

Potassium affects stress

AMARILLO, Tex. — Stresses, whether during shipping or after arrival at the feedlot, may be involved in altering the optimum nutrient requirements of cattle, according to David P. Hutcheson, animal nutritionist at Texas Agricultural Experiment Station, Amarillo.

Speaking to an International Minerals & Chemical-sponsored animal nutrition and stress conference, Hutcheson says that "nutrition and stress interrelate and are a continuous process."

When cattle are transported, he says, the most common stress response is loss of body weight—shrink, comprised of water losses. "It is possible that acute

potassium deficiency occurs during stress where the water balance is upset.

"Potassium deficiency," he continues, "is manifested by slow growth, depressed energy utilization, muscular weakness, stiffness, decreased feed intake, intracellular acidosis and nervous disorders. While potassium deficiency hasn't been an apparent problem in animal nutrition, cattle fed high concentrate diets might have suboptimal K levels."

Hutcheson cites a series of experiments defining potassium requirements of the shipped stressed calf. Table 1 illustrates the diet used in these studies.

Table 1

Ingredient	% Composition
Milo, steam flaked	42.5
Corn, steam flaked	24.5
Sugarcane Molasses	3.0
Cottonseed Hulls	23.6
Supplement ^a	6.4

^a Supplement was a commercial 35% protein supplement.

Potassium was added to these experimental diets as KCl, he explains. All calves received the experimental diet for two weeks,

then the control diet (.71%K) the next two weeks. Table 2 illustrates the response to gains of calves fed varying levels of K.

Table 2

Levels of Potassium % Dry Matter	Grams of Potassium Per 100 lbs. Body Weight		Average Daily Gain(28)
	0-14 Days	0-28 Days	
.71 ^b	7.9	9.1	1.21
.86 ^a	8.6	10.2	1.50
1.27 ^b	11.5	11.6	1.70
1.41 ^a	14.6	12.9	1.76
2.15 ^b	21.1	15.5	1.36
3.11 ^b	29.3	19.1	1.25

^a Trial 1
^b Trial 2

The best gains, Hutcheson says, "were obtained when either the 1.27%K or 1.41%K was fed. The optimum intake of K per 100 lbs. of body weight was 12-15 grams. The requirement for growing, finishing cattle is between .6 and .8% of ration dry matter. The 12 grams K per 100 lbs. of body weight necessary for optimum gain after transportation stress is 20% more than the requirement without stress."

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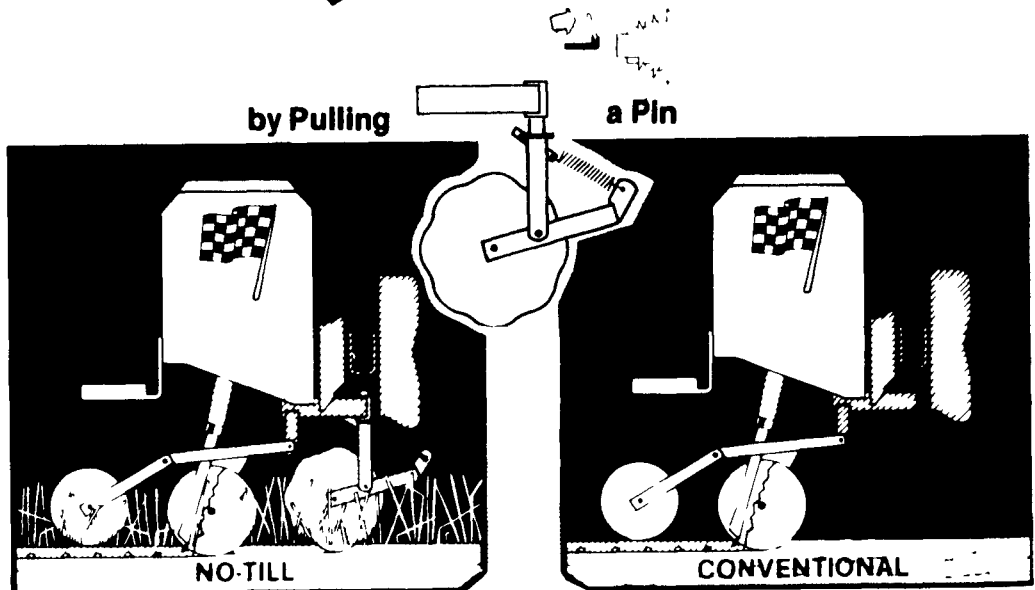
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