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Developing and using monitoring programs for fresh cows

Abstract

Metabolic disorders and related health problems are a significant problem on dairy farms, resulting in increased culling and decreased profitability for producers. Early detection and treatment of disorders and disease is critical in minimizing losses and increasing probability of cow recovery. Fresh cow monitoring systems that evaluate several key factors "“ general appearance, body temperature, intake or appetite, rumen motility, milk production, and milk or urine concentrations of ketones "“ are necessary for early detection of disorders and disease. Most of these problems occur within the first 3 weeks of lactation, with most occurring during the first 10 days. Developing and implementing of fresh cow monitoring systems and early treatment should increase profitability of dairy enterprises by reducing the negative effects of metabolic disorders and forced early culling.; Dairy Day, 2003, Kansas State University, Manhattan, KS, 2003;

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DEVELOPING AND USING MONITORING PROGRAMS FOR FRESH COWS

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Summary

Metabolic disorders and related health problems are a significant problem on dairy farms, resulting in increased culling and decreased profitability for producers. Early detection and treatment of disorders and disease is critical in minimizing losses and increasing probability of cow recovery. Fresh cow monitoring systems that evaluate several key factors – general appearance, body temperature, intake or appetite, rumen motility, milk production, and milk or urine concentrations of ketones – are necessary for early detection of disorders and disease. Most of these problems occur within the first 3 weeks of lactation, with most occurring during the first 10 days. Developing and implementing of fresh cow monitoring systems and early treatment should increase profitability of dairy enterprises by reducing the negative effects of metabolic disorders and forced early culling.

(Key Words: Health, Calving, Metabolic Disorders)

Introduction

Metabolic disorders during the first 3 weeks of lactation are major health and production issues for dairy producers. These disorders include dystocia, ketosis, displaced abomasums, and milk fever. In addition, retained placenta and uterine infections are also

major problems during early lactation. Disorders and infections cost \$150 to \$300 per occurrence and can result in the death or early culling of affected cows. Early detection and aggressive treatment can reverse the effects and prevent a cascade of additional disorders.

Monitoring System Components

Early detection of metabolic disease is the goal of any monitoring system. Several key factors – general appearance, body temperature, intake or appetite, rumen motility, milk production, and milk or urine concentrations of ketones – are used in effective monitoring. The number of variables determines the system's complexity. Many systems include only general appearance, body temperature, and appetite. More complex systems also include milk production, rumen motility, and urine ketones. In general, the more information gathered and processed, the greater the possibility of detecting affected cows.

Cows developing metabolic disease often display a change in general appearance. Those appearing dull or lethargic obviously display signs of a disorder or disease. The critical question is how is this observed or detected on the farm. Effective monitoring includes at least daily observation of the fresh cow (less than 10 days in milk) for general appearance. This is usually done immediately after the morning milking. It is helpful if the same per-

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son does this each day or written observations from the previous day are available for the observer. It is also easier if all fresh cows are located in a single pen, facilitating more careful observation of each.

Body temperature during the first 10 days in lactation should be a critical part of an effective monitoring system. There is considerable cow-to-cow variation in normal body temperature. Environmental temperature also can affect body temperature. Thus, taking temperatures at the same time each day and having the previous day's information available will make this data easier to interpret. Body temperature is generally measured with a rectal thermometer. Electronic thermometers speed this process, but the value obtained is only as accurate as the operator. Most electronic thermometers require 15 to 20 seconds to equilibrate. Thus, the probe must be in the rectum at least that long. In addition, the rectum may contain air, which affects the temperature reading. Generally a rectal temperature below 100°F or above 103°F indicates there may be a problem. However, individual cows and environmental temperature, especially heat stress, can change the normal range of expected body temperatures. Monitoring body temperatures early in the morning and having previous data available improves interpretation.

Body temperature is generally monitored for the first 10 days after calving. Cows with a normal body temperature for at least the last 3 consecutive days and at least 10 days in milk are eligible to be removed from daily monitoring. Thus, if a cow displays a normal body temperature on days 8, 9, and 10 of lactation, she is eligible to be moved to another pen. Cows not displaying a normal body temperature on days 8, 9, and 10 of lactation should not be moved until they display at least 3 consecutive days of normal body temperature.

A system of chalk marks is often used to alert farm workers to the cow's temperature

status. A green mark may signify normal body temperature and a red mark an abnormal temperature. Marks corresponding to the first 5 days in milk are recorded on the left thurl and those for days 6 through 10 are recorded on the right thurl. Cows requiring more than 10 days in the fresh pen may have additional marks placed on the loin.

Intake of fresh cows may be the most important factor in preventing metabolic disease. Cows that consume adequate amounts of a properly balanced diet are less likely to develop metabolic disorders. Fresh pens should offer at least 28 inches of bunk space per cow and pen dry matter intakes should be about 40 to 45 lb per cow per day. However, averages do not reveal the whole story. Appetites of individual cows in the fresh pen should be monitored daily. Cows should approach the bunk when feed is added and consume an adequate meal. Headlocks at the feed bunk can be a great asset in monitoring appetite of individual cows. If cows fail to come to the bunk and lock-up or they lock-up but do not consume adequate feed in a 30-minute period, potential problems may exist, and further examination may be necessary. Most monitoring programs include evaluation of appetite during the morning feeding.

Rumen motility is an indication of digestive tract function. Cows with metabolic disorders generally have decreased appetites and fewer than normal rumen contractions. If the rumen is contracting less than once per minute, a problem likely exists. Other factors may have already alerted the producer of a problem. However, severity of the problem is greater when rumen contractions have decreased below a critical level.

Some farms may have the ability to monitor daily milk production on individual cows. For cows in their second and greater lactation, one should expect a 10% increase in milk production per day during the first 14 days in milk. For cows in their first lactation, the ex-

pectation might be an 8% increase in milk production per day during the first 18 days. Other producers expect older cows to be producing at least 99 lb of milk by 20 days in milk (or 70 lb for 2-year-olds). Cows not meeting these criteria should be further evaluated. Using milk production information allows continual tracking of cows after they leave the fresh pen. Monitoring milk production allows early detection of problems that may develop in the transition from the fresh pen to a general lactation pen.

Milk or urine ketones can be monitored for early detection of ketosis or to confirm if a cow has ketosis. Most producers do not test each fresh cow for ketosis. Cows appearing sick or having an abnormal body temperature may be tested. During a severe outbreak, every fresh cow may be tested to ensure early treatment. Early effective treatment for ketosis is important for improving recovery.

Putting the Pieces Together

Developing a fresh cow monitoring program is important to the success of any dairy farm. Determine what factors to evaluate, what treatments should be used for each situa-

tion, and implement the plan. Your herd veterinarian should be included in developing monitoring strategies and treatment protocols.

Many farms effectively evaluate fresh cows each morning. Each morning, fresh cows are locked in headlocks at the feed bunk as they return from the milking parlor, where fresh feed is offered. Fifteen to 20 minutes after milking, farm personnel begin evaluating each cow. First, determine which cows did not lock-up. Cows that returned to the pen and went to a stall to lie down may be in the early stages of a metabolic disorder and should be moved to the feed line for further evaluation. Each cow is evaluated for body temperature, general appearance, and appetite. A daily record is noted for each cow. This evaluation procedure may take 1 to 2 minutes per cow. If observations indicate that further evaluation or treatment is needed, additional time may be required. Completing this evaluation will detect most of the metabolic problems associated with fresh cows and facilitate early application of effective treatments. Farms with the capability to monitor daily milk production also should evaluate this information along with daily visual observations of each fresh cow.