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# **The effects of feeding a high concentrate ration containing 25% ground beef manure to fattening heifers in concrete and soil-surfaced lots**

## **Authors**

C.L. Drake, L.I. Smart, E.F. Smith, and R.I. Lipper

The Effects of Feeding a High Concentrate Ration  
Containing 25% Ground Beef Manure to Fattening  
Heifers in Concrete and Soil-surfaced Lots (Project 660)

C.L. Drake, L.I. Smart, E.F. Smith and R.I. Lipper<sup>1</sup>

This is a cooperative project with the Department of Agricultural Engineering to study surface runoff, in addition to animal performance.

Purpose

A. To compare a ration containing 25% ground beef manure with a conventional ration.

B. Study the influence of concrete or soil surfacing on animal performance.

Procedure

Twenty Hereford heifers were randomly allotted to four equal sized lots: 2 surfaced with concrete and 2 with soil. Self-feeders in soil-surfaced lots have concrete aprons.

Manure was collected from pens of cattle receiving a high energy ration, dried and processed through a hammer mill with the screen removed. It was fed mixed with other ingredients in the self-feeders. The ration containing manure consisted of 25% manure, 67.5% ground sorghum grain and 7.5% soybean meal. The control ration con-

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tained 33.5% alfalfa crumbles and 66.5% ground sorghum grain. Chemical analyses of feed ingredients are in table 29 and feedlot and carcass data, in table 30.

### Results

Although differences were small, heifers on concrete-surfaced lots gained slightly more and were more efficient. Concrete-surfaced lots are faster and easier to clean than unsurfaced lots, especially during wet weather.

Feed efficiency was the same for control heifers in both concrete- and soil-surfaced lots; however, heifers receiving 25% beef manure required more feed per pound of gain. Differences in feed costs per hundred weight gain were small in all cases.

Heifers receiving manure tried to separate it. A lower percentage of manure and pelleting the entire ration might have increased gains and reduced waste in the manure ration.

Samples of manure were analyzed in the veterinary diagnostic laboratory and found free of Salmonella organisms.

Table 29

## Chemical Analyses of Feed Ingredients

|                                 | Feed ingredient      |                    |                                                    |
|---------------------------------|----------------------|--------------------|----------------------------------------------------|
|                                 | <u>Sorghum grain</u> | <u>Beef manure</u> | <u>Dehydrated<sup>1</sup><br/>alfalfa crumbles</u> |
| Analysis, %:                    |                      |                    |                                                    |
| Protein<br>(nitrogen x<br>6.25) | 10.19                | 18.69              | 20.19                                              |
| Ether extract<br>(fat)          | 2.87                 | 2.74               | 3.72                                               |
| Crude fiber                     | 1.87                 | 13.79              | 20.68                                              |
| Moisture                        | 11.96                | 12.01              | 7.32                                               |
| Ash                             | 1.56                 | 26.96              | 11.22                                              |
| Nitrogen-free<br>extract        | 71.55                | 25.81              | 36.87                                              |

<sup>1</sup> Dehydrated alfalfa crumbles were analyzed for protein only.

Table 30

The Influence of 25% Ground Beef Manure  
In Rations of Heifers on  
Concrete or Soil-surfaced Lots

| Ration                             | Type of surface |         |        |         |
|------------------------------------|-----------------|---------|--------|---------|
|                                    | Concrete        |         | Soil   |         |
|                                    | Manure          | Control | Manure | Control |
| Initial wt., lbs.<br>July 18, 1967 | 713             | 724     | 721    | 716     |
| Final wt., lbs.<br>Oct. 5, 1967    | 877             | 944     | 876    | 925     |
| Total gain, lbs.                   | 164             | 220     | 155    | 209     |
| Av. daily gain, lbs.               | 2.08            | 2.78    | 1.96   | 2.65    |
| Lbs. feed per lb.<br>gain          | 11.95           | 9.09    | 12.64  | 9.09    |
| Cost per cwt.# <sup>1</sup>        | 20.53           | 20.63   | 21.72  | 20.63   |
| Carcass Data:                      |                 |         |        |         |
| Hot carcass wt., lbs.              | 546             | 577     | 545    | 558     |
| Dressing, % <sup>2</sup>           | 62.3            | 61.1    | 62.2   | 60.3    |
| Fat thickness, 12th<br>rib, in.    | 0.33            | 0.34    | 0.39   | 0.35    |
| Loin eye area, sq.in.              | 11.70           | 11.57   | 10.10  | 10.67   |
| U.S.D.A. grade <sup>3</sup>        | 17              | 17      | 17     | 18      |

<sup>1</sup> Manure valued at \$5 per ton.

<sup>2</sup> Based on hot carcass weight

<sup>3</sup> Carcass grade score: Average good, 17; High good, 18.