MINERAL OPTIMIZATION

PRODUCTION EFFICIENCY

Selko®

IntelliBond®

Hydroxy trace minerals for Beef cattle

NUTRI PRO

The importance of trace minerals

Trace minerals support an array of biological functions that are required for proper immune function, reproduction, and growth. Trace minerals are present in forages and other feeds used in cattle diets and, with the exception of cobalt, meet the requirements of rumen microbes. However, supplementation is needed to meet the needs of the animal.

COPPER
Supports joint health, blood cells, immunity, fertility, and proper iron metabolism.

ZINC
The very competitive business scenario requests high performing pigs to deliver profitable results

MANGANESE
Contributes to healthy bone and cartilage, enzymes, immunity and fertility.

Antagonists

Antagonists are minerals or other nutritional ingredients that inhibit bioavailability by forming insoluble complexes with other minerals making both minerals as well as nutritional ingredients unavailable for the animal to utilize. This typically occurs in the rumen. Antagonists can come from ration ingredients, soil contamination (or ingestion), and drinking water. As an example, compared to sulphate based products, IntelliBond allows for improved absorption and utilization of Phosphorus from Phytate (antagonist), and reducing environmental contamination. Other common antagonists to the trace minerals important to cattle are Sulfur, Iron, Molybdenum and Mineral imbalances.

IntelliBond Hydroxy Trace Minerals

Strong covalent bonds and a unique crystalline structure limit the exposure of the IntelliBond trace minerals to antagonists in the feed and in the rumen. Slow dissociation of IntelliBond occurs in the abomasum, making the mineral available to be absorbed by transporters in the small intestine.

High bioavailability

Feeding IntelliBond ensures optimal absorption and improved trace mineral status.

Rumen stability

IntelliBond hydroxy trace minerals have low solubility in the rumen environment.

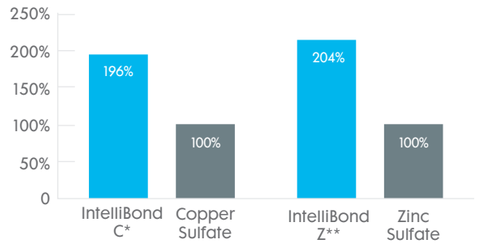
Protected from antagonists.

IntelliBond trace minerals are protected from antagonists in the rumen as a result of their low solubility in the rumen.

Preferential intake.

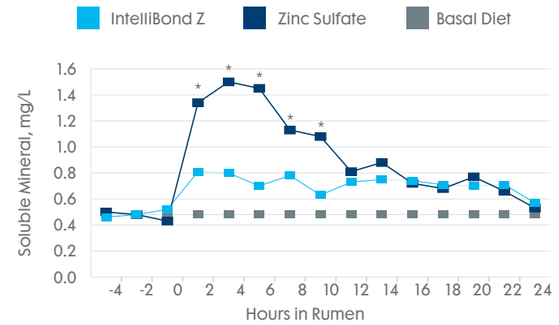
When beef calves were given a choice between supplements identical in everything except copper, zinc and manganese source, they preferred the IntelliBond supplement over the inorganic and the organic supplements.

Figure 1. Reactive bioavailability in cattle (indexed to sulfate)



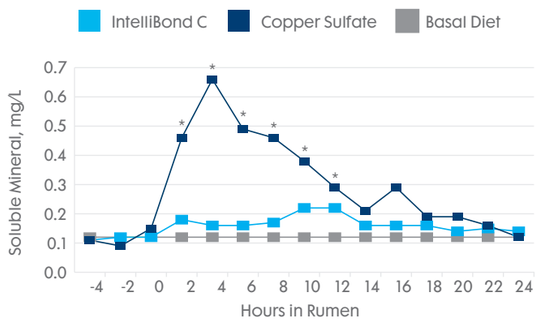
*$p < 0.04$. Spears et al., 2004. Anim. Feed Sci. Technol. 116:1-13.
**$p < 0.01$. Schaeffer et al., 2017. Anim. Feed Sci. Technol. 232:1-5.

Figure 2. Effect of Zn source on rumen soluble Zn concentrations in beef steers



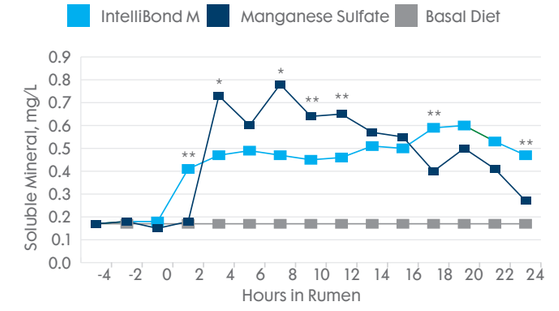
*Means within time point differ $p < 0.05$
Weigel et al., 2017. J. Dairy Sci. 100: E-Suppl. 2. (Abstr.)

Figure 3. Effect of Cu source on rumen soluble Cu concentrations in beef steers



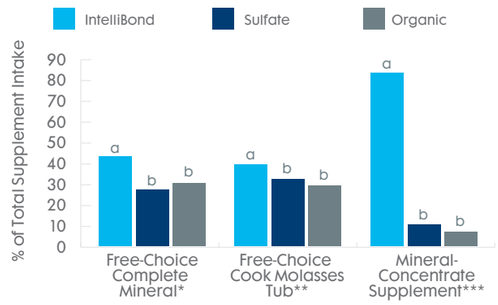
*Means within time point differ $p < 0.05$
Weigel et al., 2017. J. Dairy Sci. 100: E-Suppl. 2. (Abstr.)

Figure 4. Effect of Mn source on rumen soluble Mn concentrations in beef steers



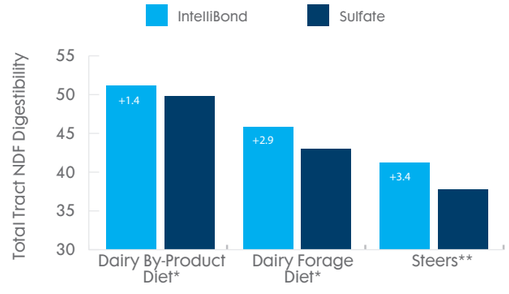
*Means within time point differ $p < 0.05$
**Means within time point differ $p < 0.10$
Weigel et al., 2017. J. Dairy Sci. 100: E-Suppl. 2. (Abstr.)

Figure 5. Effect of trace mineral source on supplemental intake of early weaned beef calves by supplement form



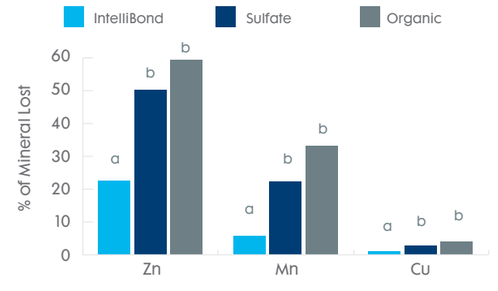
*Superscripts differ $p < 0.005$. Wiebusch et. al., 2015 JAM.
**Superscripts differ p 0.03. Micronutrients trial #2017BC106USCZM.
***Superscripts differ $p < 0.05$. Caramalac et al., 2017. J. Anim. Sci. 95:1739-1750.

Figure 6. Effect of trace mineral source on fiber digestibility



*p = 0.02. Faulkner and Weiss, 2017. J. Dairy Sci. 100:5358-5367
**p = 0.09. Micronutrients trial number 2017R110USCZM

Figure 7. Effect of simulated rainfall (2") on metal loss from different trace mineral source



Superscripts differ $p < 0.05$.
Wiebusch et al., 2015. J. Anim. Sci. Vol. 93 Suppl. 2.

Increased fiber digestibility.

The low rumen solubility of IntelliBond hydroxy trace minerals minimizes the amount of free trace mineral in the rumen. Free trace minerals can be toxic to rumen microbes, including fiber digesting bacteria.

Built-in weatherization.

IntelliBond is more resistant to leaching than inorganic or organic sources of trace minerals.

Smart Decision

IntelliBond hydroxy trace minerals are an ideal source of trace mineral for cattle because of the low water and rumen solubility of the IntelliBond crystals. This limits the risk of adverse reactions with antagonists, increases feed stability, improves fiber digestion by rumen microbes, and increases bioavailability of the minerals. In short, IntelliBond provides a reliable and predictable supply of trace minerals to your cattle.

Built on Science

Trouw Nutrition is committed to advancing the scientific knowledge and understanding of trace mineral nutrition through basic and applied research. We invest in research on trace mineral nutrition and the unique properties of the IntelliBond crystalline structure that we have been manufacturing for over 20 years.

IntelliBond Hydroxy Trace Mineral Portfolio

IntelliBond C (Tribasic Copper Chrloride)
IntelliBond Z (Zinc Hydroxychloride)
IntelliBond M (Manganese Hydroxychloride)

Learn more visit **Selko.com**

Ask your Nutri Pro representative how Intellibond can support animal productivity and health.

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