

Feed Wisely, Save More: Value Addition Practices to Reduce Feed Costs

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Abstract

Feed is one of the biggest recurring expenses in dairy farming, but does higher feed spending always mean better production? Seasonal fodder shortages, feed wastage and poor use of available resources can raise feeding costs without providing equivalent benefits. Economical feeding means getting greater value from available feed resources while meeting the nutritional needs of animals. The article covers year-round fodder planning, multi-cut fodders, fodder trees, timely harvesting and conservation of surplus fodder. It also discusses improving crop residues, using local feed resources, balancing rations, mineral supplementation and reducing feeding wastage. The suitability of Azolla and hydroponic fodder, along with proper feed quality management and adequate nutrition of calves and dry animals, is also highlighted. The focus is on practical feed management that can reduce unnecessary expenditure, limit losses and help farmers get more value from every unit of feed.

Introduction

Every day, a dairy farmer has to make a simple but important decision: **What should I feed my animals today, and how can I keep the cost of feeding under control?** Green fodder may be plentiful in one season but difficult to obtain a few months later. Purchased concentrates can be expensive, while crop residues and surplus fodder may be lost through poor harvesting, storage or feeding practices. These routine decisions directly affect milk production, animal health and farm income. Feed is one of the major recurring expenses in dairying, accounting for around 70% of total dairying expenses. However, higher spending on feed does not always mean better nutrition. Feed wastage, seasonal shortages, poor-quality fodder and improper ration formulation can increase costs without providing corresponding benefits.

Economical feeding does not mean simply reducing the quantity of feed. It means using available resources more efficiently, reducing avoidable losses and supplying the nutrients

animals need at a reasonable cost. This can be achieved through practical value-addition practices such as timely fodder production, chopping and conservation of surplus fodder, improving suitable crop residues, using safe local feed resources, balancing rations and providing essential mineral supplementation. Together, these practices can help farmers obtain greater value from the feed resources already available on the farm.

1. Plan Fodder Production for the Whole Year

Green fodder availability changes with the season. When fodder becomes scarce, farmers may have to depend more on purchased feed, increasing the cost of dairy farming. Therefore, fodder production should be planned before the shortage occurs, rather than only when animals need more feed.

A simple seasonal plan can help maintain a regular supply. During Rabi, crops such as berseem and oat can provide nutritious green fodder. In Kharif, sorghum and cowpea can be included, while during summer, maize, sorghum, Sudan grass or suitable perennial fodders can be used depending on local conditions. Combining seasonal crops with multi-cut and perennial fodders can further reduce gaps between harvests. The important point is to prepare a year-round fodder calendar according to local climate, land, water availability and herd requirements. Planning fodder in advance not only helps reduce dependence on purchased feed but also makes better use of available land and farm resources.

2. Multi-Cut Fodders: More Green Fodder from Limited Land

When land is limited, multi-cut and perennial fodders can help farmers obtain green fodder through repeated harvesting from the same area. Hybrid Napier, Super Napier and multi-cut sorghum are examples that can provide multiple harvests when suitable soil, water and management conditions are available.

Recent field-level initiatives by ICAR-Central Coastal Agricultural Research Institute (ICAR-CCARI), Goa have also highlighted Super Napier for year-round green-fodder production under suitable conditions. However, actual fodder yield depends on factors such as soil fertility, irrigation, crop management and timely cutting. Farmers should therefore select fodder varieties that are well suited to their local conditions. Regular care and timely harvesting can help farmers obtain more usable green fodder from limited land.

3. Fodder Trees: A Strategic Resource for Feed Security

Fodder trees can provide an additional source of green feed, particularly during periods when regular fodder is scarce. Mulberry, moringa, Pakar (Pilkhan), Subabul and Sesbania are some examples that may be suitable depending on the local climate and growing conditions. They can be planted along field boundaries, bunds and other suitable underutilized spaces.

Tree leaves can add useful nutrients to the feeding system while also making better use of



available farm space. However, they should be treated as a supplement rather than a complete replacement for green fodder, dry fodder or concentrates. Their nutritional value varies with species, leaf maturity and growing conditions, and some species may contain anti-nutritional compounds. Farmers should select locally suitable species, introduce tree leaves gradually and use them as part of a balanced ration rather than relying on a single fodder source.

4. Harvest Fodder at the Right Stage

More fodder does not always mean more useful nutrition. The stage at which fodder is harvested affects its nutrient content, fiber level and digestibility. As plants mature, fiber generally increases and digestibility may decline. Therefore, fodder should be harvested at the stage recommended for the particular crop to obtain good nutritional value (Kumar *et al.*, 2018).

Harvesting too early may reduce total yield, while harvesting too late can result in more mature, fibrous fodder of lower feeding value. The best stage varies among fodder crops, so farmers should follow local crop-specific recommendations.

5. Convert Surplus Fodder into a Feed Reserve

Surplus fodder should be conserved for use during lean periods instead of being allowed to go to waste. This can reduce seasonal feed shortages and the need to purchase feed when green fodder is scarce.

Silage is prepared by chopping suitable green fodder, packing it tightly and storing it under airtight conditions so that controlled fermentation preserves the material. Maize is commonly used for silage because of its good biomass production, starch content and suitability for fermentation. Hay is another simple method of conserving fodder. Forage is dried properly and stored for use during periods of fodder scarcity.



6. Make Crop Residues More Valuable

Crop residues such as wheat straw, paddy straw and other cereal residues are widely used as roughage, but untreated residues may have low digestibility and limited nutritional value. Instead of treating them simply as low-value feed, farmers can improve their usefulness through appropriate processing, supplementation and balanced ration formulation.

Urea treatment of suitable crop residues can improve their nitrogen content and digestibility. However, it must be carried out using the correct procedure and recommended quantities. Improper treatment or feeding can be unsafe, so farmers should follow the guidance of a veterinarian, animal nutritionist or trained extension worker. Other options include using complete feed blocks where appropriate and combining poor-quality roughages with suitable concentrates or agro-industrial by-products. The objective is not simply to process the residue, but to make it a more useful part of the animal's complete diet.



7. Use Local Feed Resources Wisely

Many farms have access to locally available feed resources such as wheat bran, rice bran, oil cakes, chunnies and other cereal by-products. When these ingredients are safe, good quality, suitable for the animal and reasonably priced, they can be useful alternatives or complements to commercial feeds.

However, the price per kilogram alone should not determine feed choice. A cheaper ingredient may provide less useful nutrition or may need to be fed in larger quantities. Farmers should

consider its energy, protein, fiber and mineral contribution, along with its quality and the amount required in the ration. Mouldy, contaminated or excessively moist feed should not be used.

The cheapest feed is not always the cheapest way to feed an animal. Feed choice should be based on its nutritional value, the quantity required and its overall cost in the ration.

8. Balance the Ration According to the Animal

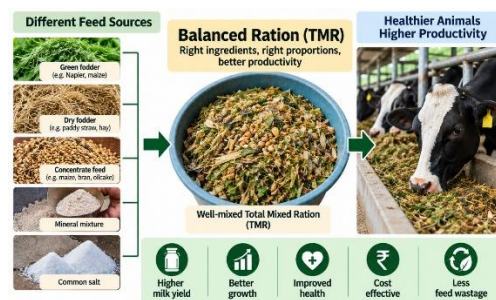
Not every animal in the herd needs the same ration. A high-yielding cow, a lower-yielding buffalo, a dry pregnant animal, a heifer and a calf have different nutrient requirements. Even among milking animals, feed needs vary with body size, milk yield, milk fat, stage of lactation and pregnancy.

A balanced ration provides the nutrients an animal needs without unnecessary feeding. Giving more concentrate than required can increase feed costs, while providing too little can affect milk production, growth and animal health. Therefore, the ration should be adjusted according to the animal's needs rather than feeding all animals in the same way. The aim is to provide the right nutrients in the right quantity at a reasonable cost (National Dairy Development Board, 2026; FAO, 2012).

9. Make Different Feed Resources Work Together

Farmers often have several feed resources available—such as straw, green fodder, bran, oil cakes and concentrate feeds, but these may not always be used in the right combination. Feeding them separately or without considering their nutrient contribution can lead to uneven feeding and unnecessary feed costs.

Total Mixed Ration (TMR) is one approach in which different feed ingredients are mixed in appropriate proportions so that the animal receives a more uniform supply of nutrients with each mouthful. On small farms, a simple mixed ration can be prepared without specialized equipment, provided the ingredients are suitable and the proportions are properly determined. The aim is not to use more ingredients, but to make the available



feed resources work together while reducing selective feeding and avoidable wastage.

10. Minerals: Small Amount, Big Importance

Minerals are required in small amounts, but they play an important role in growth, milk production, reproduction and overall health. The mineral content of feeds can vary with soil, region and other factors, so the same supplementation strategy may not be suitable for every farm.

Farmers should use a mineral mixture recommended for their area and provide it in the quantity advised by a veterinarian or animal nutrition expert. It should be mixed properly with the daily ration, and supplementation should be adjusted according to the animal's requirements and the available feed resources. Stopping mineral supplementation simply to reduce expenses may not be economical in the long run. Economical feeding is not about spending less on everything; it is about spending wisely on what the animal needs.

11. Reduce Wastage Before Buying More Feed

Before buying more feed, farmers should first ask: How much of the feed already provided is actually being used by the animals? Feed can be lost through trampling, selective feeding and offering more than the animals can consume.

Simple management changes can reduce these losses. Bulky fodder can be chopped appropriately, feed should be offered in reasonable quantities, and feeding areas should be kept clean. Proper mixing of different ingredients can also reduce selective feeding. Major changes in the diet should be introduced gradually. Chaffing fodder can help reduce wastage and improve feed utilization. Thus, reducing feed loss is often a matter of better management rather than spending more money.

12. Use Azolla and Other Supplementary Resources Wisely

Azolla can be grown in a small space and used as an additional feed resource when it is produced and managed properly. It can be useful on farms where space for growing fodder is limited. However, Azolla should be used as a supplement, not as a replacement for a balanced ration. Farmers should keep the growing area clean, use good-quality water, and avoid feeding Azolla that is spoiled or contaminated. It should also be introduced in suitable amounts along with the regular diet (Giridhar *et al.*, 2024).

13. Hydroponic Fodder: Check the Cost Before Investing

Hydroponic fodder can provide fresh green

fodder in a small space and may be useful where land for conventional fodder production is limited. However, installing a hydroponic unit should be considered only after assessing its actual cost and farm requirements (Reddy and Harani, 2023).

Farmers should calculate expenses for seed, water, electricity, labour, equipment, cleaning and maintenance. The high moisture content of fresh hydroponic fodder also means that comparing its cost simply on a fresh-weight basis can be misleading. Dry matter and nutrient supply should be considered when comparing it with conventional fodder. Hydroponic fodder may be suitable for some farms, but conventional green fodder, crop residues or conserved fodder may be more economical for others. The best technology is not necessarily the newest one; it is the one that fits the farm's land, resources, labour and budget.



14. Do Not Neglect Calves and Dry Animals

Reducing feed costs should not mean underfeeding calves or dry animals. Dry animals need adequate nutrition to maintain body condition, support pregnancy and prepare for the next lactation, while calves need sufficient nutrients for proper growth and future productivity.

At the same time, unnecessary use of expensive concentrates should be avoided when the animal's requirements can be met through a well-planned ration. Feed costs should be managed without compromising the nutritional needs of calves and dry animals. Therefore, feed management should cover the whole herd, not just the animals producing milk today. Saving on feed today should not lead to higher costs later through poor growth, health problems or reduced productivity.

15. Feed Quality Is Part of Feed Economics

A low-priced feed is not economical if it is mouldy, spoiled or contaminated. Poor-quality feed can reduce its nutritional value, affect animal health and result in unnecessary economic losses. Feed and fodder should therefore be stored in a clean, dry and protected place, away from rain, excess

moisture, soil and animal waste. Farmers should regularly check for mould, insects, bad odour and other signs of spoilage. Doubtful or visibly spoiled feed should not be offered to animals.

Good feed management is not only about how much is spent on feed, but also about protecting the value of what has already been purchased or produced. Maintaining feed quality helps reduce wastage and supports better animal health and productive performance.

16. From Feed Cost to Feed Efficiency

The goal of economical dairy farming is not simply to find the cheapest feed. It is to use available feed resources efficiently and get the most useful nutrition from them. Better feed utilization can also benefit the environment. Using crop residues instead of allowing them to go to waste puts more farm biomass to productive use. Balanced feeding can improve the efficiency with which nutrients are converted into milk and may also help reduce nutrient losses and emissions associated with inefficient feeding.

Thus, better feed management helps farmers use available resources efficiently, reduce avoidable losses and get greater value from every unit of feed.

Conclusion

Feed cost is a major concern in dairy farming, but the solution does not always lie in buying cheaper feed. Better decisions at the farm level can prevent losses and improve the use of feed resources. What matters is choosing practices that match the farm's fodder availability, animal requirements, labour, water and budget. There is no single feeding strategy for every farm. Farmers can start with the resources they already have and gradually adopt practices that are practical and affordable for their conditions.

Good feed management begins with proper planning. Careful production, handling, preparation and feeding can reduce unnecessary losses and help control costs while ensuring adequate nutrition for healthy and productive dairy animals.

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