

Optimal Weaning Strategies for High-Milk-Fed Dairy Calves

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When calves are weaned off milk they lose weight and have poor grain intakes the week after. We compared gradual and abrupt weaning of calves fed 12L of milk/day by automated feeders. Forty calves were housed in groups of 4 and weaned at 41day (d) either abruptly or with three gradual weaning strategies: over 4d, 10d or 22 d, with one calf within each group randomly allocated to each treatment, balancing for gender and birth weight.

During the week when their milk allowance was first reduced, the 22d-gradually weaned calves had lower weight gains than the other calves (0.52 vs. 0.97 ± 0.12 kg/d). During the week before weaning, calves on the 22d-gradual and 10d-gradual weaning made more visits to the milk feeder (23.5 ± 2.1 /d; 24.0 ± 2.1 /d) than the 4d-gradual and abruptly weaned calves (13.2 ± 2.1 /d; 9.5 ± 2.1 /d). All gradually weaned calves had lower weight gains (0.32 ± 0.12 kg/d; 0.14 ± 0.12 kg/d; -0.04 ± 0.12 kg/d vs. 0.83 ± 0.11 g/d) ($p < 0.05$) and ate more grain prior to weaning than the abruptly weaned calves ($P < 0.05$). During the week following weaning (d41 – 49), the 22d-gradual and 10d-gradual weaned calves made fewer visits to the milk feeder than the abruptly weaned calves (7.0 ± 2.1 /d; 11.1 ± 2.2 /d vs 14.7 ± 2.1 /d) ($P < 0.05$) and had better weight gains (0.50 ± 0.12 kg/d; 0.17 ± 0.12 kg/d) than the 4d- gradual and abruptly weaned calves (-0.15 ± 0.12 ; -0.26 ± 0.12 kg/d) ($P < 0.05$).

Frequent visits to the milk feeder can be interpreted as a sign of hunger and each weaning strategy resulted in calves being hungry at different periods. Gradual weaning improved grain intakes before weaning. However, gradual weaning that begins too early reduces milk intake but does not increase grain intake sufficiently to compensate. Abruptly weaned calves had the highest weight gains up to weaning but lost most weight after weaning.

Implications: Overall, gradual weaning over 10days results in the least hunger and the best overall response to weaning.