

## Salt-Limiting Supplements

Energy and protein supplements are frequently self-fed in pasture situations using salt, unpalatable feeds, or physical form to limit consumption. Properly fortified, salt-limited supplements can be blended on-farm for less expense than commercial products containing other unpalatable feeds or physical form to limit intake and be nutritionally equal, if not superior, to the other commercial products. For example, salt-limited supplements between 8 and 35% crude protein with expected consumption rates of 1 to 3 pound per head daily, can be made for \$180 to \$250 per ton. Examples of farm-mixed supplements are given on the back of this page using Pasture Mineral and Beef Grower Base along with current (April, 1996) prices of ingredients. Expected consumption rate is listed along the top of the table. Intake will vary as noted at the bottom of the table so the level of salt will have to be adjusted with changing conditions to maintain desired supplement intake.

We must note that there are more nutritionally correct options than self-feeding. Managing intake via hand feeding provides more even consumption among animals in the herd. Undoubtedly, the cow cube program or other hand-fed supplementation programs yield less variation in supplement intake among cattle. University research demonstrates this point.

Table 1 lists the variation in intake among individual stocker animals offered 28 to 34% crude protein self-limited supplements. Note that 13% of the animals consumed less than .5 lb/head/daily and 11% consumed over 3 times the group average of 1.6 lb/head/daily. Table 2 lists gains observed in stockers supplemented self-fed minerals, minerals plus soybean meal/feather meal supplements, minerals plus soybean meal/Sealac® fish meal supplements, and those cattle refusing to consume supplements. All supplements contained Bovatec®. Those not consuming had the lowest average daily gains. Table 3 lists the daily gains of cattle force-fed or self-fed a Rumensin®-containing mineral. Cattle force-fed the mineral gained faster. Table 4 shows the daily gains of stockers unsupplemented or those that demonstrated low, moderate, or high degree of variation in consumption of a self-fed supplement containing Rumensin®. Stockers with a low degree of variation in supplement consumption out-gained other groups.

These university trials clearly demonstrate that hand-fed supplements place you in better control of your cattle's performance and your bottom line. Where situations call for self-fed supplements, salts work as well as other programs with lower ingredient costs.

Table 1.	
Variation In Supplement Consumption Among Stockers	
lb/head/day	% of Group
under .5	13
.5-1.0	10
1.0-1.5	8
1.5-2.0	9
2.0-2.5	12
2.5-3.0	15
3.0-3.5	14
3.5-4.0	8
4.0-6.0	11
	100
Mean consumption = 1.6 lb/hd/day	
Source: Texas A&M University	

Table 2.	
Daily Gains of Stockers Refusing or Consuming Various Supplements	
Supplement	lb/day
Refused Suppl.	.99
Minerals (M)	1.30
M+Feather+SBM	1.50
M+Fish+SBM	1.83
Source: Texas A&M University	

Table 3.	
Daily Gains of Dairy Heifers Consuming Different Supplements	
Supplement	lb/day
No Rumensin	1.60
Rumensin free-choice	1.60
Rumensin force-fed	1.50
Source: Virginia Tech	

*Table 4 on reverse side*

Table 4.

**Daily Gains in Stockers Unsupplemented or Supplemented and Exhibiting Degrees of Variation in Supplement Intake**

<u>Treatment</u>	<u>lb/Day</u>
No Supplement	2.31
Rumensin Supplement	
Low variation	3.06
Moderate variation	2.83
High variation	2.56

Source: Oklahoma State University

**Salt Limiting Formulas For Self-Limiting Supplements**

<b>Consumption Rate &amp; %CP:</b>		<b>1# 19%CP</b>	<b>2# 33%CP</b>	<b>4# 20%CP</b>	<b>4# 20%CP</b>	<b>8# 15%CP</b>
	<b>Cost/CWT</b>	<b>-----lb As Fed -----</b>				
Salt	7.00	800.0	400.0	200.0	200.0	100.0
SBM 48%	12.50	800.0	1400.0	650.0	650.0	375.0
Pasture Min	23.00	400.0	200.0	100.0		
Corn Grain	7.25			1050.0	1000.0	1450.0
Beef Grower	20.00				150.0	75.0
Formula Totals:		2000.00	2000.00	2000.00	2000.00	2000.00
Formula Cost Per Ton:		248.00	222.00	181.13	184.50	167.13

		<b>AS FED NUTRIENT ANALYSIS</b>				
Dry Matter	% of Wt	92.904	91.452	89.151	89.299	88.224
Crude Protein	% of Wt	19.552	33.776	20.151	20.243	15.359
Degradable Protein	% of CP	71.807	71.944	65.974	66.106	61.018
Crude Fat	% of Wt	.463	.771	2.354	2.433	3.049
Crude Fiber	% of Wt	1.600	2.475	2.466	2.518	2.530
Acid Detergent Fiber	% of Wt	2.504	3.952	3.227	3.308	3.043
Neutral Deterg Fiber	% of Wt	3.854	5.977	6.944	7.113	7.521
Calcium	% of Wt	2.547	1.404	.701	.905	.464
Phosphorus	% of Wt	2.262	1.446	.838	.709	.489
Sodium	% of Wt	17.177	8.599	4.309	4.649	2.334
Chlorine	% of Wt	26.861	13.455	6.747	7.281	3.661
Salt	% of Wt	42.020	21.035	10.516	11.373	5.688
Potassium	% of Wt	.833	1.367	.809	.906	.657
Magnesium	% of Wt	1.120	.704	.402	.228	.173
Sulfur	% of Wt	.374	.402	.248	.340	.233
Electrolyte Balance	Meq/100g	-12.49	4.367	2.347	-1.206	.555
Total Zinc	PPM	834.80	447.40	227.45	264.50	138.50
Total Copper	PPM	209.50	115.25	58.675	68.325	36.113
Added Selenium	PPM	6.600	3.300	1.650	1.980	.990
Vitamin A	KIU/LB	48.000	24.00	12.000	12.007	6.004
Vitamin D	KIU/LB	6.000	3.000	1.500	1.504	.752
Vitamin E	IU/LB	50.000	25.000	12.500	15.000	7.500

Expected consumption based on 500-pound beef cattle. Amount of salt per ton may need to be adjusted to more accurately obtain targeted intake. Body weight of cattle, forage quality and quantity, proximity of feeder to water and other feed sources, weather conditions, etc. will affect supplement intake. Abundant, fresh water should be available at all times.

*No warranty of results is made. Results can be affected by factors other than brand of feed used or feeding program followed.*