

“Hiding Her Milk”? What Science Reveals About Cow–Calf Contact Systems

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Introduction

For more than a century, one management practice has remained virtually unchanged in modern dairy farming: separating the cow and calf shortly after birth. This approach allows producers to control colostrum intake, monitor calf health, reduce disease transmission, and maximize the amount of milk available for sale. As dairy farms became larger and more specialized, early separation evolved from a practical management decision into the standard production system adopted throughout much of the world.

Today, however, this long-established practice is being reexamined. Growing public interest in farm animal welfare, particularly in Europe, has stimulated renewed interest in cow–calf contact systems, in which dairy cows continue to be machine milked while nursing their calves for part or all the day. Rather than asking whether these systems are biologically possible, researchers are now evaluating whether they can successfully balance animal welfare with the productivity, efficiency, and profitability required by commercial dairy farms.

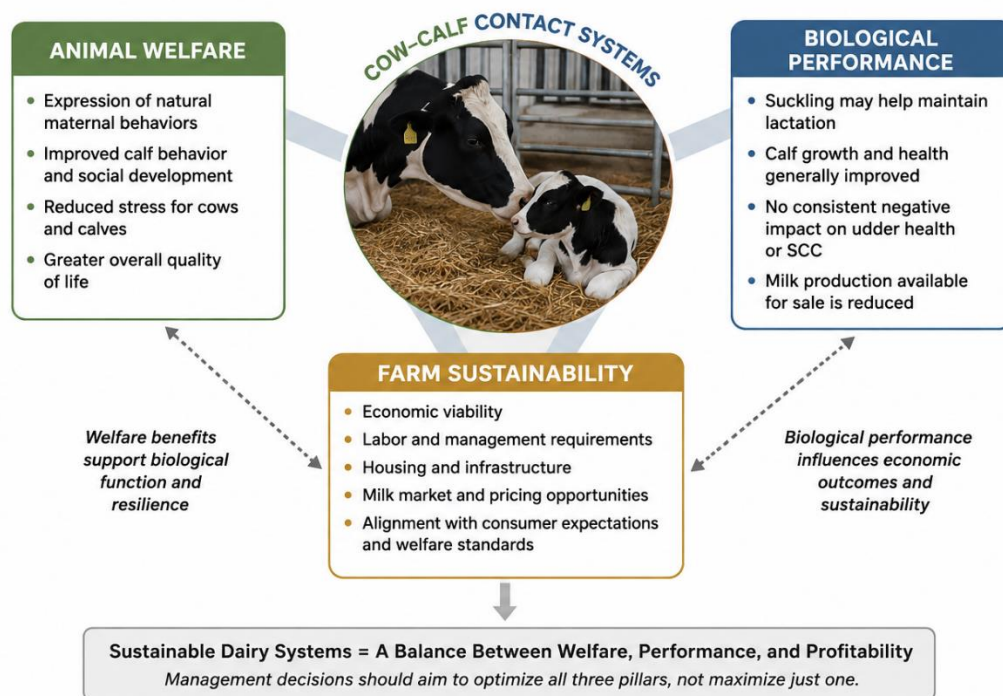


Why Is the Interest Growing?

The renewed interest in cow–calf contact systems reflects changing expectations regarding livestock production. Consumers increasingly expect farm animals to express natural behaviors, and early cow–calf separation has become one of the most visible management practices discussed in the public arena. As described previously (Garcia, 2025), Europe has led much of this movement by supporting research into alternative calf-rearing systems that combine machine milking with varying degrees of maternal contact.

More importantly, the discussion has shifted from philosophy to science. Rather than debating whether cows and calves should remain together, researchers are evaluating measurable outcomes including milk production, calf growth, udder health, behavior, labor requirements, and farm economics. This change has transformed an emotional discussion into a practical question: Can cow–calf contact systems work under commercial dairy conditions?

Figure 1. Balancing Animal Welfare, Biological Performance, and Farm Sustainability in Cow–Calf Contact Systems



What Does Science Tell Us?

The growing body of research suggests that the answer is more complex than either supporters or critics initially expected. Cow–calf contact systems offer measurable benefits, but they also introduce practical challenges that must be addressed before widespread adoption becomes feasible.

Long before researchers began studying cow–calf contact systems, many dairy producers questioned whether cows could be successfully milked while nursing their calves. I still remember farmers telling me, "*Las vacas esconden la leche*" ("The cows hide their milk"). Although the expression is anthropomorphic, it reflects a biological phenomenon that science has helped explain.

Milk harvested during machine milking depends not only on how much milk the cow produces but also on the efficiency of milk ejection. Approximately one-quarter of the milk present in the udder is immediately available in the cistern, whereas most remains stored within the alveoli and requires the release of oxytocin before it is let-down. Under conventional management, udder preparation stimulates this response. In cows nursing calves, however, the calf itself becomes a powerful trigger for oxytocin release.

Some cows therefore release milk more readily during suckling than during machine milking. As a result, milk flow may be reduced, more residual milk remains in the udder, and additional milk is released only when the calf nurses. In that sense, the farmers' observation that cows "hide their milk" was remarkably perceptive, they were describing a biological phenomenon long before science had fully explained it.

This distinction helps explain one of the most misunderstood aspects of cow–calf contact systems. Machine-obtained milk generally declines because calves consume part of the milk produced and because milk ejection may be less complete during mechanical milking. However, reduced saleable milk should not automatically be interpreted as reduced biological milk production.

Zipp and Knierim (2024) compared conventional management with half-day and whole-day cow–calf contact systems and found that half-day contact resulted in substantially more saleable milk than continuous contact because calves consumed less of the available milk. Partial-contact systems may therefore offer a practical compromise between allowing natural nursing behavior and maintaining milk income.

Calf Development and Udder Health

Perhaps the strongest evidence supporting cow–calf contact systems relates to calf behavior. Calves raised with their dams spend more time nursing naturally, receive maternal grooming, and develop normal social behaviors earlier than calves separated shortly after birth. Many studies also report greater preweaning growth, although the magnitude of this response depends on milk intake, duration of contact, and overall herd management.

Equally important is what research has not found. One of the traditional concerns surrounding cow–calf contact has been the possibility of increased mastitis or elevated somatic cell count (SCC). Current evidence does not consistently support this assumption. Under well-managed conditions, cows nursing their calves generally maintain udder health comparable to conventionally managed cows. Milking hygiene, housing, teat condition, and overall herd management remain far more important determinants of udder health than calf suckling itself.

Table 1. What Current Research Suggests About Cow–Calf Contact Systems

Question	Current evidence
Saleable milk	Usually decreases because calves consume part of the milk.
Total milk production	May be maintained despite lower harvested milk.
Calf growth and behavior	Generally improved, particularly before weaning.
Somatic cell count	No consistent increase has been demonstrated.
Udder health	Appears management-dependent rather than contact-dependent.
Greatest challenge	Integrating welfare with practical farm management.

The Remaining Challenge Is Management

If the biological evidence supporting cow–calf contact systems continues to grow, why have relatively few commercial dairy farms adopted them?

The answer is that biological feasibility alone does not determine whether a management practice becomes widely adopted. Successful innovations must also be economically sustainable, practical to implement, and compatible with existing dairy facilities.

Every liter of milk consumed by the calf is unavailable for sale, requiring producers to balance reduced milk income against potential benefits such as improved calf growth, reduced milk replacer use, or access to value-added markets. Housing also represents an important limitation because most commercial dairies were designed around early cow–calf separation. Managing nursing schedules, gradual weaning, and altered milk let-down further increases labor and management complexity.

These practical challenges are highlighted in the review by Leliveld and Battini (2026). Interestingly, farmers already using cow–calf contact systems generally report more positive experiences than producers without direct experience, suggesting that some perceived barriers result from limited familiarity rather than biological limitations. At the same time, genuine challenges, including separation distress, economic viability, and facility design, remain important priorities for future research.

The authors conclude that the next stage of development should focus less on demonstrating welfare benefits, which are becoming increasingly well documented, and more on developing practical management strategies, improving economic evaluations, and strengthening knowledge transfer to producers.

Looking Ahead

Cow–calf contact systems should not be viewed as a return to traditional dairy farming or as a criticism of conventional management. Rather, they represent another example of how dairy production continues to evolve as scientific knowledge, practical experience, and societal expectations reshape management decisions.

Current evidence suggests that these systems can successfully promote natural maternal behavior and improve aspects of calf development without consistently compromising udder health. The remaining questions are no longer primarily biological. They involve designing management systems that successfully integrate animal welfare, labor efficiency, housing, milk production, and farm profitability.

As with many innovations in dairy farming, the future of cow–calf contact systems will ultimately depend not only on scientific evidence but also on the industry's ability to translate that knowledge into practical, economically sustainable management solutions.

Further reading

Garcia, A. 2025. Raising Calves with Their Dams: Tradition or Innovation? *Dellait Animal Nutrition and Health*. <https://dellait.com/raising-calves-with-their-dams-tradition-or-innovation/>

Leliveld, L. M. C., and M. Battini. 2026. "Invited Review: Barriers and Potential Strategies in the Implementation of Cow–Calf Contact Systems—Insights from Dairy Cattle Farmers and from Other Livestock Production Systems." *Journal of Dairy Science* 109(4):3113–3136. <https://doi.org/10.3168/jds.2025-27350>

Zipp, K. A., and U. Knierim. 2024. "Effects of Whole-Day versus Half-Day Cow–Calf Contact on Cows' and Calves' Performance." *Animal* 18(10):101318. <https://doi.org/10.1016/j.animal.2024.101318>