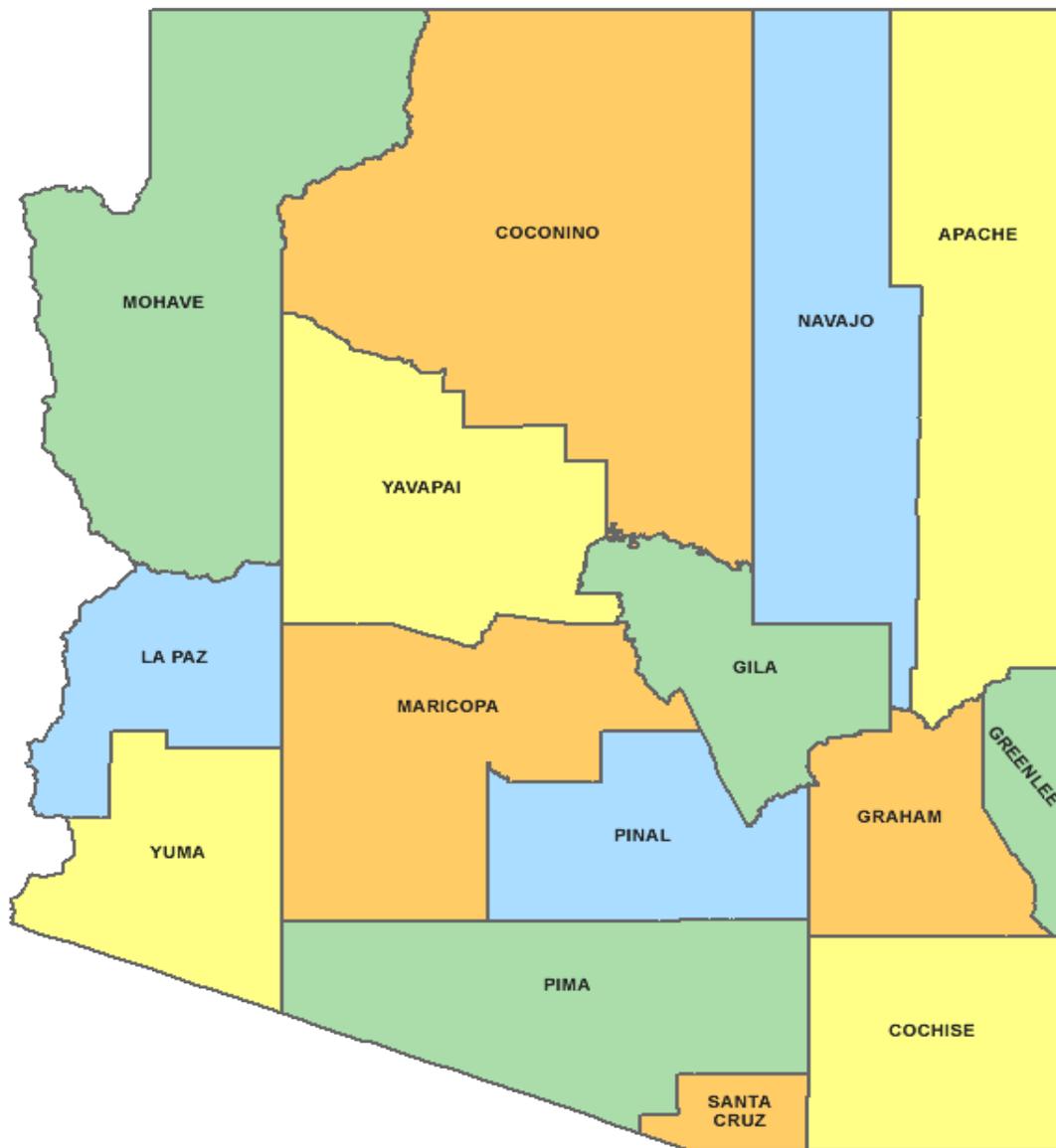


## Multimin PUTS MICRO MINERALS ON THE MAP!

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

Data reported by Ganskopp and Bohnert (2003) and Sprinkle et al (2000) indicated that forage concentration of copper, zinc and selenium is not sufficient to meet the requirements of an average cow during the majority of the year. It turns out that when selenium, copper and zinc are at low levels in Arizona's volcanic and granite-derived soils, the plants that grow there are lacking in them as well. Research from the 1960s showed that a large area of central Arizona from Roosevelt Lake eastward to New Mexico was deficient in selenium. Additional recent sampling revealed that most of the areas along the Mogollon Rim in north central Arizona were not only selenium deficient, but also copper deficient at certain times.



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 :

Bohnert D.W.,Ganskopp D. Mineral supplementation of beef cows in the Western United States.

Littlefield J.Trace minerals for cattle.

