

ASSESSMENT ON TREE LEAF MEAL INCORPORATED CONCENTRATED FEED FOR BACKYARD NATIVE CHICKENS

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SUMMARY

The On-Farm Trial (OFT) was conducted in the Gobi, T.N. Palayam, and Anthiyur blocks of Erode District, Tamil Nadu, in April 2021. Ten farmers were selected, and a tree leaf meal diet was incorporated into the diet of desi chickens to assess its effects on production parameters. A total of three hundred and fifteen birds were selected and divided into three groups: Farmer's Practice (FP; imbalanced feeding), Tree Leaf Meal (TO1; 2.5–5% of the concentrate diet), and Concentrate Feed (TO2). The birds were reared for six months; body weight was measured at market age, Feed Conversion Ratio (FCR) was determined, and the benefit–cost ratio was calculated. Tree-leaf-meal-incorporated concentrate feed increased the palatability of the diet and enhanced body weight at market age.

Keywords: Tree Meal, Native Chicken and Farmers

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Traditionally, in India, poultry birds are reared under free-ranging conditions and left to forage, consuming seeds and insects. This system makes it easy for owners to maintain the birds; however, it often results in insufficient or imbalanced nutrition, leading to low body weight and smaller egg sizes, which in turn fetch lower market prices. Proper nutrition not only produces healthier poultry for family consumption but also increases sale value, thereby enhancing profits. An ideal chicken feed comprises 21–23% protein, obtained through the incorporation of various commercial feed ingredients into the diet. However, fluctuations in the prices of raw materials increase the cost of production. Various strategies have been developed to formulate low-cost feeds; among them, the inclusion of herbs or tree-leaf meals in poultry diets can reduce feed cost while simultaneously boosting immune function. Hence, tree leaf meal was incorporated at the 2.5–5% level in concentrate feed and fed to desi birds to assess its cost-effectiveness.

The present study was conducted in the Erode district situated between 10°35' and 11°60' of north latitude and 76.49° and 77.58° of East longitude and 171–91' meters above the mean sea level. The river Cauvery flows on the north and eastern part of the District. Erode town sweats under very hot spells during summer. The study was carried out in Gobi, T.N. Palayam and Anthiyur blocks of Erode district of Tamil Nadu during 2021. Ten farmers were selected and assessed foreeffect of Tree Leaf Meal incorporated concentrated feed in backyard Native chickens.

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Technology Assessed:

Farmer Practice	: Imbalanced feeding
Technology Option-1	: Tree Leaf Meal Acacia meals incorporated (2.5-5%) concentrated feed. Tree leaves were dried, converted into powder, and mixed into the concentrated feed.
Technology Option-2	: Concentrate feed without Tree Leaf Meal.

Critical inputs given : (along with quantity as well as value)

S. No.	Critical inputs	Quantity (kg)	Value (Rs)
1.	Tree Leaf Meal incorporated (2.5-5%) concentrated feed	200	24/kg
2.	Concentrate feed without Tree Leaf Meal	200	28/kg

The identified farmers were provided with concentrate feeds (with or without tree leaf meal incorporation). The desi birds were fed the respective concentrate feeds, and their body weight was measured at market age (six months).

The results revealed that the groups fed concentrate (with or without tree leaf meal incorporation) achieved higher body weights compared with the Farmer's Practice group (1.58 and 1.38 vs. 1.05 kg). Among the treatment groups, the tree-leaf-meal-fed group attained the highest body weight. Similarly, the benefit–cost ratio was higher in

Table 1. Performance of the technology

Technology Option	No. of trials	Total birds (No.)	Average Body weight (kg)	Net Returns (Rs.)	B:C ratio	FCR
Farmers Practice	05	105	1.05	9,975.00	1.41	3.78
Tree Leaf Meal incorporated (2.5-5%) concentrated feed		105	1.58	37,990.00	2.46	3.32
Concentrate feed without Tree Leaf Meal		105	1.38	25,440.00	1.91	3.65

the concentrate-fed groups (with or without tree leaf meal incorporation) than in the Farmer's Practice group (2.46 and 1.91 vs. 1.41).

The present study demonstrated that tree-leaf-meal-incorporated concentrate feed significantly improved the body weight of desi chickens at market age compared with both Farmer's Practice and the concentrate feed without tree leaf meal. These findings suggest that the incorporation of tree leaf meal not only improves the palatability of the diet but also enhances nutrient utilization and growth performance. The higher benefit-cost ratio obtained in the tree leaf meal group further emphasizes its potential to reduce production costs while improving profitability, which is critical for resource-poor farmers.

Feed accounts for nearly 70% of the total cost of poultry production, making it the most important input as well as the major constraint (Thirumalaisamy *et al.*, 2016). In particular, the rising prices of conventional protein sources such as soybean and fish meal limit profitability in smallholder production systems. The use of tree leaf meals, such as Acacia, neem, and other locally available foliage, offers an alternative protein source that can be produced on-farm with minimal costs. Such strategies not only lower feed expenses but also promote sustainability by reducing dependence on commercial feedstuffs (Kolobe *et al.*, 2022).

In addition to cost reduction, tree leaf meals are known to contain bioactive compounds, including tannins, saponins, and flavonoids, which may exert immunomodulatory and antimicrobial effects. Previous studies have reported that neem leaf meal can be included in broiler diets up to 2.5 g/kg without adverse effects on growth or health (Lal & Panda, 2019). Similar observations suggest that moderate inclusion of tree leaves may enhance disease resistance in poultry, which is particularly valuable in backyard systems where birds are often exposed to parasitic and bacterial infections. Thus, beyond nutritional contributions, tree leaf meals may play a role in improving flock health and reducing reliance on chemotherapeutics.

Furthermore, the improved Feed Conversion Ratio (FCR) observed in the tree leaf meal group suggests better efficiency of nutrient utilization. This could be attributed to the presence of secondary metabolites that improve gut health and digestion. Previous literature indicates that

dietary inclusion of herbal and tree leaf supplements can positively influence gut microbiota, thereby improving feed efficiency (Kolobe *et al.*, 2022).

From a livelihood perspective, the findings of this study are highly relevant to smallholder poultry farmers. Backyard poultry production, especially with native birds, plays an important role in rural food security and income generation. By incorporating tree leaf meals at 2.5-5% in concentrate feeds, farmers can significantly reduce feed costs, increase returns, and sustain profitability even under fluctuating market conditions for conventional feed ingredients. Moreover, because tree leaves are locally available, this approach reduces external input dependency, thereby enhancing the resilience of poultry farming systems.

Feedback of the farmers involved:

The farmers expressed that tree leaf meal incorporated concentrate feeding would reduce the feed cost and increased body weight at marketed age. Farmers expressed more profit than their traditional feeding practice.

Feed back to the scientist who developed the technology:

Tree leaf meal incorporated concentrate feed technology was released by TANUVAS in 2020. By adopting these technology farmers could reduce the feed cost of the desi birds. This technology can be disseminated to the poultry farmers through KVKs, University Research stations and Animal Husbandry departments for the benefit of farmers.

CONCLUSION

The incorporation of tree leaf meal in desi chicken diets at 2.5–5% of concentrate feed is a cost-effective and nutritionally beneficial strategy. It enhances growth performance, improves feed efficiency, and increases economic returns, thereby providing a sustainable feeding practice for smallholder poultry production systems.

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