

Trace mineral testing in Ontario cow-calf operations

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Introduction

There is much confusion surrounding trace mineral supplementation in cattle, particularly on cow-calf operations. Because a total mixed ration is rarely utilized, it can be challenging to determine the amount of mineral that cattle are consuming on a daily basis. When producers have health concerns in their herd that may be tied back to trace mineral consumption, the veterinarians struggle to determine if supplementation was appropriate and which tests are the most effective to examine trace mineral status in the cows. The objective of this study was to examine the trace mineral status of cows on cow-calf operations in Ontario and understand more about the supplementation strategies that were being used.

Materials and methods

Cow-calf herds from across Ontario were invited to submit 10 blood samples of breeding age females for trace mineral analysis in the fall of 2021. The study was advertised to food animal veterinarians and producers directly through veterinary and producer organizations and through the Ministry of Agriculture, Food and Rural Affairs. When submitting the blood samples, producers were asked to complete a short survey that asked about their supplementation and pregnancy results of the animals tested. They were also asked for contact information for further follow-up.

In spring of 2022, herds were sent a survey to gain further detail surrounding mineral supplementation and health issues that the herd was experiencing. The survey was sent via email and producers were contacted twice after the initial email to request completion of the survey. In some cases, the veterinary contact information was all that was provided and veterinarians were asked to complete the survey with their producers or to send it to their producers for completion.

Results

Seventy herds from across the province provided blood samples for analysis. The herd size ranged from 10 to 400 breeding females. All herds were providing mineral pre-breeding, but most herds were not providing it at one or more of the following times breeding, post breeding, gestation, or pre-calving. Trace mineral analysis showed that the majority of herds were low for manganese (63/70), copper (58/70), selenium (69/70) and molybdenum (69/70). The majority of herds (68/70) were also high in iron. Most herds supplemented free choice in either a top dress, block or a combination of the two. Most (65/70) herds did not have previous issues that were related to suspected trace mineral issues.

Significance

The trace mineral status of the herds in Ontario was surprising, particularly for selenium as we are a selenium deficient province and most herds were supplementing selenium at some time points. Additionally, the range of variation in trace mineral status varied, without a clear understanding of why. More work needs to be done to determine the true trace mineral status in these herds and understand why supplemented herds are still remaining low in selenium.

