Management Systems to Improve the Economic and Environmental Sustainability of Dairy Enterprises

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NEED
Maximizing milk production while minimizing monetary and environmental costs are critical to success for dairy farmers. Managing dairy cows during their transition period to lactation remains the most challenging phase of the lactation cycle. Milk production, health and subsequent reproductive performance hinge upon successful transition cow management. Success on farms is a result of an integrated and dynamic set of factors in the dairy herd ecosystem.

APPROACH
To determine the epidemiological relationships between nutritional and non-nutritional management factors and health and performance, 72 dairy farms in New York and Vermont were studied and categorized into six nutritional management strategies based on common prepartum and postpartum nutritional strategies. Farms were visited four times and a cohort of cows at each was intensely studied. The team made characterizations of facilities, grouping management and feeding management to reveal relationships of non-nutritional factors with overall transition cow outcomes.

IMPACT
Nearly 50 percent of dairy herds studied had greater than 15 percent of postpartum cows with elevated concentrations of blood ketones (hyperketonemia), indicative of maladaptation of energy metabolism to lactation. Herds that were fed lower energy diets during the prepartum period had a lower prevalence of hyperketonemia postpartum. Furthermore, the study identified significant opportunities for improved feeding management during the prepartum period on participating farms. The results from the study also indicated meaningful improvement compared to previous work on aspects of energy metabolism and management during the prepartum period on commercial dairy farms.

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