

# The True Costs of Milking

## Why Modern Dairy Farms Need to Reevaluate Their Milking Technology

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*An analysis by European Dairy Farmers using data from 330 dairy farms reveals a surprising picture: It is not the level of milking costs that distinguishes successful farms from less successful ones—but rather how labor, capital, and management interact.*

For decades, there has been a passionate debate in the dairy industry about which milking system is economically superior. Milking robots or milking parlor? Side-by-side or herringbone? Carousel or swing-over?

These debates are often emotional. Manufacturers present impressive profitability calculations, farmers share personal experiences, and consultants advocate different philosophies.

A recent analysis by European Dairy Farmers (EDF) now puts the discussion on a factual footing. It is based on data from 330 dairy farms across 18 national EDF groups and reaches a conclusion that is likely to surprise many: The actual milking costs differ significantly less than the tone of the debate would suggest. What matters much more is how these costs are broken down.

This is precisely where the actual business analysis begins.

### Milking is surprisingly inexpensive—only eight percent

Many farm managers estimate the costs of milking to be significantly higher than they actually are. The EDF analysis shows that, on average, the entire milking process accounts for only about eight percent of total production costs.

This is surprising. After all, hardly any other area of work receives as much attention in day-to-day operations as milking. Several hours of work are devoted to it every day. Expensive equipment is involved. And any downtime has immediate consequences for animal health and milk production.

Nevertheless, the share of total costs remains comparatively low. However, this does not mean that milking is unimportant. Quite the contrary.

### Why Milking Shapes the Entire Operation

The true significance of milking lies less in its direct costs than in its impact on nearly every other aspect of the farm. A well-functioning milking system influences work organization and staffing needs, animal traffic and estrus detection, udder health and feeding management—and, not least, the flexibility of work schedules and thus the quality of life for the farm manager's family.

As a result, the choice of milking technology is increasingly shifting from a purely investment-based decision to a management decision. Those who focus solely on the price of the system are missing the bigger picture.

## Surprisingly Small Cost Differences

When comparing the various milking systems based on the cost per kilogram of energy-corrected milk (ECM), the range is remarkably narrow:

| Milking system                      | Total costs (ct/kg ECM) | of which labor (ct/kg ECM) |
|-------------------------------------|-------------------------|----------------------------|
| Rotary milking system               | 4.1                     | 3.1                        |
| Automatic milking system (AMS)      | 4.4                     | 1.4                        |
| Side-by-side                        | 4.5                     | 3.6                        |
| Herringbone                         | 4.5                     | 3.9                        |
| Swing-Over                          | 4.8                     | 3.9                        |
| <b>All establishments (average)</b> | <b>4.7</b>              | <b>3.1</b>                 |

*Source: EDF Cost of Production Comparison 2025 (2024/25), 330 farms. Values rounded.*

The difference between the cheapest and most expensive systems is only about 0.7 cents per kilogram of ECM. That is significantly less than many discussions suggest.

For a farm producing two million kilograms of milk annually, this difference amounts to about 14,000 euros per year. While this is certainly economically significant, it is by no means the vast difference often implied in policy debates. In any case, this margin alone does not determine a farm's success.

## The cost structure shifts

The analysis becomes truly interesting when we look beyond the total figure. This is because the individual systems achieve their similar cost levels through completely different means.

This is most evident with the automated milking system. While an average farm in the EDF network spends about 3.1 cents per kilogram of ECM on labor, the cost for a milking robot is only about 1.4 cents—less than half. On the other hand, the investment costs (about 1.5 cents versus 0.8 cents) and maintenance costs (also about 1.5 cents versus 0.8 cents) are significantly higher.

With traditional milking parlor systems, the situation is exactly the opposite: lower investment and maintenance costs, but a noticeably higher labor share. The herringbone and swing-over systems, for example, require the most labor at around 3.9 cents per kilogram of ECM.

The milking system therefore determines not so much the level of costs as their distribution.

## Capital Instead of Labor—The Real Decisive Factor

This brings into focus a decision that extends far beyond milking technology. The milking robot replaces a significant portion of human labor with capital and maintenance. Put simply: labor time is exchanged for investment.

Whether this trade-off is worthwhile depends not only on the amounts in cents, but also on the farm's specific context. In regions with high and rising wages, the math works out differently than in areas where

labor is comparatively inexpensive. The seemingly small difference in the overall result thus masks two fundamentally different business strategies.

## **The Labor Factor Changes the Equation**

This is likely the most important message of the entire analysis. Many cost-effectiveness comparisons focus exclusively on euros and cents. They ask: Which system is cheaper?

However, the more crucial question is increasingly: Is there even enough qualified personnel available? In many regions of Europe, the answer is now: hardly any.

This shifts the entire calculation. A milking robot does not necessarily save money—above all, it reduces dependence on labor. This effect has real economic value that traditional cost calculations fail to adequately reflect. Where reliable milking labor is simply unavailable, automation shifts from being an option to a prerequisite for continuing operations at all.

## **Management Trumps Technology**

Another finding from the EDF study further puts the system debate into perspective. It has long been known from international farm comparisons that differences within a group are often greater than those between groups. Applied to milking technology, this means that successful and less successful farms often differ more significantly when using the same milking system than the systems differ from one another.

In other words: A superbly managed side-by-side milking parlor can operate more efficiently than a poorly organized robotic milking system. Conversely, an optimally managed milking robot can clearly outperform traditional milking parlors.

So technology alone does not determine success. Management remains the decisive factor.

## **What Really Matters in the Future**

The decision regarding a milking system should therefore be based on much more than a simple cost comparison. Factors such as labor availability, farm size and growth prospects, animal health, data utilization, and the desired level of automation—and, finally, the flexibility of working hours and the quality of life for the farm family—are becoming increasingly important.

The last two points, in particular, are often underestimated. After implementing automation, many farm managers report not primarily higher profits, but rather greater predictability in their daily routines. This benefit also has economic value—it just doesn't appear in standard cost calculations.

## **From Milking System to Data Hub**

The next stage of development likely lies not just in the choice of milking system, but in its intelligent networking. Modern milking robots already provide continuous data on conductivity, rumination activity, milk yield, milking speed, visit frequency, and other health indicators.

This information is increasingly forming the basis for automated management decisions. As a result, the milking robot is evolving from a mere milking system into the central data hub of the entire dairy farm. The economic value then lies not only in the labor saved, but also in the earlier detection of problems and in better decisions.

## Conclusion

The EDF analysis refutes some common assumptions. The direct costs of the various milking systems differ significantly less than is often assumed. The real difference lies in the distribution of costs: Automatic milking systems replace labor with capital and maintenance, while traditional milking parlor systems require lower initial investment but incur higher labor costs.

Therefore, the decisive factor for the future will not be solely which milking system incurs the lowest costs. What will be crucial is which system best suits the specific farm—its available labor, growth strategy, and management style.

The most important insight, therefore, is this: It is not the milking technology that determines economic success, but rather the farm manager's ability to optimally integrate technology, work organization, and herd management.

### About the Data

The figures are taken from the EDF Cost of Production Comparison by European Dairy Farmers—an international farm comparison that evaluates dairy farming across national borders on a full-cost basis. The analysis cited here covers 330 farms from 18 national EDF groups for the 2025 fiscal year (2024/25). The full-cost approach also takes into account imputed costs such as family labor, owned land, and tied-up capital. The sample is deliberately non-representative; rather, it reflects specialized, above-average farms.

## About the Author

Helmut Demmelhuber is a management consultant based in Tübingen, Baden-Württemberg, and an expert in the use of artificial intelligence in cattle breeding. He grew up on a Bavarian dairy farm and has been actively involved in Holstein breeding again since 2025. He advises breeders and breeding organizations on the practical integration of AI into cattle breeding.

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