

## Trace-Mineralized Salt and Chlortetracycline (Aureomycin) for Yearling Steers Grazing Native Grass

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Experiments conducted in several areas of Oklahoma have indicated that under most grazing conditions the provision of supplemental trace minerals has not resulted in increased gains of cattle. Also, certain antibiotics have not been of value in rations of wintering cattle or creep-fed calves. Experiments in certain other states have resulted in increased gains when an antibiotic was mixed with salt and made available to grazing cattle. During the summer of 1960 the value of trace-mineralized salt and chlortetracycline (Aureomycin) was studied with yearling steers grazing native grass.

### Procedure

Seventy-two yearling grade Hereford steers were divided into four lots of 18 head on May 31, 1960. They were allowed to graze in the native grass pastures at the Lake Blackwell experimental range area. The four treatments were as follows:

- Lot 1. Salt and dicalcium phosphate (2 lbs. : 1 lb.)
- Lot 2. Same as Lot 1 plus 94 mg. of chlortetracycline hydrochloride per head daily
- Lot 3. Trace-mineralized salt and dicalcium phosphate (2 : 1 ratio)
- Lot 4. Same as Lot 3 plus 94 mg. of chlortetracycline hydrochloride per head daily

Morton trace mineralized salt<sup>1</sup> was available in the mixture fed to Lots 3 and 4. The manufacturer's guaranteed analysis was, in percent: salt, not less than 97 nor more than 99; manganese, 0.20; iron, 0.16; copper, 0.03; cobalt, 0.10; iodine, 0.007; and zinc, 0.005.

In Lots 2 and 4, chlortetracycline (Aureomycin)<sup>2</sup> was supplied as Aurofac 25 which was mixed with the salt and dicalcium phosphate in such proportions that an average of 94 mg. of Aureomycin was furnished per head daily.

### Results

A summary of weight gains and mineral and antibiotic consumption is given in Table 1. The average 116-day gains were nearly the same

<sup>1</sup> Salt furnished by Morton Salt Co., Chicago.

for all groups. The average gain for those fed plain salt (Lots 1 and 2) was 4 lbs. less than the gain of those fed trace mineralized salt (Lots 3 and 4), and those fed Aureomycin (Lots 2 and 4) gained 3 lbs. less than those not fed Aureomycin. Therefore, the provision of neither trace minerals nor Aureomycin was of any apparent value for increasing gains of yearling steers grazing native grass at the Lake Blackwell experimental range area.

Table 1.—Trace Mineralized Salt and Aureomycin for Grazing Yearling Beef Steers on Native Grass.<sup>1</sup>

Lot number	1	2	3	4
Salt <sup>2</sup>	Plain	Plain	T.M.	T.M.
Aureomycin <sup>3</sup>	--	94 mg.	--	94 mg.
Number of steers per lot	18	18	18	18
Average weight per steer (lbs.)				
May 31, 1960	522	525	525	524
September 24	699	692	699	703
Gain (116 days)	177	167	174	179
Average daily intake				
Salt, gms.	20	20	14	20
Dicalcium phosphate, gms.	10	10	7	10
Aureomycin, mgs.	--	94	--	94

<sup>1</sup>Allowed to graze in native grass pastures (Bluestem and associated grasses) which provided about 6 acres per steer.

<sup>2</sup>The salt fed in Lots 1 and 2 was Morton Farm and Ranch clear salt. Morton Trace Mineralized Salt was fed in Lots 3 and 4. In all lots two pounds of salt was mixed with one pound of dicalcium phosphate and fed ad libitum in the pastures.

<sup>3</sup>Aureomycin furnished as Aurofac 25. Mixture available in Lots 2 and 4 was 6900 gms. salt, 3,450 gms. dicalcium phosphate, and 625 gms. Aurofac 25 (55 mg. chlortetracycline per gm.) in the early part of the test. The quantity of Aurofac 25 was 580 gms. in the later part of the test.

## Lysine Supplementation of Rations for Sheep

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It is well accepted that the first limiting amino acid in the various sorghum grains is lysine. It is also common knowledge that expeller processed cottonseed meal also is deficient in this amino acid, thus a ration composed primarily of the sorghum grains and expeller meal is deficient in lysine. When this ration is fed to non-ruminants, supplemental lysine causes a significant increase in growth. Many workers have reported, however, that lysine supplementation of ruminant rations in which all the ration nitrogen was supplied by urea was not effective in stimulating gains, indicating that ruminant microflora are able to synthesize lysine readily. Recently, workers at Purdue University and Pfizer's Agricultural Research Laboratory reported that lysine supple-