

## THE BEST ORGANIC TRACE MINERAL COMBINATION FOR CATTLE

Hugh Archibald

[Hugh.archibald@feedworks.com.au](mailto:Hugh.archibald@feedworks.com.au)

**Minerals such as zinc, copper, manganese, & selenium, all are absorbed in the small intestine, so we want to protect some of them from the harsh rumen environment in cattle. Therefore they are best presented as Organic Trace Minerals for cattle. In addition, cobalt is an important mineral for rumen function and vitamin B 12 production.**

**The best organic mineral combination for cattle is zinc, copper, manganese, selenium and cobalt. The addition of chromium should also be considered.**

### Introduction

The role and importance of trace minerals in livestock production has long been established. While not as essential as the core elements of a ruminant diet such as energy, protein and fibre, as we challenge and refine our animal production systems, it is important to consider where we need to pay greater attention to trace mineral(TM) nutrition.

One of the key considerations as we investigate our Trace Mineral programs is where do we take the step up to include Organic trace minerals as part of our program?

Organic Trace Minerals (OTM's) are minerals that have a level of protection from the harsh rumen environment and antagonists in the rumen, that leave the rumen intact, and present for absorption in the small intestine, where the majority of TM's are absorbed by the animal. It is important to note that not all TM's are absorbed this way. For example, cobalt is required by the rumen bacteria to manufacture vitamin B12 and has little direct requirement by the animal. As such, highly soluble sources of cobalt should be fed such as cobalt lactate, where both the cobalt, and a soluble sugar is being provided to the rumen bacteria to aid in the synthesis of vitamin B12.

So that's cobalt, what about other key minerals?

If we think of the other key Trace Mineral's, such as zinc, copper, manganese, & selenium, all are absorbed in the small intestine, so we want to protect some of them from the harsh rumen environment. We say some of the requirement can be met by just the inorganic versions, as cattle have the ability to absorb some TM from their basal diet, and typically, these pathways are more than adequate for maintenance and modest production (growth or milk). Where we are challenging the animal, through periods such as rapid growth, lactation or reproduction, we may need to look for better alternatives, and that's where Organic Trace Minerals are highly desired.

Some commonly asked questions around Organic Trace Minerals for cattle are:

- when should I use them?
- which one should I use?
- which combination should I consider?

### When should we consider Organic Trace Minerals for cattle?

As stated previously, the when should be any time when animals are facing something new or an additional challenge. For beef cattle, this would include feedlot induction, calving/transition, joining and weaning. For dairy cattle, this would primarily be pre-calving and early lactation through until joining.

### Which Organic Trace Minerals should I use for cattle?

Zinc is probably the most well known OTM. This is because on top of the challenge periods mentioned above, zinc plays a key role in keratin production, which is the key part of hoof integrity. Cattle hooves are growing (and wearing down) every day, and numerous studies have shown feeding highly bioavailable zinc as an OTM improves hoof quality, so as a preventative for lameness, zinc is potentially a year round option, and at around a cent and a half per day, a product like SQM zinc makes great sense for year round lameness management.

From there, we look at the other challenge periods, and for all of these, a proportion (roughly one third) of the TM provided should be as an OTM.

### What combination of Organic Trace Minerals is best for cattle?

For rangeland beef, a combination of zinc, along with copper and manganese is a good starting point (not forgetting the high quality cobalt as well), but consider a high quality selenium for joining, particularly in marginal selenium regions (be aware legal maximum supplementation levels exist in some states).

For dairy, the key periods are also from 3 weeks pre-calving through until post-joining. **The combination of zinc, copper, cobalt, manganese and selenium** is well proven to provide a wide range of benefits. In addition, newer research shows organic chromium is also a valuable tool, particularly for pre-calving and fresh cows (up to 100 days in milk), as there are additional benefits in maintaining bodyweight, improved reproduction and higher milk production.

### Summary

The benefits of adding Organic Trace Minerals to cattle diets through challenge periods along the lines of the programs mentioned above are well proven, but some of these benefits include:

#### *Feedlot Beef (zinc only)*

- Improved ADG
- Improved FCE
- Better vaccine response
- Improved hoof health

#### *Weaners*

- Improved ADG
- Improved FCE
- Better health outcomes

#### *Dairy*

#### *Cow/Calf*

- Improved lactation performance
- Lower calf morbidity
- Better reproduction

- Lower Somatic Cell Count
- Better reproduction
- Improved milk production
- Less lameness