



## Free-Choice Mineral Intake of Beef Cattle

Vigortone is the industry leader in providing producers high-quality mineral products for their beef herds with proven results. Many years of field testing and experience have gone into the development of complex formulations that make Vigortone free-choice minerals so successful.

Because of this formulation experience and attention to detail, cow/calf producers on a Vigortone free-choice mineral program have grown to expect:

1. Adequate consumption of mineral products
2. Increased pasture/forage utilization, improved cow condition and reproductive performance, as well as increased weaning weights.

Vigortone has placed a great deal of time, effort, and emphasis on the formulation process in an effort to develop quality products with an approximate annual average 4 ounce free-choice per head per day intake. Our experience has shown us that the biology of the cow and the environment will affect intake.

From time to time some producers report free-choice intake well below or well above this target 4 ounce level. It should be clear that this 4 ounce target intake is an average target intake and is affected by many variables such as:

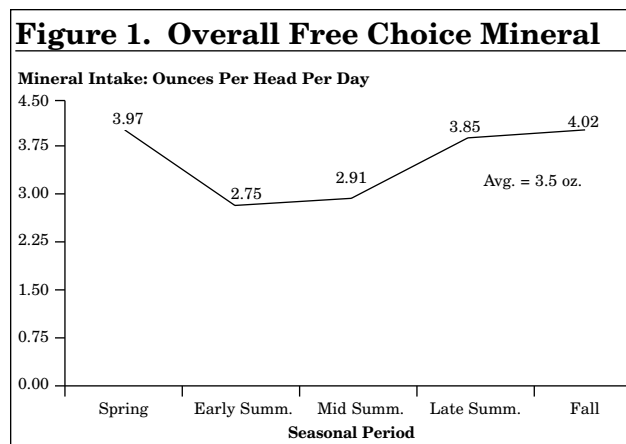
1. Size and breed of the cow
2. Stage of the cow's production cycle and associated nutrient demands
3. Stage of grass maturity, nutrient content, and time of year.
4. Total dry matter intake by the cow.
5. Previous mineral program.
6. Soil conditions.
7. Proximity of mineral feeders to water or where cattle congregate.
8. Ratio of mineral feeders to cows.
9. Taste preference by cows.

10. Number of calves at side who are also consuming mineral.

Other variables not listed probably "come into play" in affecting free-choice mineral intake. Vigortone has conducted field studies in several Midwestern and Plains states to evaluate free-choice consumption of Vigortone minerals. Many different breeds, soil types, and grass species were represented in these studies. Some points about free-choice mineral consumption may be noted.

### Effect Of Season And Location

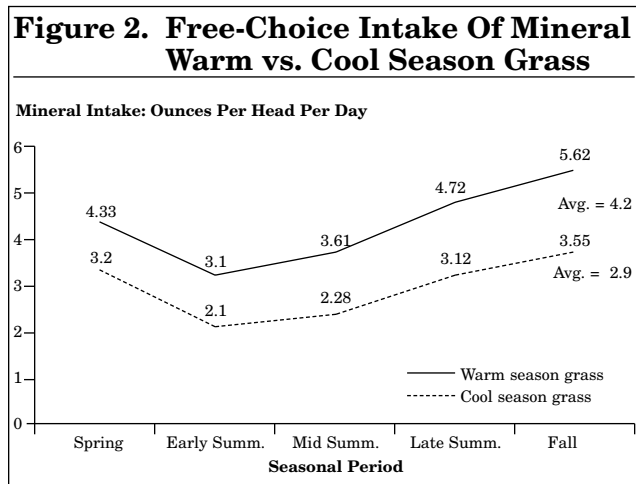
Figure 1 shows combined data from trials in southwest Nebraska, northeast Colorado, north-central Kansas, southcentral Kansas, southeast Kansas, and south and westcentral Iowa. Free choice mineral intake varied according to time of year which is related to forage maturity/quality, as well as cow nutrient demands. Average annual consumption was 3.5 ounces with average consumption in the early summer of 2.75 ounces and average consumption in the fall of 4.02 ounces.



(continued)

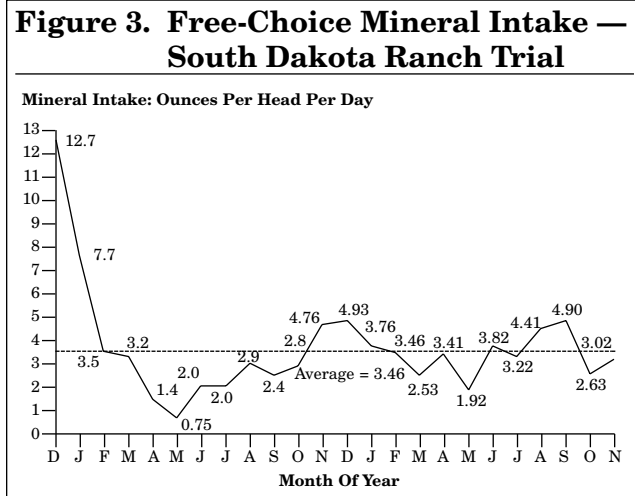
### Effect Of Grass Type

Figure 2 shows the same data expressed a different way. Free-choice consumption varied with the time of year but also according to type of forage species being grazed. Average free-choice mineral consumption was greater for cattle grazing warm season grasses (bermuda grass, bahiagrass, bluestem, switchgrass, buffalograss, pearl millet) than it was for those consuming cool season grasses (fescue, orchardgrass, bluegrass, ryegrass). Cool season grasses tend to be higher in energy and phosphorus but in general have a lower total dry matter yield. The average consumption of mineral by cows ingesting cool season grasses in early summer was 2.1 ounces and the average consumption of mineral by cows ingesting warm season grasses in the fall was 5.62 ounces.



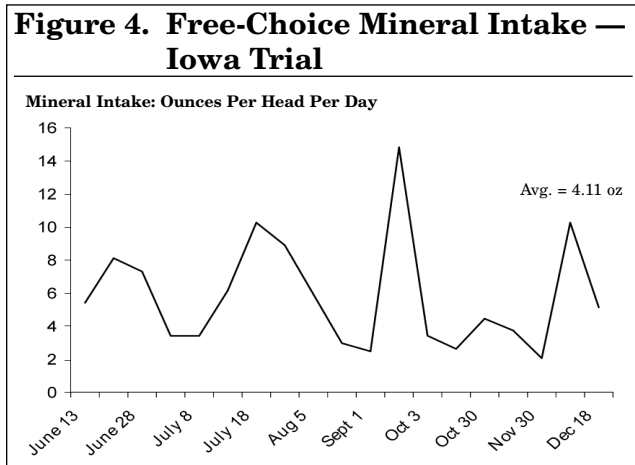
### Variability Of Mineral Intake

Figure 3 shows data from a two year South Dakota ranch trial. Average free-choice mineral consumption over the duration of the trial was 3.46 ounces. Average free-choice mineral consumption for the first month (December) of the trial was 12.7 ounces. That is approximately 0.75 pound of mineral per cow per day for 31 days. Five months later, the average free-choice mineral consumption for the month of May was 0.75 ounces. This is a 16.9 fold change in mineral consumption in five months and yet the trial average was 3.46 ounces. This trial clearly shows that free-choice mineral consumption is variable.



### Effect Of Calves At Side

Figure 4 shows data from a 6½ month (194 days) Iowa cow trial. Average free-choice mineral consumption over the duration of the trial was 4.11 ounces. When the individual data points are reviewed, it can be seen that the "high" was greater than 14 ounces per head per day and the "low" was about 2 ounces per head per day. During this trial, the calves were weaned on September 20th. Average free-choice mineral consumption before the calves were weaned was 4.47 ounces and after the calves were weaned, average free-choice mineral consumption was 3.66 ounces. This would suggest that the calves were consuming mineral.



Recognizing that free-choice consumption varies, our goal is to provide quality free-choice products that will, on average, over a year, be consumed at 4 ounces per head per day. Therefore, it is important that Vigortone free-choice mineral be offered daily for an extended period of time before a meaningful daily intake can be determined.