

coats that were considerably duller. The significance of this observation is not known.

In earlier work at the Kansas Agricultural Experiment Station, it was noted that a mixture of trace minerals likewise caused animals receiving prairie hay plus cottonseed meal to have a glossier coat than their controls. The Kansas experiment was also conducted in drylot. No such observations have been reported when trace minerals were added to the cottonseed meal of animals maintained on a winter range area near Stillwater.

Under range conditions, the animals have more opportunity for selective grazing than did the twins used in this experiment. Also, the range animals have access to late winter and early spring grasses which have a very high mineral and protein content. Under these conditions, supplemental minerals have not, in most trials, been beneficial to the range animals unless urea replaced a part of the cottonseed meal.

These results, obtained from a more critical experiment, support the observation that when sufficient cottonseed meal is supplied to the rations of cattle maintained on native range pastures, there is little likelihood that minerals other than salt should be supplied.

The Value of Aureomycin¹ In Wintering Rations for Heifer Calves

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Certain antibiotics are generally accepted as desirable additives in many swine and poultry rations. Their use in rations of cattle and sheep is less widespread. Many claims as to the value of antibiotics in cattle rations have been made. Only little data are available on the value of antibiotics in cattle wintering rations. Therefore, a test was conducted to determine the value of a certain antibiotic, Aureomycin, in wintering of heifer calves.

Procedure

Sixty-four weanling heifer calves were divided into six lots and were fed prairie hay starting November 5, 1958. Lots 1 through 4 contained 9 heifers each. Those in Lots 1 and 2 weighed approximately

¹ Aureomycin is the trade name of chlortetracycline manufactured by American Cyanamid Co., Pearl River, New York. Thanks are due this company for supplying Aurofac 10 which was the source of the Aureomycin hydrochloride used in this test.

400 pounds while those in Lots 3 and 4 weighed over 500 pounds. All of these lots were wintered at a lower level and were fed an average of 1.1 pounds of pelleted cottonseed meal per head daily from the beginning of the test until February 13, 1959. From this later date until the end of the test on March 13, the average feed was reduced by one-half to 0.55 pound.

Aureomycin was added to the pellets fed to Lots 2 and 4 in such amounts that the average consumption was 77 milligrams per head daily until February 13 at which time the intake was reduced by one-half.

The heifers in Lots 5 and 6 were given higher levels of supplemental feed. They were fed 6.25 pounds of a pelleted feed which was 25 percent cottonseed meal and 75 percent ground milo. The average consumption was 1.56 pounds cottonseed meal and 4.69 pounds of ground milo. Aureomycin was added to the pellets fed to Lot 6 so that the average Aureomycin intake was 62.5 milligrams.

All cattle had access to a mineral mixture of salt and steamed bone meal (2:1).

Results

Weight data are recorded in Table 1. The gains of the lighter heifers in Lots 1 and 2 were nearly the same, although there was an advantage of 8 pounds for the feeding of Aureomycin. The heavier calves of Lots 3 and 4 gained less than the lighter calves. The heavier calves fed Aureomycin gained 7 pounds less than the controls.

When cattle gained approximately 0.8 pound per day (Lots 5 and 6) rather than 0.3 pound (Lots 1-4), the addition of Aureomycin again had only a slight effect on gains. The difference was 10 pounds in favor of those not fed Aureomycin. The average difference for the three comparisons was only 3 pounds.

TABLE 1. Aureomycin in wintering rations of heifer calves.

| Lot number | 1 | 2 | 3 | 4 | 5 | 6 |
|--------------------------------|-----|-----|-----|-----|------|------|
| Level of wintering | Low | Low | Low | Low | High | High |
| Aureomycin ¹ | No | Yes | No | Yes | No | Yes |
| Number of heifers per lot | 9 | 9 | 9 | 9 | 14 | 14 |
| Average weight per calf (lbs.) | | | | | | |
| Initial 11-5-58 | 398 | 397 | 517 | 513 | 472 | 482 |
| Final 3-13-59 | 442 | 449 | 551 | 540 | 581 | 581 |
| Gain (128 days) | 44 | 52 | 34 | 27 | 109 | 99 |

¹ Aureomycin (chlortetracycline) hydrochloride.

Summary

Weaner calves fed 62.5 to 77 milligrams of Aureomycin per head daily gained nearly the same in a 128-day wintering period as those not fed Aureomycin. The value of the addition of the antibiotic was studied with 400-pound and 500-pound heifers wintered to gain 0.3 pound per head daily and with 475-pound heifers wintered to gain 0.8 pound per head daily. The average difference in gain was 3 pounds per head in favor of not feeding Aureomycin.

Apparently, Aureomycin has little, if any, value for wintering weaner calves on prairie hay and supplement.

Fattening Beef Calves with Pelleted Rations Containing Different Concentrate : Roughage Ratios

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Among the many problems confronting the cattle feeder is the proportion of concentrate-to-roughage in the ration and the best method of feed preparation. Numerous feeding trials have been conducted to determine the optimum level of concentrates in rations for fattening beef calves, with somewhat conflicting results.

In three feeding trials at the Fort Reno station, concentrate-to-roughage ratios varying from 1:2 to 4:1 were tested. No significant differences in rate of gain or carcass merit were shown. Thus, it appeared that calves can tolerate a rather wide range of concentrate-to-roughage ratios with quite similar results. In these trials, it was observed that calves fed the highly concentrated ration (4:1 ratio) consumed significantly less feed than those on the higher roughage rations.

In some experimental studies, feed intake has been increased by pelleting or cubing roughages, or the entire ration. With this in mind, it was thought that daily feed intake might be increased on the 4:1 ratio by pelleting, which in turn would result in more rapid gains.

This report concerns two feeding trials in which pelleted and un-pelleted fattening rations were compared. Part I was a pilot study designed to show the effects of pelleting a highly concentrated ration (4:1 concentrate-to-roughage ratio) on feed-lot performance of beef calves. Part II was designed to establish the lower limit of concentrates which beef calves can tolerate and still produce satisfactory gains in the feed-lot. Also, a comparison was made between 1:4 and 4:1 concentrate-to-roughage ratios, when both were self-fed in either meal or pelleted forms.