

## **MINERAL FUNDAMENTALS IN THE BEEF HERD**

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Beef cattle get a portion of life-sustaining minerals from the forages they consume. However, even with the highest-quality forages, cattle usually require additional mineral supplementation during all times of the year. Minerals required by animals can be divided into two groups: those that must be provided in supplemental form and those that are supplied in normal feedstuffs.

Mineral problems in the beef herd are most commonly associated with phosphorus, magnesium, copper, selenium, sulfur and calcium.

The sodium and chlorine (salt) are major components in body fluid that control body functions, but rarely cause problems because herd minerals always include sodium chloride.

Calcium is the most abundant mineral in the animal's body and functions as a structural component of bones and teeth.

Phosphorus is usually found in conjunction with calcium in bones and teeth. It is also found in many of the soft body tissues. Phosphorus is essential for normal reproduction in the animal. The ratio of calcium-to-phosphorus in a mineral should not exceed 2:1 unless animals are consuming large quantities of grain.

Copper is a component of many enzymes needed to sustain the life of the animal.

Selenium is a component in muscle tissue and is implicated in situations where cows do not shed the afterbirth following calving.

Magnesium is used in enzymes and transmission of nerve impulses. Deficiencies may result in a grass tetany. Producers need to switch to a high-magnesium mineral at least 60 days before the beginning

of the calving season to help prevent grass tetany.

The micro or trace minerals usually available in feedstuffs and required in limited amounts include iodine, iron, potassium, cobalt manganese molybdenum and zinc. When selecting minerals for the beef herd, it is important to check that all of the above-mentioned minerals are present. When comparing two or more mineral supplements, it is important to look at both the percentage of the mineral present and the recommended level of consumption. To get a true evaluation between two minerals supplement, multiply the percentage by the consumption to get daily intake.

Recommended Mineral Levels for Beef Cattle

| Example mineral, beef cows on fescue, intake/head/day |                     |              |
|---|---------------------|--------------|
| <u>Element</u>  | <u>2 oz.</u>        | <u>4 oz.</u> |
| Ca  | 10 to 20%           | 5 to 10%     |
| P   | 7 to 10%            | 3.5 to 5%    |
| Mg <sup>1</sup>                                       | 2%                  | 1%           |
| S   | 1%                  | .5%          |
| Mn  | 1000 ppm            | 500 ppm      |
| Fe  | 1000 ppm            | 500 ppm      |
| Cu  | 1600 ppm            | 800 ppm      |
| Zn  | 5000 ppm            | 2500 ppm     |
| Co  | 20 ppm              | 10 ppm       |
| I   | 40 ppm              | 20 ppm       |
| Se  | 44 ppm <sup>2</sup> | 22 ppm       |

<sup>1</sup>Increase magnesium during periods when cattle are susceptible to grass tetany (see text).

<sup>2</sup>Often not available at this level.

Additional information on beef cattle nutrition can be obtained by contacting your local Agricultural Extension Service office or from the Extension-Beef, Sheep & Horse home page:  
[www.utextension.utk.edu/ansci](http://www.utextension.utk.edu/ansci)