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VETERINARY SERVICE

Monitoring Ketosis: Testing Method Pros & Cons.

Ketosis is a common albeit frustrating problem for many dairy producers. Clinical ketosis presents as decreased feed intake and milk production in the first several weeks after calving. This can result in a milk loss of 13+ pounds per day during the first month of lactation. Sub-clinical ketosis presents without clinical signs (the cow maintains her appetite) but may still result in a milk loss of 5 pounds per day in the first month of lactation. Both clinical and sub-clinical ketosis can occur on their own or secondary to other fresh cow problems (ie metritis, retained placenta, or left displaced abomasum).

Monitoring ketosis prevalence in a herd is simple, with multiple options to fit any management style. To identify a ketotic cow, ketone bodies can be measured in a cow's milk, urine or blood. All sample types are valid options, but all types are not created equal. Ketone bodies concentrate in higher levels in the urine resulting in test results reflecting 2 to 20 times the level of actual blood ketones; whereas milk ketone levels will more closely mirror the ketone levels in the blood. Commercial testing methods are labeled and validated to determine if a cow is ketotic using a specific sample type.

Testing Methods:

1. **KetoCheck (Powder):** This is the only test that can utilize all three sample types. To use this test, powder should be deposited onto a clean white surface and 1-2 drops of milk, blood or urine should be mixed into the powder and allowed to rest for 2 minutes before reading. If the powder turns purple in color the test is considered positive for ketosis. What this test doesn't tell you is how high the ketone levels actually are. It is also reasonable to assume that, if a urine sample is used you will find more animals to be ketotic than if testing with milk or blood.
2. **KetoStix (Strips):** These strips are used to evaluate ketone levels in the ***urine only.*** KetoStix provide a gradient color scale indicating variable levels of ketones present. Test strips are submerged in a mid-stream urine sample, changing the color of a small pad at the end of the strip. The color of the pad is then compared to the color scale after 15 seconds. The gradient color scale gives you a general idea of how ketotic the cow is.
3. **KetoCheck/NovaVet (BHBA Meters):** Metered methods of determining an animal's ketotic state measures the ketone levels in the blood. More specifically this method measures beta-hydroxybuteric acid (BHBA) levels. Meters require 1-2 drops of blood, easily obtained from the tail vein, to be deposited onto a test strip inserted into a meter. The meter then gives you a numerical value indicating the BHBA level of the animals blood within 10 seconds. This method provides the most accurate numerical representation of the animals ketotic state, and also allows you to identify animals that are sub-clinically affected. The one drawback to using the meters is that it is the most expensive method.

To accurately assess the level of ketosis in your herd all animals <14 DIM should be evaluated for ketosis and other fresh cow disorders 2-3x/week using the testing method of your choice. Using this strategy all animals are evaluated 4-6 times in the first two weeks of lactation. This allows you to identify ketotic animals rapidly and treat effectively while minimizing animal suffering and milk loss.