

WEANING DAIRY COWS TO A NEW DIET: THE EFFECTIVENESS OF A GRADUAL DRY-OFF PROCEDURE

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Gradual dietary transitions for animals are typically favored over abrupt switches. However, a common method to end the lactation of a dairy cow (i.e. dry-off) is to abruptly switch cows from a high to low energy diet. Gradual weaning at dry-off may be beneficial, but no work has assessed if it is equally effective at reducing milk output. Here we assessed the effect of a gradual versus abrupt switch from a lactating cow diet (60:40 forage:concentrate ratio) to grass hay on dry matter intake (DMI) and milk yield. Four pens of 6 cows were followed for 14d. Cows were paired, with one cow from each of 2 treatments based on parity and previous milk yield. During the first 2d (baseline) both treatments were fed the same lactation diet of 60% forage. Cows on the gradual treatment were switched to a diet 10% higher in forage every 2d until d9; cows on the abrupt treatment were switched directly to 100% forage on d9. Each cow had access to one feed bin that recorded DMI. Data were summarized into 5 periods: Four 2-d periods before treatments were switched to 100% forage and one 4-d period following the switch (d10 to 14). Differences between treatments were tested using Proc Mixed in SAS with the feed bin as the experimental unit and period as a repeated measure. The model included pair, pen, period, treatment and period x treatment interaction. No baseline differences were detected between cows on the gradual and abrupt treatment for milk yield (15.5 ± 1.2 vs. 14.8 ± 1.2 kg/d, $P = 0.74$) or DMI (18.0 ± 0.5 vs. 17.7 ± 0.5 kg/d, $P = 0.67$). The gradual increase in % forage resulted in treatment x period interactions for both milk yield ($P < 0.01$) and DMI ($P < 0.01$); as % forage in the diet increased cows on the gradual treatment produced less milk and had lower DMI than did the cows on the abrupt treatment. After both groups were switched to the 100% forage diet no differences were detected between cows on the gradual and abrupt treatment for milk yield (9.3 ± 0.9 vs. 7.5 ± 0.9 kg/d, $P = 0.17$) or DMI (10.4 ± 0.4 vs. 10.2 ± 0.4 kg/d, $P = 0.64$). These results indicate that a gradual dietary transition at dry-off is as effective at reducing DMI and milk yield as an abrupt switch in diet.