



An Assessment of the Socio-Economic Impact of the National Livestock Mission in Pollachi Block, Coimbatore District of Tamil Nadu, India

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Authors' contributions

This work was carried out in collaboration among all authors. Authors BS was responsible for the study design, execution of statistical analyses, development of the research protocol, and drafting the initial manuscript. Author ASS contributed to data analysis, as well as the literature review and interpretation of findings. Author AM offered critical evaluation, scholarly guidance, and comprehensive support throughout the research endeavor. All authors read and approved the final manuscript.

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ABSTRACT

This study examines the socio-economic impact of the National Livestock Mission (NLM) on small and marginal farmers in the Pollachi block of Coimbatore district in Tamil Nadu. The National Livestock Mission (NLM) plays a pivotal role in improving rural livelihoods by increasing farmers' incomes, securing food availability, and fostering sustainable development. The program's interventions support small and marginal farmers in attaining economic resilience and contribute to

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the advancement of socio-economic conditions within rural communities. Utilizing an ex post facto research design, the research analyzed data collected from 60 respondents through structured interview schedule and telephone surveys. The study focused on participation in various components of the NLM, including breed improvement, fodder development, poultry and small ruminant development, veterinary services, and training programs.

Correlation analysis revealed that increased income from the NLM was positively associated with enhanced savings, improved livestock productivity, and better access to veterinary care. Primary education, livestock rearing, nuclear family structures, and higher income levels were positively correlated with higher adoption and socio-economic impact scores. Despite these benefits, key constraints such as lack of awareness, administrative delays, insufficient veterinary infrastructure, and social barriers were identified as critical impediments to optimal scheme implementation.

The study concludes that although the NLM has contributed moderately to better rural livelihoods, its full potential still remains untapped. To maximize the program's effectiveness, it is imperative that awareness campaigns be strengthened, bureaucratic processes be streamlined, veterinary facilities be enhanced, and inclusive access be guaranteed. The result of the study offers useful ideas for policy improvement and more fair rural awareness growth via livestock-based activities.

Keywords: *National livestock mission; socio-economic impact; rural livelihoods; livestock development; veterinary services; training and capacity building.*

1. INTRODUCTION

Livestock farming plays a vital role in sustaining rural livelihoods in India by providing income generation opportunities, employment, and nutritional security to millions of farming households. This sector provides employment to approximately 8.8 percent of the workforce, supporting the livelihoods of 20.6 million individuals. India possesses the largest animal husbandry sector globally, with a livestock population constituting 512.06 million heads. As a leading producer of milk, India accounts for 18.6 percent of the world's total milk production. Despite occupying a relatively small land area of 2.29 percent, the country sustains 11.6 percent of the global livestock population. The livestock sector contributes 4.5 percent to the total gross value added (GVA) and 25.8 percent to the agricultural GVA. In terms of production rankings, India stands first in total milk production with 165.4 million tonnes, and ranks fifth worldwide in egg and meat production, with outputs of 88.1 billion eggs and 7.4 million tonnes of meat, respectively (Kumar et al., 2021).

Although national indicators suggest favourable trends, the actual impact at the local level particularly within blocks and districts varies according to specific contextual factors. A comprehensive All-India study on feed and fodder, conducted by the Agricultural Development & Rural Transformation Centre (ISEC), demonstrated that during 2019-20, numerous states experienced substantial deficits in feed and fodder, which limited potential

productivity improvements (ISEC / ADRTC report, 2021).

Understanding the circumstances and importance of livestock sector in country's economy, the Government of India launched the National Livestock Mission (NLM) in 2014 as a centrally sponsored programme with the aim of addressing critical challenges in the sector. The mission was designed to support breed improvement, fodder development, risk management by providing livestock insurance and livestock extension services, with a particular emphasis on small and marginal farmers who constitute the backbone of rural animal husbandry. India, the home to the largest livestock population in the world, faces issues in sustaining productivity especially for milk, meat, and draft power which remains below global standards. This productivity discrepancy results from a number of issues including limited access to veterinary care, poor breed quality, irrelevant feeding habits, and lack of awareness about scientific management. For instance, in Gujarat, despite the National Livestock Mission (NLM) receiving a total budget allocation of ₹2,800 crore, including ₹465 crore designated for its sub-mission on feed and fodder, the comparatively low disbursement of funds impeded the full realization of the scheme's objectives and constrained fodder availability (ISEC / ADRTC report, 2021; Pandey, 2014).

To overcome these structural obstacles, NLM establishes multi-pronged design that comprises of unique features which includes sub-

missions on feed and fodder development, livestock development, extension and innovation. The goal of this mission is not only to increase the productivity of indigenous breeds but also to diminish farmers vulnerability to market fluctuation conditions, climate shocks and animal health epidemics by means of these elements. Targeted interventions implemented under the National Livestock Mission (NLM), such as enhanced breed management, provision of quality feed and fodder, and the adoption of contemporary husbandry practices, have facilitated farmers in augmenting productivity, accessing improved market opportunities, and achieving sustainable economic gains (Ahuja, 2024; Department of Animal Husbandry & Dairying, n.d.). This surplus production in the livestock sector not only fulfils the domestic demand for livestock and related products but also presents substantial opportunities for export, thereby contributing to increased foreign exchange revenue for the nation. By strengthening the supply foundation and enhancing product quality through the application of scientific breeding techniques, improved nutrition, and effective health management, the livestock sector plays a crucial role in bolstering national food security and promoting economic stability (Mamidala et al., 2024)

Moreover, under the entrepreneurship segment of the initiative, the National Livestock Mission–Entrepreneurship Development Programme (NLM-EDP) offers a capital subsidy covering 50% of the investment, up to a maximum of ₹50 lakh. This financial support is intended for the establishment of breeding farms for poultry, sheep, goats, pigs, horses, camels, and donkeys, in addition to units dedicated to feed and fodder production. Breed multiplication farms supported under the NLM-EDP are designed to supply farmers with improved germplasm, thereby contributing to increased productivity. The silage plants established by entrepreneurs are expected to provide affordable fodder to small-scale livestock farmers and encourage local farmers to engage in fodder cultivation. Consequently, over the long term, the benefits derived from the NLM-EDP programme are anticipated to significantly improve livestock productivity (National Bank for Agriculture and Rural Development, 2025; Ministry of Fisheries, Animal Husbandry & Dairying, 2025).

In Tamil Nadu, the Tamil Nadu Livestock Development Agency (TNLDA) functions as the principal state-level implementing body for the

National Livestock Mission (NLM). Founded in 2002, TNLDA has played a pivotal role in the implementation of diverse livestock development initiatives, including those encompassed within the NLM framework. The agency's activities are closely aligned with the state's goals of enhancing livestock productivity, safeguarding farmer welfare, and advancing sustainable livestock farming methodologies. In regions like Pollachi block in Coimbatore district, where animal husbandry is not only considered as a mere source of income but also a cultural and economic anchor such initiatives become exceptionally crucial. Often combined with crop cultivation, dairy, poultry, and goat husbandry characterized the region. Targeted assistance from the NLM transforms the situation here by enabling farmers to adopt superior techniques, access markets, and increase their returns sustainably (Department of Animal Husbandry and Dairying, 2025).

The genuine implementation and impacts of the NLM vary across areas and depend on a number of variables including awareness among beneficiaries, coordination between government agencies and institutional capacity. Hence, evaluating the scope, effectiveness, reach and challenges of the mission at the grassroots level is absolutely necessary to guide policy changes, inform improvements and ensure that livelihoods based on livestock become more resilient, inclusive, and economically viable.

This study aims to evaluate the overall impact of the National Livestock Mission (NLM) on enhancing the livelihoods of farmers in the Pollachi block of Coimbatore district, Tamil Nadu. Although NLM is designed to increase productivity, promote sustainable livestock management, and improve income security, there exists a deficit of empirical data at the grassroots level regarding the extent to which these objectives have been realized. This research particular emphasis on examining the socio-economic outcomes associated with NLM interventions and identifying the obstacles that hinder farmers from fully capitalizing on the benefits of the program. Specifically, it aims:

1. To measure the socio-economic impact of NLM on farmers' livelihoods.
2. To identify the constraints faced by farmers in adopting NLM interventions and to provide suggestions for improving the accessibility, delivery, and effectiveness of NLM services.

2. METHODOLOGY

2.1 Selection of Study Area

The study was conducted in the Pollachi block of Coimbatore district, Tamil Nadu. This particular location was selected due to the significance of livestock-based livelihoods and the strategic fit with the objectives of the National Livestock Mission (NLM). Among the major areas in Tamil Nadu, Coimbatore district has a leading position in terms of livestock population, especially cattle, goats, and poultry. Within the district, Pollachi block stands out as a key agricultural hub where animal husbandry forms an essential component of rural income and farming systems. According to the Department of Animal Husbandry and Veterinary Services (Government of Tamil Nadu), Pollachi has a high density of dairy and small ruminant farming units, making it a suitable site to evaluate the reach and effectiveness of NLM initiatives such as breed improvement, fodder development, and livestock management. Moreover, the block has witnessed remarkable implementation of livestock-based schemes under the NLM, allowing for an insightful evaluation of their on-ground impact through farmers' narratives.

This block was also prioritized for its ease of access, the presence of active farmer networks, and a combination of conventional and modern livestock practices, which inclusively offer a rich context for comprehending how government interventions are transforming the rural livelihoods.

2.2 Selection of Respondents

For the purpose of this study, a total of 60 small and marginal farmers who are actively involved in livestock-based livelihoods from Pollachi block in Coimbatore district were selected for study as respondents. The sample size of 60 was established to achieve an equilibrium between the requirement for comprehensive, detailed data collection and the practical limitations imposed by time, resources, and accessibility. Although

relatively modest, the sample offers a representative cross-section of the target population, thereby enabling a meaningful analysis of socio-economic impacts and correlations within the study area. Farmers classified as marginal (≤ 1 hectare of operational land) and small (1-2 hectare of operational land) according to operational landholding criteria established by the Ministry of Agriculture & Farmers Welfare, Government of India were focused (Ministry of Agriculture & Farmers Welfare, 2019). These groups were specifically chosen because they face resource limitations and have restricted access to veterinary and extension services, yet a major portion of their income relies on livestock, positioning them as the principal beneficiaries of the National Livestock Mission. Consequently, their socio-economic outcomes serve as the most accurate indicators of the program's impact. The selection criteria were primarily based on their active participation in and utilization of several components of the National Livestock Mission (NLM). A purposive sampling technique was employed to identify respondents who have first-hand experience with the NLM schemes, including breed improvement, fodder development, livestock insurance, and training programs. This method was effective, as it allowed the researcher to focus particularly on those farmers whose relevant insights and life experiences regarding the effect of the program might be obtained.

The study area was further divided into six villages within Pollachi block and 10 members from each village who are beneficiaries of the NLM scheme were chosen, making up a total sample size of 60. Villages were chosen based on the extent of implementation of NLM activities and their ease of access for data collection. This stratified approach enabled a balanced representation across different rural settings within the block. Table 1 below represents the distribution of the respondents based on the samples in the selected villages.

Table 1. Distribution of the respondents based on the samples in the selected villages

District	Block	Taluk	Village	Samples
Coimbatore	Pollachi	Pollachi	Manur	10
			Kallipatti	10
			Pulianpatti	10
			Makkinampatti	10
			Bodi palayam	10
			Nallur	10

2.3 Data Collection Method

The primary data were collected by a combination of well-structured interview schedule and telephone surveys. The participants were chosen according to the criteria outlined in the Section 2.2, utilizing purposive sampling to ensure that all individuals possessed direct experience with the NLM program. The interview schedule was prepared with a focus to capture both qualitative and quantitative data with respect to the implementation and impact of the intervention among farmers in the study area. The schedule included close-ended questions to enumerate quantifiable aspects of NLM such as participation, awareness and benefits received along with open-ended questions to capture personal experiences and evaluative feedback on the intervention. The instrument underwent a preliminary evaluation with a small group of farmers who were excluded from the primary study sample for ensuring reliability. Test-retest reliability analysis was conducted on the closed-ended questions to verify the consistency of responses over time. Concurrently, the open-ended questions were assessed for clarity and interpretability. Based on the findings from this pre-testing phase, appropriate revisions were implemented to improve the reliability and precision of data collection. In-person interviews were conducted with farmers wherever possible, particularly in easily accessible villages for collecting viable and relatable responses. However, to overcome logistical constraints and reach respondents in remote and inaccessible areas or those unavailable during the field visit, telephonic surveys were also conducted to collect data.

This mixed-mode strategy ensured data reliability, enhanced response rates, and furnished flexibility in engaging with farmers while maintaining the ethical conduct and depth of the information collected.

2.4 Research Design

The present study adopted an ex post facto research design which is suitable when the variables of interest have already occurred without any manipulation. In this context, the farmers had already participated in and benefitted from NLM and the study aimed to identify the impact of this participation retrospectively.

This design enabled the researcher to systematically analyse the relationship between NLM interventions and changes in various dimensions of livestock management and rural livelihood including productivity, income, access to services, and adoption of scientific practices. By collecting data post-implementation, the study represents the real-world effects of the scheme based on the respondents' experiences, without affecting the natural settings or altering any variables.

2.5 Statistical Analysis

Appropriate descriptive and inferential statistical techniques were applied to the collected data to analyse the socio-economic impacts. Descriptive analyses such as frequency and percentage were performed using Microsoft Excel, which facilitated the clear and interpretable summarization of demographic characteristics, participation rates, and identified constraints. Subsequently, correlation analysis was conducted utilizing R Studio to investigate the relationships between selected variables, given its suitability for determining the strength of associations among socio-economic factors affecting the program's outcomes. All statistical analyses were performed at a significance level at $P = .05$.

3. RESULTS AND DISCUSSION

The data obtained from 60 respondents in the study were examined utilizing both descriptive and inferential statistical methods to evaluate the impacts of the National Livestock Mission (NLM) within the Pollachi block. The demographic characteristics of the respondents, including factors such as gender and age group, were depicted through pie chart and bar graph created using Microsoft Excel, thereby offering a clear visual representation of the sample distribution.

The extent of farmers' participation in various components of the NLM, as well as the challenges encountered during its adoption, were analysed using frequency and percentage distribution tables. This approach facilitated straightforward interpretation of prevailing trends and predominant responses among the beneficiaries. To evaluate the socio-economic impact of the NLM interventions, correlation analysis was conducted to examine the relationships between selected independent and dependent variables. This analysis was performed using R Studio software, which

enabled precise calculation and interpretation of correlation coefficients. The findings from these analyses are elaborated upon in the subsequent sections, emphasizing the observed patterns, relationships, and their implications derived from the data.

3.1 Gender-Based Representation of Respondents

The majority of the respondents are female (35 out of 60 in numbers) which constitutes 58.3% of the total sample and men (25 out of 60 in numbers) constitutes 41.6%.

3.2 Representation of Respondents Based on Age Group

The predominant proportion of the sample, accounting for 51.6%, comprises farmers between the ages of 40 and 50. Farmers aged between 30 and 40 represent 25% of the sample. The remaining participants are distributed among the other age categories.

3.3 Assessing Participation of Farmers in National Livestock Mission

One of the crucial goals of NLM is to improve scientific livestock practices. This was primarily accomplished through training, breed improvement programs, and fodder development support.

Training and Skill Development recorded the highest participation, with 61.7% (37 out of 60 farmers) of respondents engaging in at least one training session. These farmers adopted practices such as vaccination, deworming and basic veterinary care, indicating a substantive impact of the training component. Compared to other components, breed Improvement shows lower adoption, with only 48.3% (29 farmers) having received improved livestock breeds. Some participants were skeptical about the adaptability of exotic breeds, while others mentioned financial constraint due to high maintenance cost. Farmers with possession of traditional breeds noticed fewer disease issues and better compatibility with available fodder practices.

Fodder Development was accessed by 55.0% (33 farmers). However, several landless or rainfed farmers could not make use of this component due to unavailability of land and water. While some beneficiaries valued receiving high-yielding fodder seeds and technical advice, many could not encourage fodder cultivation due to lack of follow-up support.

The adoption of improved practices was chiefly influenced by access to training, input availability, and context suitability. Farmers with exposure to training and input support showed better acquiescence, while others reverted to conventional practices due to lack of awareness or infrastructural limitations.

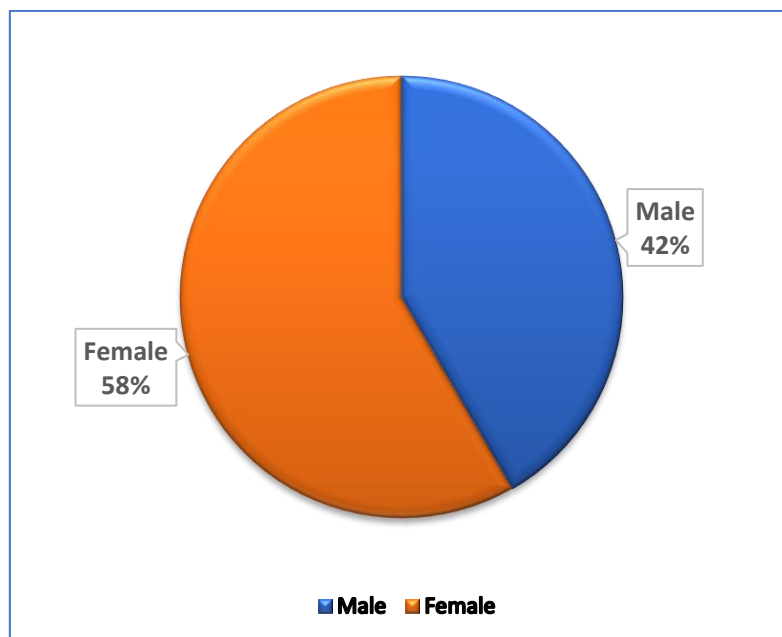


Fig. 1. Pie chart depicting the distribution of respondents in the study based on gender

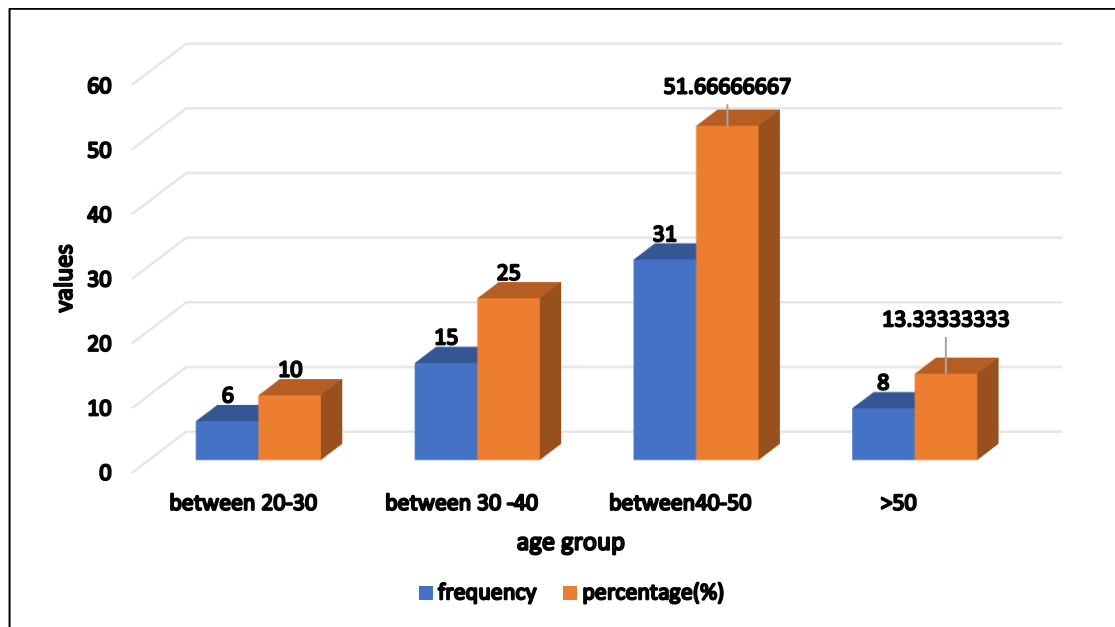


Fig. 2. Bar chart depicting the distribution of respondents in the study based on age group

Table 2. Frequency table of participation in NLM program components

Component	Yes - frequency (n)	Yes (%)	No - frequency(n)	No (%)
Breed improvement	29	48.3%	31	51.7%
Fodder development	33	55.0%	27	45.0%
Small ruminant development	36	60.0%	24	40.0%
Poultry development	35	58.3%	25	41.7%
Insurance (Risk management)	33	55.0%	27	45.0%
Training / Skill development	37	61.7%	23	38.3%

3.4 Constraints Faced by Farmers in Adopting NLM Program

Farmers participating in the National Livestock Mission (NLM) scheme experienced various constraints that limited their involvement or participation. Veterinary service gaps emerged as a foremost constraint, with 43.3% (26 respondents) expressing disappointment due to irregular visits, understaffed veterinary services, and the unavailability of necessary medicines. An equal proportion of 38.3% (23 farmers) reported constraints that constitutes social barriers and delays in benefits. The respondents pointed the notable lags in receiving subsidies, livestock, or insurance claims. These delays not only disrupted their financial planning but also decreased credibility in the scheme's effectiveness. Women and individuals from lower caste groups felt excluded from training programs and stated that they had limited access to scheme resources due to deep rooted social

discrimination, bias and power dynamics which acts as a remarkable social barrier within their communities.

Reinforcing this, another frequently cited barrier by the respondents was lack of awareness, reported by 36.7% (22 farmers). Many were unaware about the benefits of the scheme, eligibility criteria, and application timelines, which obstructed them from fully accessing available support. In addition, financial constraints reported 33.3% (20 farmers), who faced struggles to mobilize the additional resources essential to maintain or feed the livestock. The constraint of enrolling in the scheme was noted by 25.0% (15 farmers), who felt that the process as confusing and tedious, often involving multiple visits to government offices.

These findings emphasize the urgent need to simplify procedures, enhance inclusivity, and tailor the scheme to better reflect the socio-economic realities of rural beneficiaries.

Table 3. Frequency table of constraints in adoption of NLM

Constraint Type	Yes- frequency (n)	Yes (%)	No- frequency(n)	No (%)
Lack of awareness	22	36.7%	38	63.3%
Difficulty in enrolling	15	25.0%	45	75.0%
Delays in subsidy/benefit	23	38.3%	37	61.7%
Inadequate veterinary services	26	43.3%	34	56.7%
Financial resource limitation	20	33.3%	40	66.7%
Social barriers	23	38.3%	37	61.7%

3.5 Correlation Analysis

The correlation analysis of socio-economic impact variables from the NLM program portrays several important relationships. Increased income from NLM (Impact_1) indicates a moderate positive correlation with regular savings (Impact_5) at 0.238, denoting that as household income increases, the ability to save regularly also increases. A positive relationship between increased income and better livestock productivity (Impact_4) with a correlation of 0.170 is found. Similarly, correlation between income and better veterinary access (Impact_7) is positive at 0.149, which reveals that higher earnings may lead to increased investments in livestock and veterinary care. Moreover, better livestock productivity (Impact_4) is mildly correlated (0.214), with less loan dependency (Impact_2) denoting that as productivity increases, the dependence on loans may decrease.

Furthermore, better veterinary access and livestock productivity (Impact_7 & Impact_4) share a correlation of 0.186, which implicates

that access to veterinary services promotes greater productivity of livestock. However, a few weak negative correlations also appeared. Better veterinary access and improved living conditions (Impact_7 & Impact_3) are negatively correlated at -0.164 , which denotes that better animal health services don't always coincide with perceived improvement in livelihood standards. Improved living conditions and less loan dependency (Impact_3 & Impact_2) also show a negative correlation of -0.133 , which possibly means that even when financial dependency falls, it doesn't immediately reflect in better livelihood standards.

In addition to these, regular savings is negatively correlated with livestock productivity (Impact_5 & Impact_4) at -0.133 , and with investment in other activities (Impact_5 & Impact_6) at -0.135 , clearly depicting that saving and reinvesting are competing financial strategies within households. These weak inverse relationships may exhibit a broader trend where households must prioritize between securing future stability through savings and pursuing short-term development through reinvestment.

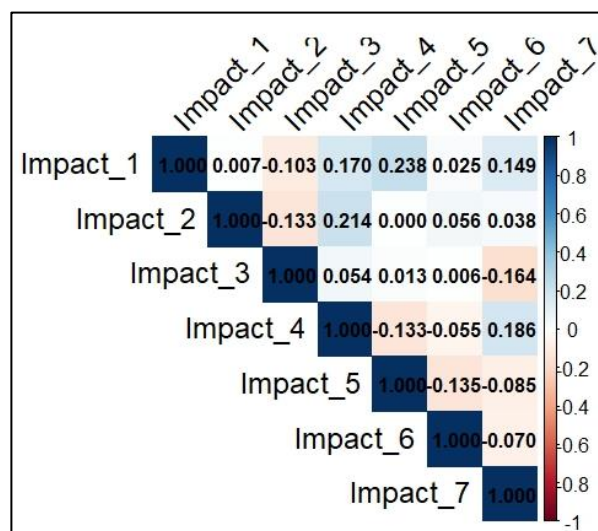


Fig. 3. Correlation heatmap of impact variables

Impact_1: Increased Income from NLM; Impact_2: Less Loan Dependency; Impact_3: Improved Living Conditions; Impact_4: Better Livestock Productivity; Impact_5: Regular Savings; Impact_6: Invested in Other Activities; Impact_7: Better Veterinary Access

4. DISCUSSION OF RESULTS

The analysis of participation levels, correlation results, farmer perceptions, and constraints portrayed several critical areas that determine the overall effectiveness of the National Livestock Mission (NLM) in Pollachi and similar agro-ecological regions. Based on these evidence-based insights, the following thematic discussions emerge.

4.1 Need for Enhanced Awareness and Information Exchange

Major shares of the farmers indicated that they lacked clear information on the components and advantages of the NLM. This was most prominent among small and marginal farmers and among farmers who lived in isolated hamlets. The results further indicate that, despite the intricate design of the scheme, improper communication on the local level has barred significant participation. Comparable findings have been documented in other study, indicating that limited awareness, inadequate information dissemination, and insufficient extension services have constrained farmers' access to livestock development programs (Chander et al., 2010; Meena & Singh, 2015).

To correct this issue, enhancement of village-level awareness through the use of local and culture-specific mass communication such as posters, leaflets, folk shows and Tamil community radio messages would be useful. Supplying information on schemes in simple and easy-to-comprehend formats would be inclusive. Use of trained extension agents and livestock volunteers can ensure that the farmer is getting correct and latest information, thus increasing awareness as well as enrolment levels (Rahman et al., 2023).

4.2 Improvement of Veterinary Infrastructure and Service Delivery

One major limitation noted by the participants was the inadequate provision of veterinary services and related infrastructures. The agriculturalists noted the inability to access on-time animal healthcare, especially in the mountainous areas and isolated ones. Also, the inadequacy in veterinary staff and the unavailability of the essential medicine were noted as deterrents to the progress of livestock. This is consistent with the results of a study

carried out in Tamil Nadu, which identified challenges encountered by veterinarians in providing services to livestock farmers, such as insufficient infrastructure and limited staffing. The demand for veterinary services frequently surpasses the available supply, resulting in treatment delays and elevated expenses for farmers (Sangameswaran et al., 2021).

The research emphasizes the necessity of establishing mobile veterinary clinics to serve isolated villages and inadequately served regions. Furthermore, the recruitment of additional veterinarians or qualified para-veterinary personnel at the panchayat level would improve the availability and responsiveness of veterinary services. Studies have outlined that augmenting the number of veterinary professionals in rural regions improves the quality of service provision and increases farmer satisfaction (Sangameswaran et al., 2021). Maintaining a consistent supply of medications and vaccines at local dispensaries is also vital to mitigate treatment delays and lower the rates of morbidity and mortality among livestock.

4.3 Streamlining Administration and Operations

Administrative complexity emerged as another factor affecting the performance of NLM implementation. Farmers often faced procedural delays in subsidy disbursement and insurance claims, which disappointed farmers and discouraged their participation. Many respondents also found the application procedures cumbersome and lacked clarity concerning documentation requirements.

A study by Prabu et al. (2023) revealed that beneficiaries of livestock insurance programs in Tamil Nadu encountered several challenges, notably delays in the settlement of claims and intricate documentation requirements. Such administrative obstacles frequently resulted in farmer dissatisfaction and impeded the successful execution of the National Livestock Mission.

To counter these issues, the creation of single-window helpdesks at the block-level veterinary offices is suggested. It can offer end-to-end advisories, ease the process of documentation, and quicken the process of grievance redressal. Measures such as enhancing infrastructure to lower premium costs and appointing qualified

personnel should be implemented to provide guidance to farmers regarding insurance (Singh et al., 2020). Implementation of real-time tracking of the applications through SMS or mobile apps can also increase transparency and accountability. Implementation of strict timelines for the process of the claim and release of subsidy would also increase faith among the beneficiaries.

4.4 Nurturing Inclusive and Equitable Participation

The test on correlation also revealed a significant relation between the level of involvement and social inclusion, which means that programs that apply inclusive practices are more effective. In spite of that, women farmers and such marginalized people as SC/ST groups had low levels of involvement. Studies have shown that rural women are actively engaged in livestock rearing but frequently experiences restricted decision-making authority and limited access to training programs (Mulugeta & Amsalu, 2014; Panda et al., 2021).

In order to guarantee fair advantages, the research suggests the establishment of training sessions specifically tailored for women and the incorporation of gender-sensitive methodologies within program implementation. Kannadhasan (2025) highlighted that training and capacity-building initiatives in livestock and poultry farming substantially improved the confidence and engagement of rural women members of Self-Help Groups (SHGs) in Tamil Nadu. Enhancing the functions of Self-Help Groups (SHGs) and Farmer Producer Organizations (FPOs) can facilitate collective endeavors, improve negotiating capabilities, and promote transparency in the allocation of resources. Furthermore, supporting group-oriented activities cultivates social learning and collective responsibility.

4.5 Localization of Breed and Fodder Development Strategies

The survey also finds that some introduced breeds are inappropriate in the local agro-climatic conditions, thereby raising maintenance costs and reducing adaptability. Kumar et al. (2025) conducted a study demonstrating that indigenous cattle breeds such as Kangayam and Umbalachery exhibit superior adaptation to the semi-arid environment of Tamil Nadu. These breeds were found to possess

enhanced disease resistance and incur lower maintenance costs relative to non-native breeds. In the same respect, the scarcity of fodder more particularly, the dry season scarcity was mentioned as a chronic limitation by the vast majority of the respondents. India experiences an annual shortfall of 11.24% in green fodder and 23.4% in dry fodder, with the deficit becoming more pronounced during the dry season in the state of Tamil Nadu (Dhamodharan et al., 2024).

To counter these, efforts should be towards the creation of indigenous breeds, more suitable to the local climate and resistant to the diseases common to the area. Integration of feed that can be utilized efficiently with little irrigation and expansion of conservation methods such as silage and haymaking can utilize feed accessibility effectively. Creation of community fodder banks and seed production units owned by the farming community would further enhance sustainability.

The establishment of community fodder banks and seed production units by the farming community is anticipated to significantly promote sustainability. Fodder banks and silage units managed at the community level have demonstrated efficacy in preserving excess fodder harvested during the rainy season, ensuring its availability during periods of scarcity and thereby enhancing overall fodder supply (Visha Kumari V et al., 2016).

5. CONCLUSION

The findings of the study indicate that the National Livestock Mission (NLM) has contributed moderately positive in enhancing the livelihoods of small and marginal livestock farmers in the Pollachi block of Coimbatore district. Specifically, components of the mission focused on training, poultry development, and the promotion of small ruminants have significantly improved farmers' income levels, technical expertise, and livestock management practices. These interventions have also facilitated diversification within farming systems and strengthened the resilience of households reliant on animal husbandry.

Nonetheless, despite these encouraging results, several structural and operational challenges continue to impede the scheme's overall effectiveness and inclusivity. Deficiencies in awareness generation, limited access to

veterinary infrastructure, and suboptimal service delivery mechanisms have confined the mission's benefits to a relatively narrow subset of farmers. Furthermore, social and institutional obstacles such as gender inequities, inadequate coordination among implementing agencies, and procedural delays have restricted the participation and benefit of the most vulnerable groups in NLM initiatives.

To fully realize the mission's potential, it is imperative to enhance grassroots implementation through a more farmer-centric and participatory framework. This approach should encompass decentralization of decision-making processes, simplification of administrative procedures, improved communication and extension services, and equitable access to inputs, training, and financial support. Additionally, greater focus should be placed on capacity building at the local level via continuous training, fostering public-private partnerships for veterinary and input services, and promoting the involvement of youth and women in livestock enterprises.

If effectively restructured and adapted to local contexts, the National Livestock Mission has the potential to become a foundational program for sustainable, inclusive, and resilient livestock-based rural development in Tamil Nadu and throughout India. Strengthening these efforts will not only enhance productivity and income security but also advance broader national objectives related to rural employment, food security, and poverty alleviation.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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