



Advancing Animal Husbandry Practices through Front Line Demonstrations for Improved Livestock and Fodder Management in Dharmapuri District

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Abstract

Krishi Vigyan Kendra provides the rural farmers with an opportunity to upgrade their knowledge in the area of agriculture and allied sectors. KVKs implement Front Line Demonstrations (FLDs) which are implementations of new technologies on the farmers' fields with advisory support. In animal sciences, FLDs were on infertility management, clean milk production and high nutrition, long duration fodder crop varieties. These field level demonstrations enable scientists to obtain real time data to further improve the technologies to be used in future research and extension programs. KVK Dharmapuri implemented FLDs in animal sciences from 2014-2024. The implementation of the new technologies in nutrition management, disease prevention and new fodder crop varieties led to the following changes. Milk yield increased from 6 to 9 liters day⁻¹, weight gain in sheep and goats also enhanced from 4 to 6 kg month⁻¹ and lamb death rate improved from 75% to 90%. Fodder production also increased from 70 to 200 tons acre⁻¹, this is 185% improvement as compared to the traditional varieties. The income of the farmers from livestock enterprises increased from Rs. 72,000.00 to Rs. 92,400.00, which is 28% more than that of the traditional practices. The results of this study show that the FLDs in animal sciences developed in Dharmapuri have positively affected the living standard, production of forages and income from livestock production.

Keywords: Adoption, Extension, Fodder, Livestock, Productivity, Sustainability

Introduction

Krishi Vigyan Kendra plays a vital role in improving contribution of agricultural and allied sector to Indian GDP, it is a scheme sponsored by ICAR with mandate of activities. Front line demonstration (FLDs) is one of the important mandates of KVK where demonstrate the importance of technology at the farmers holdings every year. These FLDs were conducted directly involving the scientist and have provided the impetus to the scientist to involve themselves with the farmers to test the research. These results on farmers holdings and this will also facilitate to provide direct feedback from the farmers so that scientist can reorient their research, education and training programme for transfer of all the technologies through these front line demonstration (Suresh *et al.*, 2023).

Limitation in livestock farming in Dharmapuri district of

Tamil Nadu is the low production potential of fodder. The introduction of high yield fodder varieties (COBN5 & COFS 31) and sustainable cultivation techniques through ICAR-FLDs has significantly raised the green fodder production leads to increased productivity. Farmers who have adopted scientific feeding and disease management practices have reported improved milk production and better financial returns (Ambati *et al.*, 2023). The present study has designated to showcase the significance of animal science FLD in promoting livelihood and profitability among livestock farmers in Dharmapuri district.

Materials and Methods

The study was conducted in Dharmapuri district, where FLDs were implemented in a rotational manner across selected cluster villages (12.2195° N and 78.0598° E). The selection

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of villages and farmers was based on scientific advisory meetings and Performance Rural Appraisal (PRA) discussions. Farmers were chosen based on their willingness to adopt improved technologies, with special preference given to small and marginal farmers. Over the ten-year period 2014-2024, FLDs were conducted on 40 farmers' fields annually (Pic1, Pic2, Pic3 & Pic4), covering a total of 400 farmers. The technologies demonstrated included improved livestock feeding, disease control strategies, introduction of high-yield fodder crops and integrated livestock-fodder systems. On-Farm Trials (OFTs) were conducted before the FLDs to assess the suitability of the selected technologies under local conditions. Key parameters such as daily milk yield, body weight gain in sheep and goats, fodder yield and overall farm income were monitored. Inputs such as high-quality

fodder seeds, mineral mixtures and veterinary services were supplied to participating farmers. A demonstration unit was also set up at KVK Dharmapuri for wider knowledge dissemination. Data collection was carried out periodically and comparative analysis was done between pre-FLD and post-FLD performance in terms of livestock productivity, fodder availability and economic benefits. Farmers' feedback was documented to assess the practical applicability of the interventions.

Results and Discussion

In the present study implementation of FLDs has greatly improved livestock and fodder management practices (Table 1). Farmers who scientific feeding techniques and mineral

Table 1: Improved livestock and fodder management practices

Parameters	Before FLD	After FLD	% Improvement
Milk yield (liters day ⁻¹ cow ⁻¹)	6	9	50%
Body weight gain (kg month ⁻¹) - Mecheri Sheep & Salem Black Goat under intensive system of rearing	4	6	50%
Lamb/kid survival rate (%)	75%	90%	20%
Fodder yield (tons acre ⁻¹)	70	200	185%
Fodder crude protein content (%)	10%	14%	25%
Inter-calving interval (months)	18	14	22% Reduction
Annual income from livestock activities (Rs. farmer ⁻¹)	72,000.00	92,400.00	28%
Livestock mortality rate (%)	15%	5%	66% Reduction

supplementation saw an obvious increase in milk yield. Before the FLD intervention, the average milk yield was around 6 liters day⁻¹, which increased to 9 liters day⁻¹ (Figure 1 and 2) after following improved practices, resulting in a 50% rise in production (Ambati *et al.*, 2023). Weight gain in

sheep and goats also improved significantly. Under intensive rearing conditions, farmers recorded an increase in growth rates from 4 kg to 6 kg month⁻¹ (Figure 3 and 4). Green fodder



Figure 1: Mineral supplementation to increase milk yield



Figure 2: Grand supplementation to increase the milk yield in cross bred dairy cows



Figure 3: Technology dissemination of Mecheri sheep rearing



Figure 4: Scientific concentrate feed preparation

production also increased significantly. The introduction of high-yielding fodder varieties such as COBN5 (Figure 5) led to an average green fodder yield of 200 tonnes acre⁻¹, compared to 50 tonnes acre⁻¹ from traditional varieties, an increase of 185%. The crude protein content of fodder also improved from 10% in COBN4 to 14% in COBN5, showing a 25% improvement. This helped reduce fodder costs and dependence on commercial feed. These findings are similar with the finding of Divekar and Trivedi (2020).



Figure 5: 10 cent fodder production

The economic benefits of FLD adoption were also significantly raised after implementing improved animal husbandry practices. The interval between calving was reduced from 18 months to 14 months, an improvement of 22%, due to the adoption of advanced reproductive management practices such as correct time of heat detection, oestrous synchronization with timed artificial insemination, proper nutrition, mineral supplementation, disease prevention and postpartum reproductive methods (Figure 6). This



Figure 6: Sex assorted semen technology

observation is consistent with the findings of Kumar *et al.* (2021). Livestock mortality also declined significantly, dropping from 15% to 5%, representing a 66% reduction (Figure 7 and 8). This was mainly due to better disease control measures such as regular deworming, proper vaccination schedules and improved housing facilities as reported by Kumar *et al.* (2021) and Prajapati *et al.* (2024). These improvements were also supported by the findings of Kumar *et al.* (2021). The livestock demonstration units established at KVK Dharmapuri became a knowledge center for farmers who were not part of the KVK mandate program which increasing more farmers to implement advancing

technologies. In the present study explains the importance of FLDs in increasing livestock productivity ensuring the availability of high biomass fodder crops and improving the livelihoods of poor rural farmers.



Figure 7: General health examination



Figure 8: General health management

Conclusion

FLD programme at KVK Dharmapuri from 2014 to 2024 enhanced livelihood and productivity and profitability among farmers. For future scaling up activity it is suggested to wide dissemination of training and awareness programme. Collaboration with research institution and obtaining more funds from government side for implementing FLD programme will promote the sustainability of the farmer's income.

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