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Voluntary Salt Intake By Feedlot Steers

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L. H. Harbers and L. C. Warren

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Because it is a standard practice, adding salt to livestock rations has not received much attention in the past several years. Salt is universally added at 0.5% of the diet, but studies here in the early 50's showed salt needs of cattle are related to dietary roughage levels.

Using feedlot manure as a fertilizer as part of a pollution study here, showed that salt (sodium content) limits the amount of manure that can be used. The amount of sodium in manure is related to dietary intake; more manure could be used as a fertilizer if its sodium content were lower. A recent study by Smith, Roth, and Schalles (Bulletin 536, 1970, p. 19) indicated cattle on a high concentrate ration could perform as well without salt as with 0.5% salt in the ration.

Twenty steers were maintained in individual feeding stalls for two 4-week periods of a finishing study. Voluntary salt consumption data obtained then are reported.

Results

Salt intake data (gms./steer/day) are presented in table 1. During the first period animals received four energy levels; during the second, they received five. As energy level increased salt intake decreased. Less salt was necessary in period 2 than period 1, indicating that salt intake is related to concentrate (energy) level.

Data in parentheses indicate the amount of salt that theoretically would have been consumed, had it been fed at 0.5% of the diet. Except in the first period, when energy levels of 35.46, 36.86 and 37.95 megcal./100 lbs. NE were fed, 0.5% salt would have been an excess amount. ^P

Correlation coefficients of salt intake per day with body weight, gain, and feed intake (table 2) indicate that salt consumption is not related to any of these measurements.

Additional studies are needed to determine what portion of voluntary salt intake is of nutritional importance to animals fed high concentrate diets.

Table 1 . Salt Consumption By Steers Fed Indicated Levels of Energy

<u>Energy level</u>	<u>Salt consumption (gms./head/day)</u>		<u>Energy in ration (megcal/100 lb.)</u>	
	<u>Voluntary</u>	<u>Theoretical</u>	<u>NE_m</u>	<u>NE_p</u>
Finishing period 1				
1	86	(61)	55.52	35.46
2	77	(64)	58.29	36.86
3	68	(63)	59.75	37.95
4	45	(64)	61.20	39.04
Finishing period 2				
1	52	(60)	65.74	42.86
2	57	(60)	68.50	44.63
3	46	(57)	70.00	45.44
4	39	(61)	71.41	46.35
5	21	(58)	74.18	48.03

Table 2 . Correlation Coefficients of Voluntary Salt Intake On Steer Weight, Gain, and Feed Intake

<u>Measurements</u>	<u>Correlation coefficient</u>
(Body weight) ^{1.0}	+ .036
(Body weight) ^{.75}	+ .006
Feed intake	+ .125
Weight gain	+ .125