

Preventive Medication for Feedlot Replacement

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In three preventive medication experiments at the UC Imperial Valley Field Station, oxytetracycline was administered orally and intramuscularly to calves with varying success in reducing cost per pound of gain. The presence of OTC in feed rations and water can reduce feed intake; intramuscular injections are costly but do not affect weight gain negatively.

TABLE 1. EXPERIMENTAL ANIMAL DATA

Experiment	No. of Calves	Weight (lb.)	Origin	Transit	
				Shrink (%)	Time (hr.)
I	150	267	Austin, Texas	9.4	36
II	150	181	Gainesville, Florida	9.7	69
III	119	311	Ft. Worth, Texas	7.4	27

Calves

TABLE 2. ANIMAL HEALTH

Experiments 1-3 (28 days)	Oxytetracycline		
	Control	Oral	Intramuscular
<u>% of Calves Requiring Treatment</u>			
Experiment 1	42 ^a *	22 ^b	24 ^b
2	72	80	72
3	40	38	28
<u>No. of Treatments/Sick Animal</u>			
Experiment 1	3.4	4.3	3.6
2	4.6	4.4	4.7
3	4.3	3.7	2.9
Avg.	4.1	4.1	3.7
<u>% Returns</u>			
Experiment 1	5.0	0.0	0.0
2	36.0	25.0	28.0
3	5.0	15.4	2.5
<u>Total Processing, Preventive Medication, and Treatment cost/head, \$</u>			
Experiment 1	2.25	3.31	3.45
2	2.62	3.66	3.39
3	3.02	3.78	3.82
<u>Costs/lb. gain, ¢</u>			
Experiment 1	23.65	28.07	27.92
2	18.52	20.72	19.47
3	40.37	40.01	40.53

* Treatment means with different letters are significantly different at the 5% level.

TABLE 3. AVERAGE DAILY PERFORMANCE
(off truck to conclusion with 3% shrink)

Experiments 1-3 (28 days)	Oxytetracycline		
	Control	Oral	Intramuscular
<u>Daily Feed Consumption (lb.)</u> (28-day avg.)			
Experiment 1	4.90	4.82	4.89
2	5.43 ^{a**}	4.47 ^b	5.41 ^a
3*	7.72	7.16	7.69
<u>Daily Gain (lb.)</u> (28-day avg.)			
Experiment 1	1.75	1.72	1.72
2	2.04	1.90	2.19
3*	1.58	1.67	1.69
<u>Daily Water Consumption (gal.)</u> (28-day avg.)			
Experiment 1	3.54	3.52	3.71
2	2.81 ^a	2.29 ^b	2.45 ^a
3*	2.96	2.94	3.06
<u>Feed/lb. Gain</u> (28-day avg.)			
Experiment 1	2.80	2.80	2.84
2	2.66	2.35	2.47
3*	4.89	4.29	4.55

* 29-day average

** Treatment means with different letters are significantly different at the 5% level.

Approximately 2 million head of stocker and feeder cattle are shipped into the state of California annually. Depending on economic circumstances, one-fourth to one-half of these animals are light-weight calves (350 pounds or less). Typically, 2 to 5 percent of these animals are lost due to death or as culls. These losses can cost California feedlots as much as \$120 million annually.

Any effective animal health program for California feedlot replacement calves that have been subjected to the stresses of weaning, shipping, changes in rations and water, and inclement weather should focus on prevention as well as treatment of infection and disease. All essential elements of good management that assist the animal in resisting disease or infection must be provided: proper

nutritional programs; correct immunization and processing; and possibly a preventive medication program that gives maximum protection against sickness and results in improved animal performance.

The first 28 days are most critical in the nutritional and animal health programs for newly received feedlot replacement cattle. If cattle are to be profitable, they must be started correctly. The best nutritional, management, and animal health programs must be in effect the moment a shipment of calves arrives at a feedlot. Healthy, fast-gaining cattle are essential for least cost per pound of gain. Theoretically, if cattle remain healthy, they should consume more feed, gain faster, and require fewer dollars in medication and feed costs than those cattle that become sick. Therefore, three preventive medication experiments were conducted at the UC Imperial Valley Field Station to evaluate animal sickness and weight gains when oxytetracycline (OTC) is administered (1) orally at the rate of 1 gram per head per day in the feed plus 1 gram per head per day in the water until such time as the animals are consuming 2 percent of their body weight in feed or (2) intramuscularly the first three days after arrival (10 cc per 100 pounds of body weight).

In the first two experiments, animals receiving oral OTC were consuming less than 1 percent of their body weight daily in feed by the end of the third day after arrival; therefore, use of OTC in their ration was discontinued. It was, however, continued in the water at the rate of 1 gram per head per day until the 10th or 11th day after arrival, at which time the calves were consuming 2 percent of their body weight daily in air-dry feed. In the third experiment, OTC was included in both feed and water (1 gram per head per day each) until the 10th day after arrival.

Previous research at this station indicated that maximum gains on lightweight replacement calves are best achieved when (1) receiving rations containing 72 percent concentrates (NEM 75 NEG 45) are fed and (2) processing takes place immediately upon arrival in California. These procedures were used in the three experiments. Animals

purchased for these studies were received in the Imperial Valley during April, July, and August. Calves used in the studies were provided by El Dorado Land and Cattle Co., Moiola Brothers Feedlot, and Orita Land and Cattle Co.

Table 1 presents typical, limited background information available on the three loads of calves tested. Florida calves purchased for the second experiment were in an extremely weakened condition upon arrival in the Imperial Valley, and branding, castration, and administration of grubicide for this study were delayed until the conclusion of the tests. With this exception, all animals were processed similarly upon arrival, and the data can be compared between loads as well as among treatments within each individual load.

Results

Medication programs. Intramuscular injections of OTC at the rate of 10cc per 100 pounds of body weight were effective in reducing animal sicknesses in the first and third experiments (table 2). Neither intramuscular injections nor oral administrations of OTC had any effect on the high rate of sickness observed in the second experiment. Oral administration of OTC was ineffective in reducing the percent of calves requiring treatment.

Combining the individual numbers of medication treatments per sick animal for the three experiments, the control and oral groups each required an average of 4.1 treatments per sick animal before returning to normal. The intramuscularly injected cattle required 3.7 treatments. Percent of cattle that became sick a second or third time and had to return for a series of drug-administered medication was lowest for the intramuscular group in the three experiments.

Nutritional data. Intramuscular injections the first three days after arrival resulted in additional animal stress. During this time, those animals assigned to the intramuscular injection groups spent less time eating and more time resting than did the control animals. However, by the end of 28 days, their average daily feed consump-

tion was not significantly lower than that of calves in the control groups. Animals assigned to the oral OTC groups had the lowest average daily feed consumption. At the end of 28 days, this difference was significant only for the second experimental group of animals. Water consumption for the first 28 days was significantly lower in the second experiment for calves assigned to the oral OTC groups. Feed per pound of body weight gain did not differ significantly between the various test groups in any of the three experiments.

Individual animal sickness was reduced in the first and third experiments when preventive medications were administered. However, the additional drug cost without a corresponding increase in body weight gain or improvement in feed efficiency resulted in higher cost per pound of grain for calves assigned to the preventive medication programs.

Conclusions

Administration of OTC orally does not show promise of being a satisfactory method for preventing sickness in newly arrived feedlot replacement cattle. Intramuscular injections of OTC the first three days after their arrival, however, will reduce individual animal sickness. The presence of OTC in feed rations and water can significantly reduce feed intake. Preventive medication programs, since they are administered to an entire group of cattle (healthy as well as sick), actually may increase rather than reduce the cost per pound of gain.

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