

# Tackling Trace Minerals

*How a small investment can pay big dividends for cattle producers.*

*by Elizabeth Rosson*

Cattle production is a constant balancing act between marketing potential and input costs. For some producers, trace minerals might seem like just another bill to pay — but they are essential micronutrients for cattle.

“We call them trace minerals because they are needed in really small amounts,” says Paul Beck, Oklahoma State University (OSU) extension specialist for beef nutrition, “but a deficiency in one can have a huge impact on many basic life functions like reproduction, immune function and growth.”

Some producers believe the forages in their pastures alone will fill the requirements. Research, however, disputes this, according to Chris Hagedorn, ruminant business manager, ADM Animal Nutrition.

“Cattle need trace minerals, including selenium, iodine, cobalt, copper, zinc and manganese,” he explains. “While each of these minerals plays a critical role, copper, zinc, manganese and cobalt are the trace minerals most beneficial to supplement grazing cattle for optimal performance.”

Once energy and protein deficiencies have been ruled out, cattle that are not meeting their trace mineral requirement may demonstrate lower forage intake, slower gains, poorer feed efficiency,

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reduced reproductive efficiency and compromised immune function, Hagedorn adds.

Trace mineral deficiencies often go unnoticed, making it imperative for producers to have a well-defined supplementation program in place to safeguard the value of their herds.

“All trace minerals are important on such a basic level metabolically and in enzyme function, so a lot of the symptoms of the deficiencies we see will be very similar,” Beck says.

Understanding the need for supplementation is one thing, but determining the most suitable trace mineral program for various cattle operations can be a difficult task.

“Trace minerals are extremely complex,” Beck says. “There’s a lot of interaction among the different minerals and geographical variance across the country and even within individual states.”

Due to the various bioavailability levels across the country, Beck encourages producers to create relationships with local extension

and feed companies.

“Local extension has the expertise and experience to help producers get a starting point for supplementation needs,” Beck says.

Smaller cooperatives or feed stores may lack the resources for a detailed analysis of individual cattle operations, whereas the feed companies they are dealers for and extension specialists can offer that level of support, he explains. It’s crucial for producers to foster these connections to determine their specific mineral needs based on their forage systems and production segments, Beck says.

Trace mineral supplementation is not a one-size-fits-all solution. But experts like Hagedorn and Beck emphasize that the time and resources invested in making the right choices are worthwhile.

“Producers should consider nutrition as an investment, not a cost,” says Hagedorn. “While price will always be an important factor dictating mineral supplement

selection, the least expensive product doesn't necessarily provide the greatest economical return."

Hagedorn encourages producers to consider consistency, palatability, reliability of consumption, mineral formulation, other additives and most importantly, the results they bring to the table.

As in many cases, too much of a good thing may cause an unintended consequence. Trace minerals rarely act alone to support the physiology of the animal, and some minerals have antagonistic effects in conjunction with other minerals, Hagedorn says.

Producers should be cautious about providing excessive amounts of trace minerals, as imbalances can occur and impede animal performance, he adds.

It all goes back to understanding what's in the forages being fed and accounting for deficiencies.

"Choosing the correct mineral supplement will fill the gap between what the forage supplies and what the animal needs," Hagedorn

## *Trace minerals' importance in herd reproduction broken down*


*by Chris Hagedorn, ruminant business manager, ADM Animal Nutrition*

**Zinc** — In bulls, zinc has been linked to supporting spermatogenesis and enhancing sperm motility and viability. For cows and heifers, it's linked to the production of progesterone and estradiol, both of which support fertility and pregnancy.

**Manganese** — This is critical for the synthesis of estrogen and testosterone. It aids in the formation of cartilage and bone during calf development *in utero*.

**Copper** — Copper helps to enhance the viability of both sperm and oocyte. Critical for embryonic survivability. Additionally, it supports the production of progesterone and estradiol, both of which play a role in fertility and pregnancy.

**Selenium** — A deficiency in selenium is correlated to irregular estrous cycles, premature birth, stillborn calves, abortions and weak calves.

says. "The production returns for adequate and effective mineral supplementation greatly justifies the investment." 

*Editor's note: Elizabeth Rosson was a 2023 intern for the Angus Journal.*

