, as dry and “modified wet”, as its principal protein source.

Numerous types of facilities are used to house feedlot cattle. One such housing system is termed “slatted-floor confinement”. While this is a relatively expensive facility to construct, once built, cattle feeders do wish to use these facilities to their maximum capacity. The advantages of these facilities are manure nutrient containment, shelter for cattle in extreme climatic conditions, and improved efficiency of converting feed consumed to weight gained. However, animal densities on this kind of flooring are very dense, 20-25 square feet per animal, and often knee and hock joint swelling is evident, especially in Holstein steers. Rubber coverings for concrete slats have been attempted in recent years in academic and industry settings. As a component of this CFEX, a rubber matting product provided by AgSourcing, Kirkton, Ontario, Canada (<http://www.agsourcing.net/>) will be evaluated. This four-week trial is designed to determine the effect of being constrained to uncovered concrete slatted flooring or slatted flooring covered by rubber matting. Two pens of steers (4 hd/pen) will be held on each of these flooring treatments for four weeks during which feed intake, weight gain, change in joint circumference, and fecal cortisol will be determined. Steer position will be captured by video recording.

Implants are commonly used as another means for stimulating growth rates in feedlot cattle. We will introduce the implants after the steers have been adapted to the high-energy finishing diet, as they finish this four-week trial. An explanation for why implants have this effect will be given later in the course.

On October 14, the cattle will be vaccinated against respiratory diseases, treated for internal and external parasites, weighed and randomly assigned to one of four pens (4 hd/pen). Two pen floors will be covered with the AgSourcing EasyFix rubber matting, and two pen floors will be bare concrete slats. This is the “control” treatment. On October 14 and 15, steers will be weighed prior to the morning feeding. On Oct 14, the right knee and right hock joint circumference for

each steer will be obtained. Weighing and joint measurement will be repeated on November 10 and 11, to conclude the trial.

Students are expected to do the following activities (approx. 60 min daily).

1. Cattle will be fed once daily, to minimize labor needed. Feeding should occur at the same time each day, with the feeding chore beginning at 7:45 AM.
2. Upon arrival at 7:45 AM, observe each pen's consumption of the prior day's feeding. If feed remains from the previous feeding, tare the cattle scale with the basket on it, shovel leftover feed into the basket, weigh the residual feed and record this on the feed record sheet. Dump the residual feed into one of the nearby trash barrels.
3. Observe the health of each animal in terms of posture and cleanness of the nose. Note any symptoms of poor health and the animal's ear tag number at the bottom of the feed record sheet with the date.
4. Check that water is available in the drinking fountain of each pen.
5. Staff from the Livestock Laboratory will clean the pens, as needed.
6. The goal is to feed an amount of diet that the pen will totally consume, and to avoid overfeeding them. You will be guided in deciding how much diet each pen will consume in the next 24 hrs. Record this amount on the feed record sheet. This decision should be based on how much feed the pen has consumed in each of the three previous days. The goal is to have only crumbs remaining in each pen's feeding area after 24 hours. If more than four pounds has been refused by the pen, reduce the amount of feed offered by approximately the amount of the feed refused. If the feeding area is licked clean for two consecutive days, increase the amount of feed offered by 2 lbs per head during days 1-10. During days 11-end, increase feed offered by 1 lb per head when the bunk area is slick for two consecutive days. Dr. Schaefer or Mitch Schaefer will provide coaching in this regard.
7. When a diet step-up occurs, feed an equal amount of dry matter. This will be explained in class.
8. The batch size is determined by adding up the amounts of feed "called" for two pens (1 and 2, or 3 and 4).
9. Only one diet formula will be used in preparing diet for all four pens. It is the CFEX diet.
10. Tare the electronic scale on the feed mixer and add the ingredient feeds to achieve the appropriate batch size. You will mix one batch for two pens – **pens 1 and 2**, and a second batch for **pens 3 and 4**.
11. Make certain that you mix the diet ingredients sufficiently to obtain a uniform mixture (about 3 min). Dispense into a cart the amount of feed which you "called" for each pen.
12. Push the feed cart to the cattle room. Place the diet on the floor in easy reach of the cattle and in a consistent location. The length of floor on which to place feed will be marked with duct tape for each pen.
13. When you have finished feeding, sweep-up in the feed room and discard any spilled feed in the dumpster.
14. Put the feed intake data sheet and folder back on the black desk next to the cattle scale.

At the completion of this exercise, feed dry matter intakes will be summarized. This information together with weight gain data will be used to calculate feed conversion efficiency.

Evaluation: Forty points (equivalent to homework) are assigned to this exercise as follows:

1. (10) decision-making which reflects an understanding of the experimental design and step-up strategy
2. (30) dependable performance of feeding and data collection responsibilities

Cattle Feeding Exercise

Conventional Corn (CFEX) Diet

	Corn silage : Wet Dist Grains : Corn : CFEX Pellets	Diet DM	Diet Fed
<u>Diet</u>	<u>(DM basis)</u>	<u>(%)</u>	<u>For Days ...</u>
1	60 : 14 : 13 : 13	45	1-3
2	40 : 19 : 28 : 13	52	4-8
3	25 : 24 : 38 : 13	57	9-15
4	20 : 24 : 43 : 13	60	16-20
5	15 : 23.8 : 48.2 : 13	63	21-29