

Effect of Solid Feed Location on Feed Consumption and Growth of Dairy Calves

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Weaning is a very stressful period for a dairy calf. To improve weaning success, it is essential that solid feed intake is encouraged prior to the removal of milk to improve performance and welfare during this transition. The objective of this study was to investigate how the location of solid feed, relative to milk source location, offered to dairy calves affects their intakes and growth during the milk-feeding (d 1-42), weaning (d 43-56), and post-weaning (d 57-70) periods. Sixty Holstein heifer calves were housed in individual pens (152 × 167 cm) and randomly assigned to 1 of 2 treatments: solid feed adjacent to the milk source or solid feed opposite from the milk source within their pen. All calves were offered 12.5 L/d of milk replacer (in 2.5 L meals, 5x/d) by an automated rail milk feeder (AMF) until d 43, when they were gradually weaned off milk by d 57, and were monitored until d 70. All calves had access to ad libitum water located opposite of the milk source from birth and starter ration of concentrate (95%) mixed with chopped (2.54 cm) wheat straw (5%) from d 5. Feed and water intakes were measured daily and milk intakes were recorded automatically by the AMF. Calf BW was measured 2x/wk. Feed adjacent to the milk source tended to result in greater dry matter intake (0.07 vs 0.06 kg/d; $P=0.09$) during the milk-feeding period. Feed consumption did not differ between treatments during the weaning ($P=0.46$) and post-weaning ($P=0.42$) periods. Adjacent treatment calves had greater water intakes during the milk-feeding (0.75 vs 0.55 L/d; $P=0.005$) and post-weaning (10.1 vs 9.3 L/d; $P=0.04$) periods, and tended to consume more water during weaning (2.55 vs 2.12 L/d; $P=0.06$). Greater intakes for the adjacent treatment calves may have contributed to a tendency for greater average daily gain (1.11 vs 1.05 kg/d; $P=0.08$) and greater blood β -hydroxybutyrate levels (0.05 vs 0.04; $P=0.08$) during the milk-feeding period. Growth was similar between treatments for the weaning ($P=0.96$) and post-weaning periods ($P=0.28$).

Implications: The results of this study indicate that placing solid feed adjacent to the source of milk can increase nutrient consumption during the milk-feeding phase. This may set calves up for a more successful weaning period, by encouraging solid feed intake and improving rumen development prior to this stressful transition off milk.