Perspective: Prolonged cow-calf contact—A dilemma or simply another step in the evolution of the dairy industry?

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ABSTRACT

The contentious issue of cow-calf separation at birth is incongruent with many views on acceptable farming practices, and carries the risk of eroding public trust in the dairy industry if it is not addressed. The available evidence provides little support for the practice, but research on best practices for maintaining cow-calf contact in a way that enhances animal welfare while preserving farm profitability is nascent. In this article, the authors address the research questions that require answers to better inform producers and facilitate their decision-making and prepare the dairy industry to take another evolutionary step forward.

PERSPECTIVE

The future prosperity and long-term sustainability of the dairy industry rests on the willingness of consumers to purchase fluid milk and other milk products. This willingness is dependent upon the industry’s ability to retain its social license to operate—which refers to the acceptance, approval, and ultimate trust given by the community of stakeholders who have the power to affect the industry’s ability to be profitable (Zhang et al., 2015).

The dairy industry is, however, increasingly subject to criticism, with much negativity focused on many standard animal care practices that fail to resonate with societal values (Weary and Von Keyserlingk, 2017), including zero-grazing systems (Schuppli et al., 2014), painful procedures (Robbins et al., 2015), treatment of surplus calves (Ritter et al., 2022), tiestall housing (Robbins et al., 2019), and immediate separation of calves from their mothers at birth (Sirovica et al., 2022). A potential consequence of these types of criticism is the erosion of public trust (Sarpong, 2014). Globally, when farm animal industries have failed to respond to social risk, some regions have observed increases in regulatory requirements (i.e., the United Kingdom: https://www.gov.uk/guidance/animal-welfare#legislation; the European Union: https://www.coe.int/t/e/legal_affairs/legal_co-operation/biological_safety_and_use_of_animals/farming/Rec%20cattle%20E.asp#TopOfPage and https://www.coe.int/t/e/legal_affairs/legal_co-operation/biological_safety_and_use_of_animals/farming/Rec%20calves%20E.asp#TopOfPage), whereas, in other regions, the implementation of industry-led best practice guidelines attempts to provide assurance to external stakeholders that food is safe and animals well cared for (see review, von Keyserlingk and Hötzel, 2015). Regardless of which assurance pathway has been implemented, a trend for increased purchases of alternative milk products has emerged (Janssen et al., 2016). This change has been driven in large part by environmental and animal welfare concerns associated with cow milk (Haas et al., 2019).

The fact that dairy cows must have a calf to produce milk, and that this calf is separated within hours of birth, contradicts the pastoral image that most people have of the dairy industry (Ventura et al., 2013; Cardoso et al., 2016). Not surprisingly, the immediate separation of the cow and her calf is highly contentious in multiple regions (Brazil: Hötzel et al., 2017; the United States and Canada: Sirovica et al., 2022; Germany: Busch et al., 2017). Given the disconnect between industry practice and societal values on the issue of immediate separation at birth, we believe that it is an issue requiring careful thought by those working in the dairy industry and, most importantly, a plan on how to proceed. The fact that only limited numbers of studies—in some cases, no studies—have addressed the numerous aspects of managing a cow-calf contact system is worrisome, as this currently limits our ability to advise on how best to house and manage such a system in ways that ensure high standards of animal welfare, while ensuring economic sustainability for the farm business.

Advocates for the age-old management practice of immediate separation, including many farmers and veterinarians (Ventura et al., 2013), cite perceived reasons...
such as reduction in weaning distress by preventing formation of a strong maternal bond; the potential for improved management of colostrum delivery, health, and hygiene; and the ability to limit the volume of milk that calves consume (Sumner and von Keyserlingk, 2018; Meagher et al., 2019). Although the distress of separation in terms of vocalizations is well documented, the intensity of the response varies with the timing of separation and the management employed (Jensen, 2018). The authors suggest that concern over vocalizations and other forms of distress should not drive the decision-making process alone, given that approaches exist that may lessen the negative response (see Jensen, 2018) and that prolonging cow-calf contact may deliver other benefits, including improved cow and calf health, faster growth rates in the calves, and positive emotional effects and social behaviors for both calves and dams (Hopster et al., 1995; Flower and Weary, 2001; Beaver et al., 2019; Meagher et al., 2019).

So, should dairy producers persist with early cow-calf separation in the hope that science supports the practice? Or will the dairy industry continue to evolve, as it has done in the past when it transitioned, for example, from tiestalls to freestalls or from parlor milking to automated milking systems? With evolution comes change; the question is whether the dairy industry has the courage to be forward-thinking and articulate a vision for their industry that could potentially include prolonged cow-calf contact, or simply be reactive and attempt to argue that the status quo of immediately separating cows and calves is “best practice.”

To be clear, the available scientific evidence indicates that early cow-calf separation will not be supported by science (behavior, welfare, production: Meagher et al., 2019; calf and cow health: Beaver et al., 2019), in the same clear way that it determined that the controversial practice of tail docking performed in some countries was unnecessary (Sutherland and Tucker, 2011). Moreover, current standard management practices that involve immediate separation have failed to resolve the issues of failure of passive transfer of immunity and ill health due to diarrhea and pneumonia in young calves; dairy calf morbidity and mortality rates remain astonishingly high (Roche et al., 2023). We are also becoming increasingly aware that rearing dairy calves in the absence of conspecifics during the first months of life leads to a variety of abnormal behaviors, including polydipsia, excessive self-grooming, and abnormal oral behaviors such as tongue flicking (Downey et al., 2022).

There is substantial evidence that prolonged cow-calf contact improves calf growth rates and reduces negative oral behaviors (e.g., cross-sucking; Meagher et al., 2019). The highly protective effect of prolonged cow-calf contact on mastitis (see review by Beaver et al., 2019), taken together with the prediction that increased frequency of suckling may also be protective for metritis, suggests that there may be animal health and farm profitability benefits in providing prolonged contact. Indeed, the collective available evidence suggests that the health of both cows and calves will, in fact, improve—a phenomenon already observed in a growing number of European farms implementing the practice (Eriksson et al., 2022). Of course, the benefits of prolonged cow-calf contact are predicated on good management of the system.

Cows are motivated to reunite with their calves, as evidenced by the willingness of suckled cows, non-suckled cows, and even cows separated from their calves immediately after birth to push weighted gates to reach their calves and perform calf-directed behaviors (e.g., nose contact, licking; Wenker et al., 2020). Prolonged cow-calf contact may also promote more positive emotional states of both calves and cows. For instance, a pessimistic judgment bias (i.e., low mood) was reported in 8-wk-old calves following maternal separation (Dasros et al., 2014). Dairy cows reduce time spent using a mechanical brush in the days following separation from their calf, a finding consistent with the notion that separation induces more negative affective states (Lecorps et al., 2021).

A challenge when undertaking research focused on prolonged cow-calf contact is that housing cows and calves together is indeed complex, with numerous factors determining whether the approach is successful. However, while the calving area and early-postpartum housing will need to be adapted to prolong cow-calf contact, this is considered to be an area of weakness in current housing and management of dairy herds. One-third to one-half of all freestall-housed dairy herds report moving recently calved cows into a sick pen with cows suffering mastitis or other infectious diseases, such as *Mycoplasma* and *Salmonella* (Espadamala et al., 2016; Cook, 2019). Thus, the argument by many in the industry that we must continue to separate calves at birth because it is the “ideal approach” cannot be made in this instance.

That said, questions regarding the implementation of extended cow-calf contact abound. Is partial daily contact between cows and calves sufficient to meet the welfare needs of both cows and calves and retain public trust? Should the duration of prolonged contact be limited to the milk-feeding period of ~8 to 12 wk commonly used by the dairy industry, a considerably shorter time to weaning than would occur in nature (Metz, 1987)? Should we manage bull calves and their dams differently or the same as heifer calves and their dams? What should be done with mothers that have a stillborn calf? How should the area where calves
and cows can commingle be designed, considering the welfare of the animals, hygiene, and ease of handling? What should the creep area, accessible only by the calves, look like? Can existing freestall barns be retrofitted in ways that ensure high welfare? How should calves be weaned from milk while avoiding hunger (De Paula Vieira et al., 2008)? Should milk weaning and separation from the dam occur simultaneously or at different times? Can we reduce weaning distress using approaches adapted from the beef industry, such as fence-line weaning (Price et al., 2003)? What are the key factors to consider when implementing prolonged cow-calf contact in a pasture-based system? What are the effects of prolonged cow-calf contact among dairy cows on periparturient health, milk ejection, estrous cyclicity, and conception rates? Will prolonged cow-calf contact alter the duration of lactations, causing us to rethink the standard calving interval? Should milk-fed calves also be provided an alternative milk source, such as an automated feeder, in lieu of the dam or in addition to being able to suckle from the dam? Such an approach shows promise as a way to reduce the weight loss often seen in the immediate postweaning period in calves (Johnsen et al., 2015, 2016) and may reduce the loss of saleable milk from the cows in early lactation. Are foster (i.e., “nurse”) cows an acceptable alternative? Foster cow systems have been identified by some farmers as a potential step forward when addressing concerns regarding cow-calf separation (Neave et al., 2022), but recent evidence suggests that the public views separation of the calf from the dam as a breach in the farmer’s responsibility regarding duty of care, with foster cows not being considered an adequate replacement (Sirovica et al., 2022).

Additionally, to address producers’ concerns and provide a tool to assist their decision-making, a detailed economic model will be needed to facilitate the discussion. This model needs to evaluate the changes in labor requirements (more labor may be needed to manage the system, but this may be offset by decreases in calf feeding labor), along with the loss in saleable milk from the cows that continue to suckle their calves, balanced against the reduction in the use of milk replacer, the improved growth rates achieved for the calves, and the potential for higher milk yield postweaning, and overall improved health of both cows and calves. Also important, but more difficult to integrate into the economic model, are future losses in sales as a result of eroding public trust if animal care practices fail to resonate with societal values, and the possibility that consumers may pay more for a product from farms practicing prolonged cow-calf contact, or buy less milk if the price has to increase to facilitate this change in management.

Given the growing number of dairy farms exploring ways of providing prolonged cow-calf contact (Eriksson et al., 2022) and the nascent interest in North America (Fox, 2023), we suggest that the dairy industry not shy away from this discussion. Evidence from other industries suggests that the public and industry-external stakeholders recognize that farming is not easy, and hence do not expect change overnight, but they do expect the industry to attempt to get better every day (Benard and de Cock Buning, 2013).

Ideally, for the dairy industry to remain socially and economically sustainable in the long run, research should be addressing questions 10 to 15 years before the answers are needed; indeed, the complex nature of this topic will require more than a single study. Some of these issues—including loss of salable milk, barn design, and distress at separation—are just starting to be explored as cow-calf contact systems gain traction in countries outside North America (Eriksson et al., 2022; Hansen et al., 2023). However, most of this research has been performed on research farms or commercial farms that are much smaller than typically seen in the United States, where approaches must be adapted to handle hundreds to thousands of calves born each year. Scalability of research findings will also need to be evaluated. That said, well-conceived and well-executed research, avoiding pseudo-replication and performed with an adequate power analysis, can play a key role in helping to identify practices that work, as well as those that do not. We also strongly encourage researchers to collaborate with farmers who are already keeping cows and calves together during the milk-feeding period, as the experiences of these producers can provide valuable lessons regarding which specific combinations of practices can be successful, as well as identifying the main challenges faced when adopting this system (see Neave et al., 2022).

All of this begins with a general acceptance that we need to find alternatives to those aspects of our current management practices that fail to resonate with societal values (Weary and von Keyserlingk, 2017). This is a major first step, but one that we feel is necessary and inevitable for the continued maintenance of public and consumer trust. We also argue that the industry needs decision-making support and answers to the questions outlined, and, above all else, needs to act sooner rather than later. Researchers will need time to identify optimal approaches and identify the best way forward for farmers wanting to implement a cow-calf contact system. This is not merely a case of stopping doing something that was unnecessary, as was the case with tail docking. In this instance, we must find a new path forward to achieve something that has positive
outcomes for the animals, the farm business, the dairy industry, and the wider community—and that is far more challenging.

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