

TECHNICAL NOTE

Dairy Cows with Calves at Foot

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This note discusses the practice of rearing dairy calves on their mothers, as opposed to the more typical industry approach of separating soon after birth and controlling feeding, both within conventional and organic farming models. Interest in this approach largely comes from the general public's concern with separation, and perception of higher standards of animal welfare with a more natural cow-calf bond. Early calf separation has become the industry standard for a mix of economic, productivity, health and welfare reasons; however, preservation of contact between calves and cows can provide several performance enhancements in these categories (Wenker, 2022). Implementation will differ between farms, and there is no one correct way to organise a calf at foot style system. This note highlights the main areas to consider.

Calf Performance and Growth

The typical target for UK calf average daily live weight gain (DLWG) for conventionally reared calves is around 0.7-0.8kg/day (AHDB, 2025), confirmed in a 2022 study of 60 randomly selected farms with an average LWG of 0.78kg/day (Hyde *et al.*, 2022). A Dutch study demonstrated average DLWGs of 1.03kg/day for calves in full contact with dams between birth and 8 weeks of age compared to 0.72kg/day for those separated at birth (Wenker, 2022). Conventional systems typically feed milk at 8-10% body weight daily, calves allowed to suckle freely will consume closer to their biological requirement of 20% (Conneely *et al.*, 2014), which will contribute to this increase in DLWG, equating to approximately 7-8L vs. 14-15L milk, respectively. In addition, several studies have demonstrated the social benefits calves gain from cow contact, as well as enhancing forage intake and promoting rumen development and rumination behaviour (Kälber & Barth, 2014). These factors will enhance the long-term health and performance of calves raised in calf-at-foot systems.

Cow Production and Health

Nursing of calves, unsurprisingly, will result in the collection of smaller milk yields; the exact amount is variable depending on the amount of contact, stage of lactation and milking regime, but ranges between 15 – 55% reduction in milk yield (Barth, 2020). This is in part due to milk consumed by the calves, but there are also concerns associated with the efficacy of milk letdown with part-time suckled calves (Kälber & Barth, 2014). Milk quality changes are subtle and vary between studies with a pattern for decreases in milk fat percentage and an increase in protein (Barth, 2020; Wenker, 2022.), however, further research is required to draw definitive conclusions. One of the main benefits to cow health is reduced mastitis risk, particularly in early to mid lactation. Reductions in California Mastitis Test (CMT) scores are recognised across multiple studies, a review demonstrated, with one study recording Somatic Cell Count (SCC) values 7-18% lower in suckled cows compared to control animals (Beaver *et al.*, 2019).

Weaning Strategies

Prolonged calf-cow contact and development of the maternal bond will result in an unavoidable period of stress when weaning must occur; the exact age of calf and method will vary depending on the individual farm's aims. Use of noseflaps in 3-week-old calves has been compared to gradual reduced contact time with limited differences in stress responses between the two methods employed, and more variation between individual animal responses (Vogt *et al.*, 2025). The post-weaning milk yield of both groups increased by approximately 20-30% compared to pre-weaning, the reduced contact group achieving comparable yields to the noseflap group when limited fence-line contact was introduced (Vogt *et al.*, 2025).

Fenceline weaning of calves has also been studied, comparing the effects of a 4-week physical separation through the use of a fence on four and 6-month-old calves. In the first week post-weaning, average DLWG reduced from approximately 1.3kg/day to -0.4kg/day for each group, but by the second to third weeks, DLWGs had returned to pre-weaning levels (Wegner *et al.*, 2025). The growth check associated with abrupt weaning was found to be more pronounced in the 4-month-old calf group, likely due to their increased nutritional dependence on the dams (Wegner *et al.*, 2025). Cow stress associated with increased step count, vocalisation and reduced rumination was similar for both groups immediately post-weaning, but returned to baseline levels after a week (Wegner *et al.*, 2025).

Practical Considerations

Firstly, colostrum management is of the utmost importance, and even at pasture, close monitoring of calf suckling behaviour is vital; for every extra hour post birth without suckling, the risk of Failure of Transfer of Passive Immunity (FTPI) increases by 1.21 times. The key is early, repeated suckling for maximum protection (Mason *et al.*, 2022). Quality of colostrum is equally important; every 1% rise in the BRIX value equates to a 33% reduction in the risk of FPT (Mason *et al.*, 2022). A large New Zealand study comparing calves that suckled at pasture before early separation had an FPT incidence of 9.6% compared to 27.9% that did not suckle from the dam (Mason *et al.*, 2022). IgG absorption has been shown to be enhanced with dam contact, as well as with extended colostrum feeding (Godden *et al.*, 2019), these effects would be expected with calf-at-foot systems.

Secondly, maintaining calf cow contact with extended suckling will severely limit disease control measures for problems such as TB or Johne's Disease. While not using pooled colostrum or milk to feed calves will reduce potential widespread exposure to disease, individual calves feeding on infected dams will receive significant pathogen challenge. Typical herd disease control strategies must be active on farm, including considering breeding higher-risk animals to only produce beef calves and running separately. Pasture-based systems will reduce exposure to typical pneumonia and diarrhoea challenges associated with dairy calf management; however this is dependent on environmental conditions. Housing dairy cattle with calves at foot will concentrate pathogens, significantly increasing risks of pneumonia, diarrhoea and mastitis.



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