Mineral Supplementation In Dairy Cows

This season has been a long and difficult one for both farmers and their cows. The cow's diets have been varied this season, with most farms having to use one or more supplements to meet shortfalls during the drought, and many others trying new feeds in an attempt to boost production in a high payout year. The net result is a great deal of confusion as to the mineral status of stock going into the winter. The following advice is designed to help you get the most from your money when considering what mineral supplements to use. Please note that when we refer to minerals, we are referring to both macro minerals like magnesium, calcium, and phosphorous, as well as trace elements such as selenium, copper, and cobalt.

When designing a mineral supplementation programme, consideration needs to be given to
How much mineral is being supplied?
How much mineral is required?
What is the current mineral status of the animals?

1. How much is being supplied?

Obviously an understanding of what is available in the feed is critical to calculating what the animals are getting. How many of you have had the mineral levels in your pasture tested? How many of you know what the mineral levels are in your grass at key times like calving?
If a deficiency does exist we then have to decide whether it is a primary deficiency i.e. due to a lack of mineral in the feed, or secondary i.e. insufficient feed available or other complicating factors. Restricted feed intake is creating a potential problem in many cases of mineral deficiency on NZ farms. In these situations fixing an apparent mineral deficiency by supplementing the diet will not result in production responses, as there is usually a lack of other factors, such as energy, preventing cows from performing better.

2. How much mineral is required?

Variation in such things as genetics, liveweight, management, production, environment, feed type, feed quality and feed input can create possible differences in demand. Trials in this part of the world often show little or no production response to additional mineral supplementation. However other factors, usually dry matter intakes, are limiting in these trials, with production results often mediocre at best. If protein and energy are limited in the diet, no amount of mineral "X" will give a production response. The "bible" for mineral requirements is the National Research Council's (NRC) Nutrient Requirements of Dairy Cattle. The NRC's panel of scientists independently reviews current and past published research related to dairy cattle nutrition and publish recommendations based on the available information. NRC recommendations are often higher than those most sales people (and vets) would recommend, as they are more performance based, while historically the focus in NZ has been on preventing clinical disease and eliminating mineral deficiencies.

3. What is the current mineral status of your herd?

The most common method for determining current mineral status is to test the blood and/or liver samples of a selection of cows on your property. Generally liver is best for copper and cobalt (B12), while blood is better for minerals like magnesium, calcium and selenium. However be careful when interpreting the reference ranges that are set by the labs. Generally the minimum level is considered to be where clinical disease would be expected if animals were below this, while the "range" and the top of the range would be considered "normal" in a population of animals not showing signs of deficiency. Most recommendations based solely on blood or tissue results may in fact be insufficient for higher performing animals.