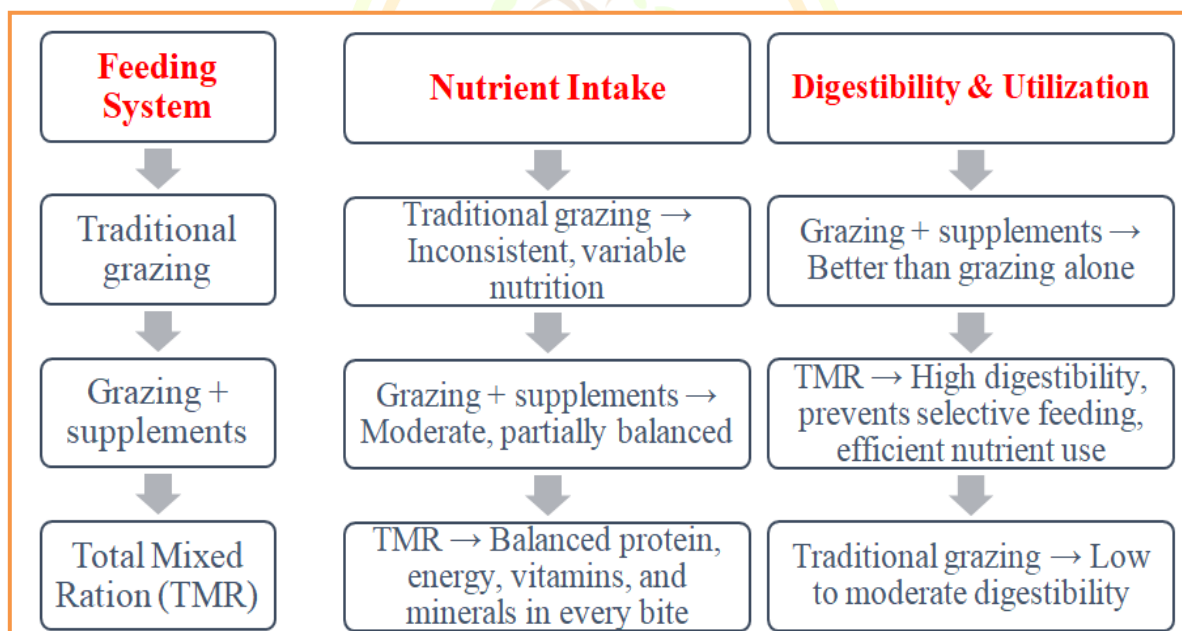


Analysis of Weight Gain in Mecheri Sheep Using Total Mixed Ration

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Sheep farming has always been an integral part of rural livelihoods in Tamil Nadu. Among the native breeds, Mecheri sheep are well known for their adaptability, disease resistance, and lean meat quality. Traditionally, they are managed under grazing systems, but with shrinking pastures and rising feed costs, farmers face challenges in maintaining growth and profitability. To address these issues, advanced feeding systems such as Total Mixed Ration (TMR) are being introduced. TMR is a method where forages, grains, protein supplements, minerals, and vitamins are precisely weighed, mixed, and offered as a uniform feed. This ensures balanced nutrition in every bite, avoids selective feeding, reduces wastage, and improves feed utilization. Although widely used in dairy cattle, TMR is now being studied in small ruminants like sheep and goats. This article explores how TMR influences the growth performance and weight gain of Mecheri sheep through field experiments and comparative analysis.



Impact of TMR Feeding on Mecheri Sheep

Nutritional Needs of Mecheri Sheep

Mecheri sheep are medium-sized animals with moderate growth potential. Their nutritional needs vary with body weight, age, and production stage. Farmers often rely on grazing supplemented with rice bran, groundnut cake, or oil cakes. However, these methods often result in inconsistent nutrient intake, affecting uniform weight gain. Providing balanced protein and energy diets is essential for optimum muscle development and market readiness.

The Concept of Total Mixed Ration

TMR brings a scientific balance to feeding. Instead of offering concentrate and roughage separately, it ensures animals get the right nutrient blend in every mouthful. This reduces feed sorting and enhances digestibility.

Table 1. Example Composition of a TMR for Mecheri Sheep

Ingredient	Proportion (%)	Nutrient Contribution
Maize silage / Sorghum	40	Energy (carbohydrate)
Groundnut cake	20	Protein
Rice bran	20	Energy & fiber
Mineral mixture + salt	2	Minerals
Green fodder	18	Vitamins & roughage

Materials and Methods (Field Study)

A small-scale trial was conducted at Sakthi Nagar, Erode District (Tamil Nadu) during 2025 using two Mecheri lambs of similar age and weight.

- ✓ **Control lamb:** Fed only green fodder and allowed to graze.
- ✓ **Experimental lamb:** Week 1 – exclusively TMR; Weeks 2–6 – TMR with green fodder. Weights were recorded weekly for six weeks.

Table 2. Weekly Body Weight Changes

Week	Control Lamb (Kg)	Weekly Gain (Kg)	Experimental Lamb (Kg)	Weekly Gain (Kg)
1	7.600	0	10.670	0
2	7.930	0.330	10.920	0.250
3	8.640	0.710	11.530	0.610
4	8.610	-0.030	12.130	0.600
5	8.400	-0.210	12.730	0.600
6	8.850	0.450	13.080	0.350

Results and Discussion

The experimental lamb showed a total weight gain of 2.41 kg, while the control lamb gained only 1.25 kg over six weeks. The control lamb also exhibited irregular gains and even weight loss during weeks 4–5, partly due to health issues (*ORF disease*), while the TMR-fed lamb maintained a steady growth trend. These findings confirm that TMR improves feed conversion efficiency and growth rate in Mecheri sheep. On an average, TMR-fed lambs gained 90–100 g/day, compared to 50–80 g/day in traditional feeding systems.

Table 3. Comparative Growth and Economics of Feeding Systems

Feeding System	Avg. Daily Gain (g/day)	Avg. Market Weight (kg)	Profit per Animal (₹)
Traditional grazing	50–60	18	2,200
Grazing + supplements	70–80	22	2,800
TMR feeding	90–100	26	3,400

This indicates that although TMR involves slightly higher feed costs, the economic returns from better market weight and faster growth are significant.

Future Prospects for Mecheri Sheep Farming

With increasing demand for lean mutton in urban markets, TMR offers a scientific and scalable solution for farmers. Integration with improved breeding, disease management, and housing can further enhance productivity. For drought-prone regions of Tamil Nadu, where forage scarcity is common, TMR feeding can help sustain growth and profitability in small ruminant farming.

Conclusion

This study and comparative analysis clearly demonstrate that TMR feeding enhances weight gain, reduces fluctuations, and improves profitability in Mecheri sheep compared to conventional feeding methods. While traditional grazing will continue in rural areas, the adoption of TMR presents a promising opportunity for farmers seeking higher growth efficiency and income security. Further large-scale trials are recommended to validate these results across different management conditions.

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