



MINTREX[®]

BIS-CHELATED TRACE MINERALS

**A PREMIUM SOURCE OF ORGANIC
TRACE MINERALS WITH ADDED
METHIONINE VALUE**

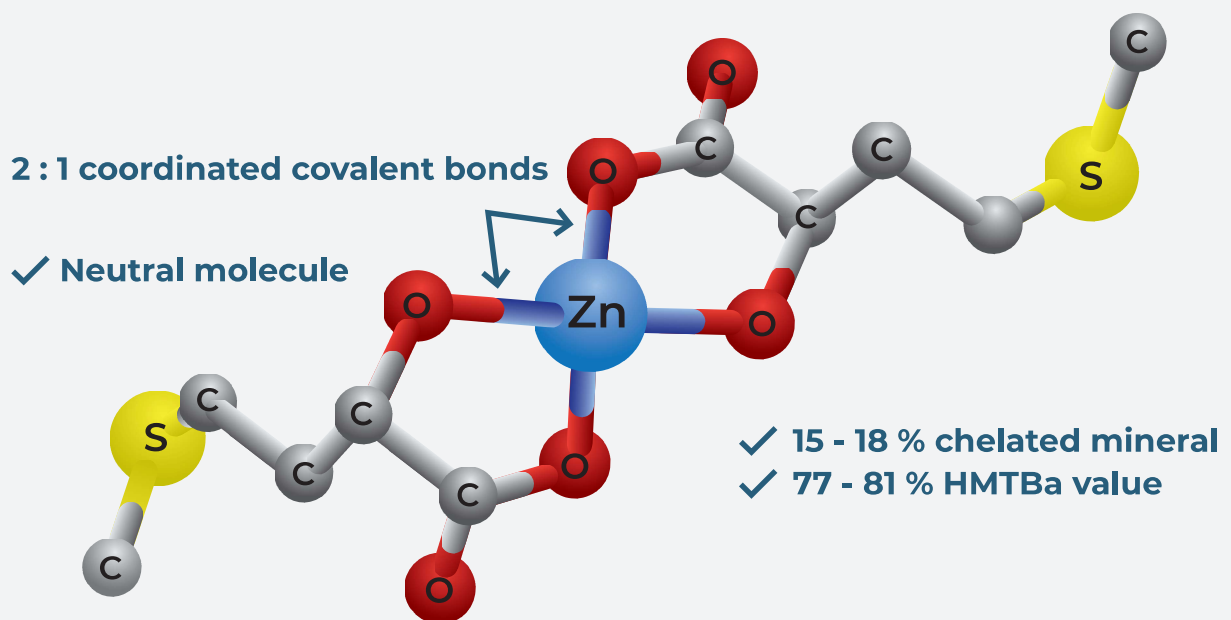
NOVUS[®]
Made of More™

MORE THAN A TRACE MINERAL

MINTREX[®] bis-chelated organic trace minerals offer a **highly available source of organic zinc, copper, or manganese** for dairy cows in all stages of lactation. For the animal, it is a highly available source of trace minerals.^{1,2,3} But what does that mean to you?

MINTREX[®] bis-chelated trace minerals have two molecules of HMTBa (2-Hydroxy-4-(methylthio) butyric acid), a precursor of L-methionine, protecting every molecule of mineral (Figure 1). This creates a neutrally charged molecular structure with higher stability and bond strength compared to other trace mineral sources. The stable structure of MINTREX[®] bis-chelated trace minerals reduces mineral interactions with other diet components and allows for optimized mineral absorption. This results in more efficient nutrition and improved sustainability, as less mineral is excreted into the environment. **MINTREX[®] bis-chelated trace minerals provide the animal with both mineral and methionine simultaneously.**

FIGURE 1.
MINTREX[®] bis-chelated trace minerals have two molecules of HMTBa protecting every molecule of mineral



INCREASE HERD LONGEVITY

Lameness challenges both animal welfare and profitability. Maintaining hoof health is crucial to prevent the costly effects of lameness. Figures 2 and 3 show cows supplemented with MINTREX[®] bis-chelated trace minerals experienced a 15% increase in hoof hardness and a decrease in collagen and cartilage degradation in the hoof.⁵ **An increase in hoof hardness and reduction of collagen and cartilage degradation are related to a more stable hoof structure and better hoof health.** In another trial, cows supplemented with inorganic trace minerals (ITMs) were 2.5x more likely to be culled due to lameness and showed higher gate scores, but cows supplemented with MINTREX[®] bis-chelated trace minerals showed a decrease in lameness and were able to stay in the herd longer.⁴

FIGURE 2.
Hoof Hardness

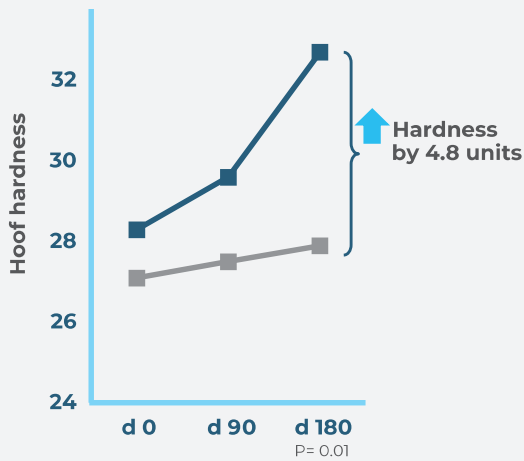
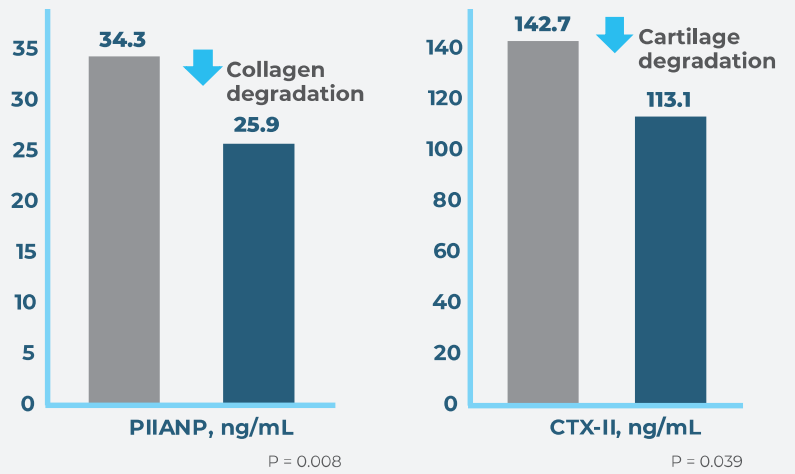


FIGURE 3.
Arthritic Biomarkers



■ ITM ■ MINTREX®

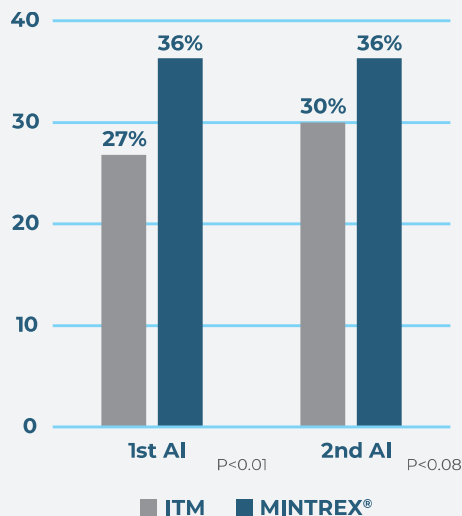
Zhao et al., 2015

PROMOTE REPRODUCTIVE PERFORMANCE

Pregnancy rate is a major determinant of dairy herd efficiency and profitability. Cows that conceive earlier in lactation spend fewer days in late lactation when milk production and feed efficiency are at their lowest levels. **Published studies show that MINTREX® bis-chelated trace minerals improve conception rates and reduce the number of days open.**⁴

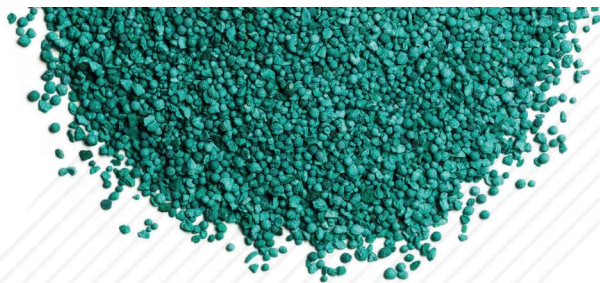
Figure 4 demonstrates a commercial, multi-herd trial where cows supplemented with MINTREX® bis-chelated trace minerals had a significant increase in first service conception with additional improved conception at the second insemination.⁴

FIGURE 4.
MINTREX® Increases Conception Rate



+9% INCREASE
First Service
Conception Rate

Bach et al., 2015



GET MORE WITH LESS, USING MINTREX® BIS-CHELATED TRACE MINERALS

Feeding high-quality, highly bioavailable trace minerals is key to maximizing performance in a dairy operation. With the unique bis-chelated structure of MINTREX® bis-chelated trace minerals, producers can supplement less trace mineral but have more arriving at the site of absorption to promote greater performance with less impact on the environment.¹⁻³

Feeding Rates:

Feed continuously as a component of a complete ration.*

MINTREX® Zn	MINTREX® Mn	MINTREX® Cu
3 g per head per day	2 g per head per day	1 g per head per day

* Or per the recommendation of your feeding advisor. Recommendations are based on requirements for Holstein cattle.

LET'S DO MORE TOGETHER

When you work with NOVUS, we deliver innovative, effective solutions designed to elevate your herd performance. Ask us about our REDUCE AND REPLACE™ Program to find out how you can optimize feed costs with MINTREX® bis-chelated trace minerals.

NOVUS®

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References:

1. Tucker, H.A., C. Foran, S. Bettis, P. Fisher, J. Xue, K. Wedekind and M. Vázquez-Añón. 2016. Bioavailability of different sources of zinc using stable isotopes in male Holstein calves. *J. Anim. Sci.* 94, Suppl. 5, 716.
2. Tucker, H.A. and A. Provin. 2020. Benefit of Zinc methionine hydroxy analogue chelate to increasing tissue enrichment with dietary antagonism in Holstein calves. *J. Dairy Sci.* 104 (Suppl. 1) W81.
3. Tucker, H., S. Bettis, T. Rode, D. Hancock, and M. Vazquez-Anon. 2022. Comparison of zinc sources on increased tissue zinc enrichment with dietary antagonisms. *J. Dairy Sci.* 105 (Suppl. 1).
4. Bach, A., A.M. Pinto and M. Blanch. 2015. Association between chelated trace mineral supplementation and milk yield, reproductive performance, and lameness in dairy cattle. *Livestock Sci.* 182: 69-75.
5. Zhao, X., Z.P. Li, J.H. Wang, X.M. Xing, Z.Y. Wang, L. Wang and Z.H. Wang. 2015. Effects of chelated Zn/Cu/Mn on redox status, immune responses and hoof health in lactating Holstein cows. *J. Vet. Sci.* 16(4): 439-446.

Products not available in all countries.

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