FrontLine®
TECHNICAL INFORMATION FOR TODAY'S FEED PROFESSIONAL

Selenium Supplementation in Calves

Selenium is an important trace mineral. Selenium supplementation has been found to improve reproduction, immunity, growth, muscle development and functions as an effective antioxidant in animal agriculture. It is typically supplemented at levels up to 0.3ppm. This level is regulated by the Food and Drug Administration (FDA) and most feeds in the U.S. for dairy cattle and calves are supplemented at the legal limit of 0.3ppm.

The most common form of selenium that is supplemented in feeds is sodium selenite. Sodium selenite is commonly referred to as an inorganic source of selenium. This is in contrast to an organic form of selenium, which is commonly bound to a protein (selenoprotein) or an amino acid. The practical difference between these two sources of selenium is in the absorption and biological use of selenium to the animal. The following chart shows this:

Source	Index	Bio-Availability
Sodium Selenite	100	34
Selenomethionine	245	84
Selenium Yeast	290	98+

Based on the above chart it is clear that selenium yeast has more value to the animal than sodium selenite. In theory, this could be overcome by feeding more sodium selenite but the FDA restricts what can be fed in diets to 0.3ppm. One reason why the bio-availability is higher for the seleno-proteins may be that this is the most common form of how selenium is naturally found in our feedstuffs.

Unfortunately, a majority of the United States has selenium deficient soils so our feedstuffs tend to be low in this naturally occurring compound. This is why supplementation becomes so important.

A common question at this point is:
"Why is the FDA concerned about selenium supplementation and restricting what can be legally added?" That is because selenium has the potential to be the most toxic trace mineral that is commonly added to feed programs and there are areas in the U.S. that have selenium adequate levels in their soil. To keep everyone safe, the FDA has implemented the 0.3ppm level.

Why doesn't everyone feed selenium yeast? Because up until late 2003, the FDA had not approved selenium yeast as a legal feed ingredient. The FDA based their decision on Alltech research over the past 10 years to approve this ingredient for livestock feeding. This research has clearly shown that selenium yeast can offer higher blood levels and improved performance over animals fed sodium selenite. Now the decision on what selenium ingredient to supplement with is an option for the producer and their nutritionist.

When incorporating selenium yeast in a milk replacer mixture, we see good mixability, but there is a chance parts of the selenium yeast ingredient will fall out of solution over a period of time (minutes). Because of this, it is always a good idea to make sure a milk replacer solution is fully mixed and agitated before feeding to assure each animal gets the same level of selenium in every feeding.

Milk Products
The Milk Replacer Source™
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