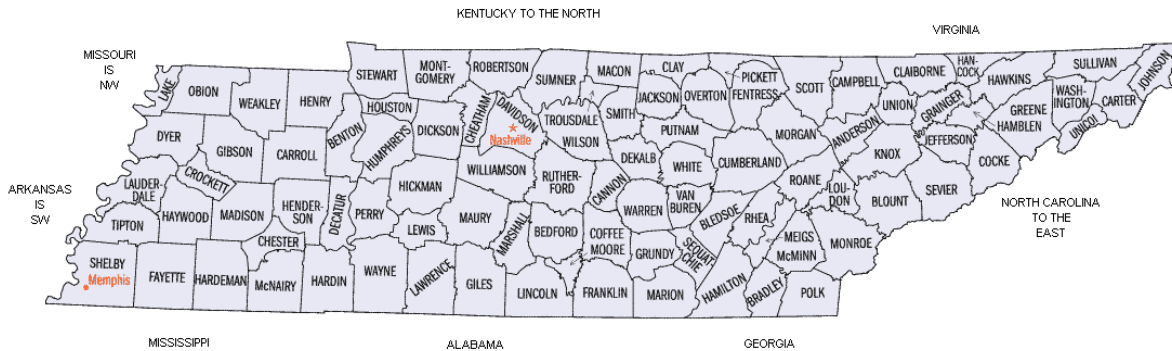


Multimin PUTS MICRO MINERALS ON THE MAP!

TENNESSEE – Micro Minerals (Cu, Mn, Zn, Se) in Cattle:



Results of the Tennessee Forage Mineral Survey presented in 2005 indicated that the average copper (Cu) levels were in the deficient range and lower in late summer /fall. The Copper (Cu) was at least marginally deficient in 92.4 percent of the samples. Sulfur (S) levels were high. Sulfur limits copper availability to cattle. Sulfur concentrations in forage were variable, but were consistently within the range considered to be antagonistic to copper availability (levels above 0.25 percent are considered antagonistic). Sulfur (S) was considered at least marginally antagonistic to copper in 89.3 percent of the samples. Magnesium (Mg) levels were low in the spring, while Potassium (K) levels were high. Low Mg was not surprising, as this has long been known as the single most important risk factor in grass tetany. More revealing was the high concentration of potassium, which is known to interfere with magnesium absorption. Approximately one-quarter of the potassium levels were above 3 percent, which is considered high enough to increase the risk of grass tetany. In the spring (when grass tetany is most likely to occur) almost one-third of the samples were high in K. It was also found that Zinc (Zn) was marginally low, with Phosphorus (P), Calcium (Ca) and Manganese (Mn) within acceptable levels. Zinc was at least marginally deficient in 83.1 percent of the forage samples. Phosphorus was not as low as might have been expected. Calcium levels were generally not at levels to be considered problematic, but mineral supplements should continue to be formulated with calcium higher than phosphorus. The calcium: phosphorus ratio should be in the range of 2:1. Manganese was not generally deficient.

Cattle with trace mineral deficiencies often show no clinical signs until they are severely deficient, but a chronic deficiency inhibits performance and decrease production.

Clinical signs of copper deficiency include:

- Immune suppression – disease breakouts and failure to respond to vaccination
- Rough, red dull hair coat
- Anemia

Clinical signs of selenium deficiency include:

- Muscle degeneration (white muscle disease)
- Reproductive failure
- Immune suppression

Clinical signs of manganese deficiency include:

- Bone abnormalities
- Reduced growth rate
- Reduced fertility

Clinical signs of zinc deficiency include:

- Compromised hoof integrity
- Bull reproductive failure
- Anorexia and weight loss esp. in calves

Where does Multimin fit in?

- Multimin provides zinc, manganese, copper and selenium in a readily available form as an injection.
- Multimin rapidly increases trace mineral status of animals.
- Multimin rapidly increases liver storage of trace minerals following injection.
- Multimin bypasses antagonists in feed, forage, distillers grain and drinking water that can reduce the absorption of these critical trace minerals.

Reference :

Gill W., Fischer A., Lane C. Richards C., Joines D., Neel J. Assessing and improving the mineral status of Tennessee beef cattle.