

Monitoring Metabolic Disease of Dairy Cows in Bio-economy Context

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SUMMARY

Most of the metabolic diseases of dairy cows - milk fever, ketosis, retained placenta, and displacement of the abomasum - occur within the first two wk of lactation. In addition to metabolic disease, the majority of infectious disease experienced by the dairy cow, especially mastitis, but also diseases such as Johne's disease and Salmonellosis, become clinically apparent during the first two week of lactation. Metabolic disease is the most commonly recognized disease on dairy farms. While the pathogenesis is well known, metabolic disorders continue to occur. Metabolic diseases are associated, with one disease predisposing to another. Evidence suggests that metabolic disease affects host defence, and therefore, impacts the common infectious diseases of dairy cows. Risk for metabolic disease is affected by dietary formulation but is modified by cow behaviour and intake. Regardless of dietary formulation, the cow and management factors on a given farm may determine the impact of metabolic disease. Metabolic diseases are interrelated, so that one disease increases risk for another. The energy-associated diseases include ketosis, displaced abomasum, fatty liver, retained placenta, metritis, and possibly mastitis.

Providing an environment for an adaptive cow response will remain key to health. Dairy advisors must take an active role in promoting quantitative monitoring to assist the producer. In addition to tracking average DMI, monitoring energy balance using milk or blood NEFA or ketone assays may be essential, and may provide an early warning of problems to come. Since disease represents failures (those cows who could not negotiate stress), analysis of disease incidence records must be conducted and compared to known risk factors, including BCS, DMI, pen moves, and concurrent disease. These areas are obvious points where nutritionists and veterinarians can interact in a cooperative relationship.

Subclinical ketosis is an important and common disease in lactating dairy cows. Prevention depends largely on effective dry cow nutrition and management. Given the cost of subclinical ketosis, the fact it is a common problem in early lactation, and the strong association with clinical disease, monitoring programs for subclinical ketosis during the first few weeks of lactation may be warranted. There are several cowside tests for subclinical ketosis available; however all of the current tests have their strengths and weaknesses.

The design and frequency of a subclinical ketosis-monitoring program will depend on the purpose of the program and the frequency of disease within the herd.

Keywords: metabolic disease, cow, bio-economy

ACKNOWLEDGEMENT.

This work was co financed from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/63258 "Postdoctoral school for zootechnical biodiversity and food biotechnology based on the eco-economy and the bio-economy required by eco-sano-genesys".