

calves is not adversely affected. In three trials, the subsequent feed-lot gain of previously-implanted calves has been an average of 9 pounds greater than for calves not implanted in the previous summer.

In wintering trials, the increased gain of previously-implanted calves during the subsequent period has been an average of 6 pounds in three trials. Data from these six trials would indicate that implanting suckling calves with stilbestrol does not have any adverse effect on subsequent performance either in the feed-lot or when fed wintering rations.

The inclusion of stilbestrol or stilbestrol plus erythromycin in a creep-fed mixture did not increase gains of spring calves in the current test. However, in earlier tests at Fort Reno, including stilbestrol in the creep-feed of fall calves increased gains. Erythromycin increased the gains of fall calves only 9 pounds.

The Influence of Excessive Fatness on the Performance Of Beef Females—Preliminary Report

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Very little experimental data is available concerning the influence of extreme body fatness on the performance of the beef cow.

Many purebred cattlemen, who often fatten heifers to a high degree while fitting for show and striving for maximum development, feel that excessive body fat adversely affects the subsequent productive value of beef females. Although most commercial cattlemen do not feed heifers and cows above a moderate plane of nutrition, limited experimental results indicate the possibility that productivity may be slightly impaired by levels of energy intake within limits fed by some cattlemen.

Basic information on the effect of a high degree of body fatness is needed. Such information, obtained by studying extreme differences in energy intake, should aid in the interpretation of results from research in which more "practical" differences in plane of nutrition are studied.

The specific objective of this experiment is to determine the influence of excessive body fat on the performance of beef females by inducing a high degree of fatness at two different stages of the life cycle: (1) In the heifer during the period of growth and development after weaning (Phase I), and (2) in the mature cow that has completed growth and attained full body size (Phase II).

Phase I

Procedure

Thirteen sets of twin heifers, four fraternal and nine identical, are now on test in this phase of the experiment. One heifer of each set is fed a ration adequate in all nutrients but containing only enough energy to promote gains of one-half to two-thirds pounds per head daily. The second heifer of each set receives a similar ration plus a full feed of corn. Heifers are individually fed to facilitate accurate control of feed intake and weight gains of each heifer.

Heifers are bred to calve between 30 to 36 months of age. After calving, a ration adequate for maximum lactation is fed to all heifers. Reproductive performance of the heifers is being measured by services per conception, time from first service to conception, maintenance of pregnancy, ease of calving, and weight and condition of calves at birth.

Milk production of the heifers is being estimated both by the growth rate of the calves and by milking the heifers at regular intervals.

Results

Only three sets of twins have reached sufficient age to calve. Average services required per conception were 1.33 and 3.33, and average days from first service to conception were 13 and 166, respectively, for low and high level heifers. The long interval between first service and conception among the high level heifers was due in part to a bull which was rather inactive for a three month period following first or second service to every heifer. The high level heifers were not observed in heat during this period of time.

The low level heifers averaged 828 pounds in weight at calving time and appeared healthy and thrifty. The three high level heifers averaged as much as 420 pounds heavier and appeared correspondingly fatter previous to calving than the three low level heifers.

Two of the low level heifers dropped normal calves without difficulty. The third low level heifer dropped a dead calf of normal size and development (a month old calf from the University herd was allowed to suckle this cow for 210 days). One of the high level heifers dropped a 30 pound calf; another required a caesarean section for delivery of her calf; a third reabsorbed her fetus and is now rebred.

Phase II

Procedure

Thirty eight-year-old cows were allotted to two groups on the basis of five years previous production records. Lot I (low level) cows were

allowed to graze native range during the summer and were fed prairie hay and 2.5 pounds of cottonseed cake per head daily in a trap during the wintering period. Lot 2 (high level) cows received the same treatment and in addition were allowed free access to milo from late summer until calving. These cows consumed as much as 25 pounds milo per head daily.

As each cow calved she was removed from the high-grain ration, placed with Lot 1 cows, and fed 2.5 pounds cottonseed cake and prairie hay.

Results

Calves were dropped in February and March. The high level cows were 248 pounds heavier and much fatter previous to calving than the low level cows (Table 1).

No important differences in average birth weight or calving difficulty were noted. Calves from the high level cows appeared to be bloomier and in higher condition at one to two months of age compared to calves from the low level cows. This difference, possibly due to a difference in milk production, largely disappeared by mid-summer.

Calves from the high level cows averaged 11 pounds heavier at 112 days of age than calves from low level cows. This small difference indicates that the beef cow makes very poor use of body fat reserves during lactation and agrees with other results obtained at this station.

Summary

A high degree of body fatness during the growth period appeared to adversely affect the reproductive and productive ability of identical

TABLE 1. Production data mature cows (Phase II)

	Lot 1 Low Level	Lot 2 High Level
No. of cows	13 ¹	15
Av. weight of cows, lbs.		
Initial 8-8-57	1046	1061
Before calving 1-31-58	1078	1326
Summer 7-12-58	1080	1153
Av. birth weight of calves, lb. ²	81	82
No. of calves at 112 days	13 ¹	15
Av. 112 day weight of calves ³	266	277

¹ Of the 15 original cows in Lot 1, one died and one was removed due to cancer.

² Adjusted for sex.

³ Adjusted for age and sex.

twin heifers, while a high degree of fatness induced in mature cows had little influence on productivity in one trial. It should be emphasized that these results are preliminary and based on very few animals. Conclusions are not justified until further results are obtained.

Aureomycin Studies with Fattening Lambs in Dry Lot

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Previous work (M.P. 51) with fattening lambs revealed a 10-15 increase in gain and feed efficiency by the addition of aureomycin to the ration. However, no work has been reported concerning the effects of aureomycin by other means of administration. This report concerns the effects of aureomycin on rate of gain and feed efficiency when used as a feed ingredient, mixed with the salt, or added to the water.

Procedure

Sixty grade Western feeder lambs were used in this experiment. These lambs were the heavy end of the 600 lambs purchased. The average initial weight after shearing was from 88 to 90 pounds. The preliminary treatment was the same as reported in the pasture study (Fattening trials with feeder lambs on small grain pasture).

The treatments used were as follows: (15 lambs per lot)

- Lot 1. Basal ration—45 percent milo, 5 percent molasses, 50 percent alfalfa hay, ground and mixed.
- Lot 2. Basal plus 20 grams of aureomycin per ton of feed; to supply approximately 30 milligrams of aureomycin per lamb per day.
- Lot 3. Basal ration plus aureomycin in salt; (3 pounds of Aureofax 10 mixed with 37 pounds of salt) to supply approximately 30 milligrams of aureomycin per lamb daily.
- Lot 4. Basal ration plus soluble aureomycin in water; to supply approximately 30 milligrams per day.

All lambs were implanted with a 6 milligram stilbestrol implant*; salt was available to the lambs of all lots.

Individual weights following an overnight period without access

* The stilbestrol was supplied by Pfizer and Company.