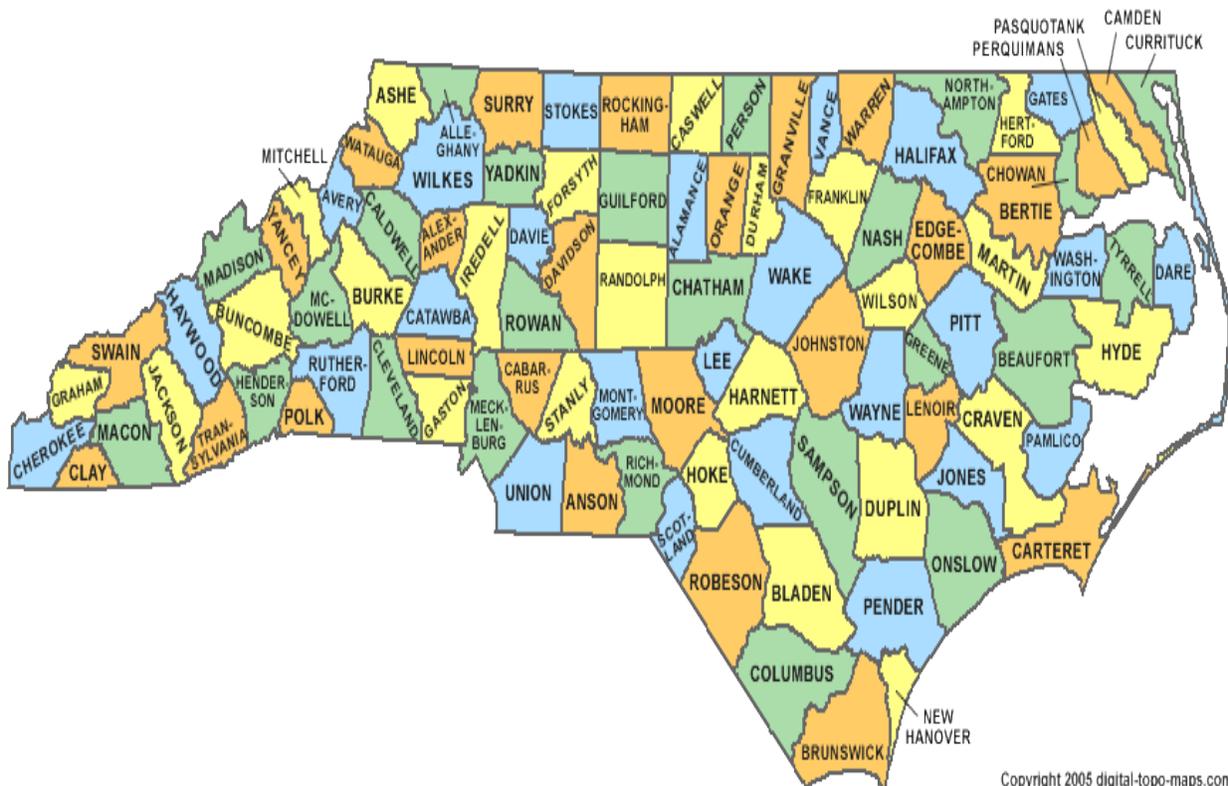


## Multimin PUTS MICRO MINERALS ON THE MAP!

### NORTH CAROLINA – Micro Minerals (Cu, Mn, Zn, Se) in Cattle:

Copper is of critical importance and almost always deficient in forages in North Carolina. Cows need from 10 to 15 ppm copper in their diet in normal situations, and perhaps more if there are other interfering minerals present such as sulfur, iron, and molybdenum. Iron is almost never low in forages in North Carolina and sometimes iron levels are even elevated. This may be due to a high level of iron in the plant tissue which can cause interference with copper absorption. Manganese is almost never deficient in forages in North Carolina. Zinc is often marginal or deficient in forages in North Carolina. Selenium is a very important trace mineral commonly deficient, but not analyzed for in the NCDA and CS program due to a very high cost of the analysis and it should be supplemented.



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 :

Poore M. Interpreting forage analysis reports for beef cows.