IMPROVING HEALTH AND PRODUCTIVITY IN HOLSTEIN DAIRY COWS DIAGNOSED WITH TWINS: EVALUATION OF FEEDING STRATEGIES

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Introduction: Holstein cattle diagnosed with twins pose difficult managerial decisions. As there is no effective method to reduce the incidence of twinning, it is important to better understand how these metabolically challenged animals should be handled to maximize health and productivity.

Objective: To develop a metabolic profile of Holstein cows carrying twins and then investigate how implementation of a simple on-farm management intervention affected cows with twins.

Materials and methods: A comparison of metabolic status, disease events and milk production was made between cows subject to typical dry-cow feeding management (CON; low-energy diet from dry-off for 5 weeks, followed by a nutrient dense ration for 3 weeks prior to calving) and those exposed to atypical feeding management (AFM; nutrient-dense ration for the entire 8 weeks of the dry period). Thirty-six cows confirmed with twins by transrectal ultrasonography were randomly allocated into CON (n = 19) or AFM (n = 17) groups. Data were analyzed using linear, logistic, and MMANOVA.

Results and discussion: The study yielded baseline levels of serum metabolites (non-esterified fatty acids, β-hydroxybutyrate, cholesterol and total protein) and demonstrated differences in body-weight (BW) profiles between groups. BW of AFM cows declined steadily over the 8-week dry period while that of the CON cows declined slowly over the first 5 weeks and then precipitously after. AFM cows had significantly higher post-partum serum β-hydroxybutyrate (P < 0.0001) and incidence of MASTITIS (P < 0.04). Compared to other cows in the study herd, delivery of twins did not appear to affect milk production; within cows with twins there was no significant effect of diet on milk yields.

Conclusion: The AFM strategy failed to show any beneficial effects on disease events and with limited exceptions did not appear to influence serum metabolites or milk production. Further studies with a larger number of animals across several farms and the inclusion of equivalent groups of cows carrying a single calf may result in more conclusive findings.

Keywords: Bovine, Serum metabolites, Twinning, Ration