

Which Breed Fits Which Farm?

Holstein, Fleckvieh, Jersey and Braunvieh in an economic comparison

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Breed choice used to be largely a matter of region, tradition or simply what the local AI organization had to offer. Today it is a strategic decision – with measurable economic consequences. Holstein, German Fleckvieh (German Simmental), Jersey and Braunvieh/Brown Swiss pursue fundamentally different breeding goals. Put the wrong animals in the wrong barn and you lose money. Choose the right ones and you gain stability and returns.

Four breeds – four concepts

Choosing the right breed is one of the most far-reaching management decisions in dairy farming. It affects not only production and genetics, but reaches deep into farm economics: feed costs, replacement rate, calf revenue, health costs – all of these are directly linked to the breed.

Four breeds dominate the dairy industry in the German-speaking countries, and each pursues a clearly different concept.

Holstein – maximum milk production backed by functional traits

Holstein is the highest-producing dairy breed in the world. A genetic potential of 10,000 kg of milk (about 22,000 lb) and more is standard today, and top animals clearly exceed that mark. Modern breeding programs have long gone beyond simply increasing volume: fertility, productive life, udder health and metabolic stability are an integral part of the breeding goals – in Germany reflected in RZG, the German relative total merit index, and internationally in TPI and LPI.

The decisive factor with Holsteins: the breed is less forgiving of management mistakes. Variable forage quality, gaps in reproductive monitoring or inadequate observation of the animals quickly show up as rising veterinary and replacement costs. Anyone who wants to succeed with Holsteins needs a consistently run management and health system.

German Fleckvieh – the economical all-round cow

German Fleckvieh follows a fundamentally different concept: balance between milk, beef and fitness. With production of 7,000 kg (about 15,400 lb) to more than 10,000 kg of milk combined with strong fattening performance, the breed offers a combination that is underrated in comparisons based purely on liters.

Particularly relevant: Fleckvieh calves fetch considerably higher prices on the market than Holstein calves. On farms where calf revenue plays a significant role, the gross margin model shifts considerably in favor of Fleckvieh. On top of that comes a high level of robustness that cushions management mistakes better.

Jersey – efficiency and milk components in focus

Jersey cows produce less volume at around 7,000 kg of milk, but score with extremely high components: around 6% fat and over 4% protein. In component-based payment systems and in marketing to cheese plants, these are decisive advantages.

Their small body size noticeably reduces maintenance costs. Jerseys are considered particularly feed-efficient – an argument above all for pasture-based or feed-limited systems. The downside: lower calf and cull cow values, and a clear disadvantage when milk is paid primarily by volume.

Braunvieh / Brown Swiss – longevity and protein yield

Braunvieh and Brown Swiss occupy a middle position, with a clear focus on protein and productive life. The breed scores especially well on lifetime production: Where Holstein cows are often replaced after three to four lactations, well-managed Braunvieh herds stay productive longer.

The economic advantage often shows up only in a multi-year calculation: lower replacement costs, stable herd health and a favorable casein profile for cheese making add up over the lactations.

Direct comparison: strengths, weaknesses and farm focus

The following overview summarizes the key differences between the four breeds:

Breed	Breeding goal	Main strength	Farm focus	Distinctive feature
Holstein	Milk production + function	Maximum milk	Intensive operation	Fastest genetic gain
German Fleckvieh	Balance of milk/beef/fitness	Versatility	Mixed systems	Highest calf revenue
Jersey	Efficiency + components	Fat & protein	Grazing / efficiency	Highest feed efficiency
Braunvieh/BS	Protein + longevity	Productive life	Sustainable systems	Best cheese suitability

Table 1: Comparison of the four most important dairy breeds by breeding goal, strength and area of use on the farm.

Economic assessment: a simplified scoring model

For a practical farm comparison, a simple scoring model works well: each breed receives 1 to 5 points per criterion. The comparison does not replace an economic analysis – it makes the logic behind the decision transparent.

Criterion	Holstein	Fleckvieh	Jersey	Braunvieh
Milk volume	5	3	2	3
Fat / protein	3	4	5	5
Feed efficiency	3	4	5	4
Calf revenue	2	5	2	3
Health stability	3	4	4	5
Productive life	3	4	4	5
Management demands	2	4	4	4

Table 2: Simplified scoring model for comparing breeds (1 = low, 5 = very strong). Interpretation: the majority of points in a column shows the advantage of the respective breed.

The most profitable breed is not the same everywhere. It is the breed that best fits the payment system, the feed base, the barn and the management.

Gross margin decides – not lactation yield

A common mistake in breed comparisons: looking only at milk volume. What matters is the gross margin per cow per year – and that is the result of several levers.

- Milk revenue (volume × price, depending on the payment system)
- Calf revenue and pro-rated cull cow revenue
- Feed and forage costs
- Animal health and breeding costs
- Replacement costs as a function of productive life

Holstein wins the comparison on milk volume – but loses on health and fertility costs when management has gaps. Fleckvieh scores through its broad revenue base. Jersey convinces in component-based systems and falls behind where milk is paid by volume. Braunvieh often shows its strength only in the multi-year average, through low replacement rates and stable health.

Which breed for which farm?

The farm analysis should start from four key questions:

- Marketing: Is milk paid by volume or by components? Are calf prices a relevant source of revenue?
- Feeding: Is an intensive feeding system with high-quality silages available – or is the farm forage-based?
- Management: Is consistent fertility and health management in place, or does the farm rely on robustness and low-intervention management?

- Location: Intensive freestall operation, grassland site or grazing system?

From these four parameters, the choice of breed follows almost automatically. Anyone who analyzes all four factors consistently will not make bad decisions.

Opportunities and clear limits

Where monoculture becomes risky

In practice, purebred herds are the norm – but not always the optimum. Farms that commit their entire herd to a single breed without questioning their production system risk structural mismatches. A Holstein herd on a poorly managed farm with weak forage quality will deliver poor results in the long run – not because of the breed, but because of the mismatch between genetics and the reality of the farm.

Crossbreeding as a strategic option

For farms that are struggling with specific fertility or health problems, crossbreeding can be a legitimate short-term strategy. Holstein × Jersey or Holstein × Fleckvieh show measurable heterosis effects in fertility and lifetime production. However: crossbreeding requires a clear rotation concept and a long-term breeding program – otherwise the genetics risk becoming blurred over several generations.

Conclusion: genetics deliver production – the system decides profit

The breeding goals of modern dairy breeds are clearly focused on economics, but they differ fundamentally in their priorities. Holstein optimizes for maximum milk volume, Fleckvieh for balance, Jersey for efficiency and components, Braunvieh for stability and longevity.

What matters is not the search for the "best" breed – that question is the wrong one. What matters is the question of the right combination of genetics and farm strategy: Which breed works most efficiently in my system? Which animals deliver the highest gross margin under my specific conditions?

Don't choose the best breed – choose the one that fits the farm best.

Anyone who answers this question consistently and aligns breed choice with the payment system, feed base and management will be economically successful in the long run – regardless of which breed is on the farm sign.

About the author

Helmut Demmelhuber is a management consultant based in Tübingen, Baden-Württemberg, Germany, and an internationally active sire analyst for Holstein cattle. He grew up on a dairy farm in Bavaria and has been actively breeding Holsteins again since 2025. He advises breeders and breeding organizations on breeding strategy, farm management and the integration of digital tools into everyday practice.

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