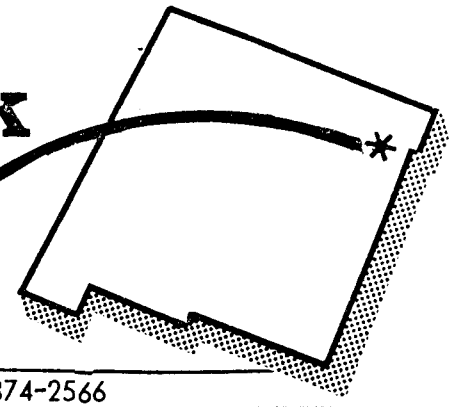




Clayton Livestock Research Center

PROGRESS REPORT



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EFFECTS OF EXCESS POTASSIUM IN RECEIVING RATIONS FOR CALVES

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Potassium is an important mineral in the proper functioning of the animal body. When stress occurs, such as starvation, dehydration, transportation and other abnormal environmental conditions, excess potassium may be lost from the body. This may increase morbidity and mortality in newly received calves and delay normal weight gains and recovery from marketing and shipping stresses.

Hutcheson, Cole and McLaren^a calculated that the potassium requirement for transported calves was 20% higher than non-transported calves and probably was near 25 g per 100 kg of body weight for the first two weeks after arrival.

Because of the wide spread interest in providing supplemental potassium and the all too common view that "if some is good, more is better" a trial was undertaken to determine the effect of providing surplus potassium in receiving feeds for newly received calves.

Four loads (511 head) of calves were purchased in Florida and shipped by truck to the Clayton Livestock Research Center for use in the study. The day following arrival, all calves were processed and fed the milled feed shown in table 1 for four weeks plus native grass hay for the first week only. The milled feed contained 1.1% potassium in the dry matter. Half the

calves received an additional .7% of potassium making a total of 1.8% potassium in the dry matter of the milled feed.

Table 1. Composition of milled feed

Ingredient	Percent composition
Steam flaked milo	47.2
Ground alfalfa	18.0
Soybean meal	7.2
Hominy feed	7.0
Cottonseed hulls	7.0
Molasses	7.0
Fat	3.0
Premix ^a	1.0
Dicalcium phosphate	.6
Urea	.5
Limestone	.5
Ammonium sulphate	.5
Salt	.5
Total	100

^a Supplies trace minerals, vitamin A and bactivacin MD

Table 2 shows the results of the four-week receiving period. No statistically significant differences were observed in any of the measures of animal health. However, increasing potassium level in the milled feed from 1.1 to 1.8% of the dry matter markedly depressed feed intake and weight gain and increased the feed required to produce a pound of gain. Calves on the lower potassium level

^a Jour. of Anim. Sci. 58:700 (1984).

consumed very close to the potassium requirement of 25 g/100 kg body weight calculated by Hutchison et al. The results of this study show that care should be exercised in providing

supplemental potassium to stressed calves. One should know the potassium level of his receiving feed so that supplemental potassium can be supplied only if necessary.

Table 2. Results of four-week receiving period

Item	Potassium level in feed, % of dry matter	
	1.1	1.8
Number of calves	254	257
Purchase weight, lb.	367	367
Number treated for BRD ^a	35	41
Percent treated	14	16
Total treatment days	126	148
Treatment days/sick calf	3.6	3.6
Treatment days/calf purchased	.50	.58
Returns	1	0
Deads	5	5
Daily dry matter intake, lb.	9.63 ^c	9.31 ^b
Daily gain from purchase, lb.	2.07 ^g	1.78 ^f
Dry matter/pound gain, lb.	4.65 ^d	5.23 ^e
Daily potassium intake:		
Total, g	48	76
Per 100 kg mean body weight, g	26.7	42.7

^a Bovine Respiratory Disease Complex
 bcdefg Means in the same row with unlike superscripts are different (^{b,c}P<.05; ^{d,e}P<.01; ^{f,g}P<.001.)

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