STRATEGIC MANAGEMENT FOR EXTRAORDINARY EFFICIENCIES

by Elizabeth Kuhn

The Merriam-Webster dictionary defines extraordinary as "going beyond what is customary or usual". In terms of herd health basics, we tend to focus on ensuring that cows are receiving enough vitamin and mineral supplementation to support a healthy and optimally functioning immune system. This is the basis of mineral nutrition and it has worked wonders to ensure productive and profitable dairy herds up to now. However, as times and weather patterns change, we need to constantly improve what we are doing to keep progressing and remain profitable – we need extraordinary mineral nutrition!

WHAT?

Where does the extraordinary fit into the big picture of mineral nutrition? With ever-changing climatic and environmental conditions, what is customary now has the potential to be extraordinary as we continuously look for ways to improve. One clear strategy that promises extraordinary efficiencies is the practice of strategic mineral management. The concept of strategic mineral management involves increasing the vitamin and mineral supply to the cow, specifically when her requirements are higher due to increased stress levels and resulting inflammation.

WHY?

The vitamin and mineral component of a dairy ration, called a premix, only supplies the average daily requirements of a cow throughout the year. Some days the cow gets what she needs, some days she may get too much or too little, but, on average, we have the base covered. This is common practice, but there is more that can be done to increase efficiencies over times when the cow is short of minerals and is not getting enough to adequately support her immune system. Environmental stressors play a key role here, as they not only increase demand, but tend to do so for prolonged periods. Think heat stress, mud stress, and mycotoxicosis.

Any stressor on the cow's system causes immune activation with resulting inflammation, a process that expends huge amounts of energy. Heat stress, for example, can use up to 2 ℓ of glucose a day to deal with high inflammation levels (Kvidera *et al*., 2015). Likewise, mud stress is not just a rainfall event, but also has the longer-term effect of creating poor leg hygiene conditions, often leading to an increase in hoof lesions and lameness. These inflammation costs add up quickly. Energy in the cow's system is preferentially used for immune activation, leaving little energy for milk production or reproduction. These stressors may seem like one-hit wonders, but they can leave your herd dealing with chronic inflammation and an energy deficit.

HOW?

On-farm management around these stressors plays a big role in reducing their impact, but how do we go about dealing with the physiological costs of chronic inflammation? Strategic mineral management is a nutritional practice whereby we change our mineral nutrition approach at certain times of the year when we can expect chronic seasonal stressors. We know heat stress comes in summer and we know when the rainy season should start. These environmental stressors increase mineral demand, and so we step up our mineral offering to the cow to better support and equip her immune system to deal with the physiological consequences of the stressors. Just as we step up our mineral programme, we can easily step it down during the times of the year and stages of lactation when external stressors are few and cow requirements are low.

CONCLUSION

The days of having a single mineral nutritional approach all year round are steadily morphing into active management of the herd's mineral requirements to keep ahead of the challenges. This is where extraordinary efficiencies lie. We should not simply accept the effects of the environment on the cows, but rather equip them to deal with environmental stressors and keep performing when the pressure is on. Focus on supporting the cow's immune system by ensuring she has all she needs to perform optimally and extraordinary efficiencies will follow. mpo