

Quality Feed, Quality Milk: The Foundation of Healthy Dairy ProductionDr. Rita Sandhu¹ and Balraj Sandhu²**Introduction:**

Milk is considered as the most complete food because it provides proteins, carbohydrates, fats, vitamins, minerals, and numerous bioactive compounds essential for human health. However, the quality of milk begins long before it reaches the consumer—it starts with what the dairy animal eats. Feed is not merely a source of energy for milk production; it determines the nutritional composition, flavour, safety and processing quality of milk. A healthy animal receiving a balanced diet produces milk that is richer in nutrients, more suitable for manufacturing dairy products, and safer for consumers. Modern dairy farming therefore emphasizes the principle: "Feed the animal well to nourish the nation."

Feed: The Primary Determinant of Milk Quality

The productivity and health of dairy animals depend on a balanced ration containing:

- ☞ Green fodder
- ☞ Dry fodder

- ☞ Concentrate mixture
- ☞ Protein supplements
- ☞ Mineral mixture
- ☞ Vitamins
- ☞ Clean drinking water

Each component performs a unique function. Green fodders provide vitamins, antioxidants, and digestible nutrients; dry fodders maintain rumen health through adequate fibre; concentrates supply energy and protein for milk synthesis; minerals and vitamins support metabolism, immunity, and reproduction.

A deficiency or imbalance in any of these nutrients immediately affects milk yield and quality.

Influence of Feed on Milk Composition

The nutrients consumed by dairy animals are converted into milk components through complex metabolic processes.

⇒ **Milk Fat:** Adequate fibre in the diet promotes rumen fermentation, leading to higher milk fat percentage. Diets deficient in fibre may reduce milk fat content.

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⇒ **Milk Protein:** High-quality protein sources such as soybean meal, mustard cake, and cottonseed cake improve milk protein content and increase the production of casein, an important protein for cheese making.

⇒ **Lactose:** Energy-rich diets support lactose synthesis, which regulates milk volume.

⇒ **Vitamins and Minerals:** Green fodder increases the levels of vitamins A, E, and natural antioxidants in milk. Proper mineral nutrition improves calcium and phosphorus balance in milk.

Feed and Milk Fatty Acid Profile

Modern consumers are increasingly interested in healthier milk containing beneficial fatty acids.

Animals fed on fresh pasture or high-quality green fodder generally produce milk with:

- ⇒ Higher omega-3 fatty acids
- ⇒ Increased conjugated linoleic acid (CLA)
- ⇒ Better antioxidant content
- ⇒ Improved flavour and nutritional value

In contrast, poor-quality or imbalanced feeding may reduce these beneficial components.

Effect on Milk Flavour and Aroma

Feed has a noticeable influence on the taste and smell of milk. Fresh green fodder

generally imparts a pleasant flavour, whereas feeding spoiled silage, mouldy feed, onion, garlic, or certain weeds shortly before milking may produce undesirable odours and flavours. Proper feed storage and hygienic feeding practices help maintain the natural freshness of milk.

Feed and Milk Safety

Safe feed is essential for producing safe milk. Contaminated feed can introduce harmful substances into milk.

Potential contaminants include:

- ⇒ Mould toxins (aflatoxins)
- ⇒ Pesticide residues
- ⇒ Heavy metals
- ⇒ Harmful microorganisms

These contaminants may pose health risks to consumers and reduce market value.

Therefore, dairy farmers should always use clean, fresh, and properly stored feed.

Importance of Mineral and Vitamin Supplementation

Mineral deficiencies affect both animal health and milk quality.

Supplementation with balanced mineral mixtures:

- ⇒ Improves milk yield
- ⇒ Enhances reproductive efficiency
- ⇒ Strengthens immunity
- ⇒ Reduces metabolic disorders
- ⇒ Maintains milk composition

Vitamins A, D, and E are particularly important for udder health and milk quality.

Feeding Management Practices for Better Milk

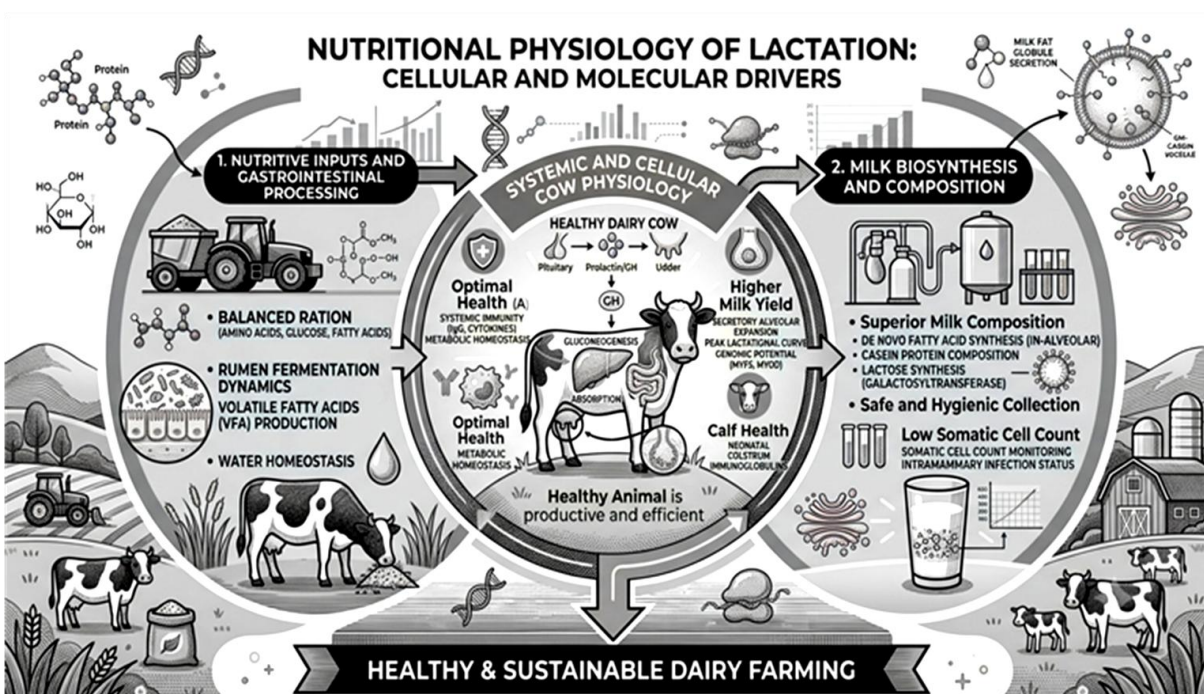
Good feeding management is as important as feed quality itself.

Follow proper feeding schedules.

Economic Benefits of Good Feeding

Balanced feeding offers multiple advantages:

- Higher milk production
- Better milk quality
- Increased fat and protein content



Farmers should:

- Provide balanced rations according to the stage of lactation.
- Ensure continuous access to clean drinking water.
- Supply adequate green fodder and fibre.
- Avoid sudden changes in diet.
- Store feed under dry and hygienic conditions.
- Discard mouldy or spoiled feed.
- Include mineral mixture and common salt regularly.

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- Improved processing characteristics for cheese, butter, and yogurt
- Better animal health and fertility
- Reduced veterinary expenses
- Higher income for dairy farmers

Conclusion

Feed is one of the most important factors determining milk quality. Nutritious and balanced feeding not only improves milk yield but also enhances its nutritional value, flavour, safety, and processing characteristics. As consumer demand for high-quality dairy products continues to grow, scientific feeding

practices have become essential for profitable and sustainable dairy farming. By investing in quality feed and proper feeding management, dairy farmers can produce healthier animals, superior milk, and greater economic returns while ensuring safe and nutritious dairy products for consumers.

References:

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