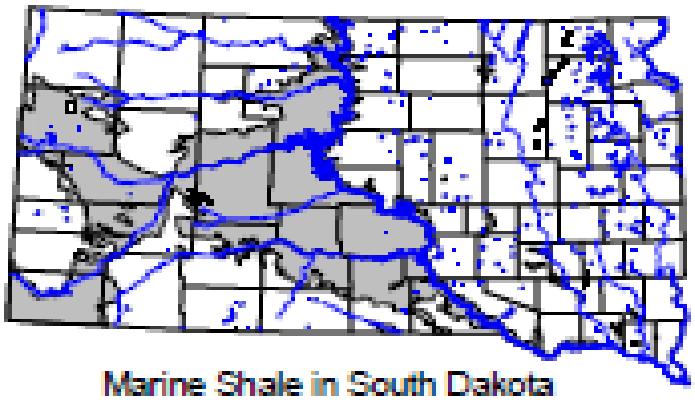
Multimin PUTS MICRO MINERALS ON THE MAP!

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

Water sulfate concentrations considered safe is less than 300 mg/l, but the mean sulfate concentration in South Dakota feedlots was in excess of 1000mg/l. Increased intake of water sulfate that result in excessive total sulfur consumption can result in decreased water consumption, feed intake and average daily gains and have adverse effects on feed conversion. It is also associated with polioencephalomalacia (PEM).

Most of western South Dakota is composed of sedimentary marine shales that were developed when an inland sea covered South Dakota. Selenium is often associated with marine shales and therefore South Dakota has areas of high selenium concentration in soil and water. Soils that are high in concentration of selenium are referred to as "seleniferous" soils. Plants growing in those soils will absorb selenium from the soil in the form of selenite (SeO_3) and selenate (SeO_4). Selenate is said to be the most common form of selenium in the state due to the chemical properties of soils in the western portion of the state. Selenium toxicity is commonly referred to as selenosis. Selenosis was first documented in 1856 near Ft. Randall in South Dakota. A physician with the U.S. Cavalry reported horses experiencing hair, mane, and tail loss and sloughing of hooves. Over the next 75 years similar reports from livestock owners led to a cooperative investigation by the South Dakota and Wyoming Experiment Stations and US Department of Agriculture. It was found that the symptoms experienced by livestock were the result of consuming forage containing high concentrations of selenium. Seleniferous forages usually occur in a localized area. If these areas can be identified and livestock can be excluded, loss of livestock productivity can be avoided. If feed such as hay or other feed crops have been determined to be high in selenium the feed can still be used if it is blended with feed known to be low in selenium.



Marine Shale in South Dakota

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 :

USDA info sheet – Water quality in US feedlots(2000).

Selenium effects in South Dakota livestock production. South Dakota Dept of Agriculture