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Analyzing the Role of Goat Rearing for Livelihood Improvement

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Abstract
The goat is an essential component of the dry land agricultural method and is also known as the "poor man's cow" in India. On marginal or uneven terrain that is unsuited for other species like cows or buffalo, the goat is the best option. Small and marginal farmers can start goat farming, a lucrative industry, with very little investment. The objective of the current study was to ascertain whether the huge concentration of goat population was a factor in the decision to analyze the function of goat husbandry in improving livelihoods. Seven goat farmers were picked at random from each of the 16 villages in each of the district's four blocks to make up the sample size of 50. Data were acquired utilizing a pre-tested interview schedule, and this study used an ex-post factor research technique. Regression, Pearson's correlation coefficient, chi-square analysis, and descriptive statistics for frequency distribution were used to edit, tabulate, and analyze the gathered data.

Keywords: Goat, Investments, Improvements, Analyzing, Livelihoods, Farming

Introduction

The potential for goat farming to contribute to employment and poverty reduction among small-scale, economically disadvantaged farmers residing in rural regions is enormous. Goats are little and gentle animals that are easily manageable for women and children to rear. Additionally, they do not require a substantial amount of living area. Goat meat is highly prized throughout many groups due to its nutritional composition, characterised by a higher protein content and lower fat content compared to other meat sources. It is noteworthy that goat meat does not carry any religious connotations or stigmas. The cost of goat meat is higher on the current market. Goat dung and urine are rich sources of nitrogen, potash, and phosphate. The rise of goat farming is being hindered by several production limitations, despite the great demand and optimal market price for goats. The primary challenge in goat farming pertains to the accessibility and availability of grazing space. Goat farmers have several significant obstacles, including the diminishing quality and quantity of grazing resources, the escalating grazing pressure resulting from the rising goat population, the paucity of labour for animal grazing, and the associated high labour costs. The expenses associated with inputs increase in response to the escalation of feed and fodder prices. The reproductive abilities of goats are adversely affected by climatic conditions such as intense precipitation, extreme temperatures, and nutritional deficiencies resulting from inadequate rainfall. In order to mitigate the impacts of climate change on goat production systems and attain sustainable output and revenue, efforts

are underway to establish self-sustaining goat farming. This involves integrating the Osmanabadi breed with climate-smart housing, as well as implementing sustainable livestock feeding and management practises. The technical bulletin presented here serves as a valuable resource for academics, researchers, educators, farmers, and policymakers that seek to enhance goat farming in regions under abiotic stress. Furthermore, this approach has the potential to enhance the precision of research and development initiatives aimed at improving the quality of life for farmers with limited resources, particularly those who own tiny plots of land or lack land ownership altogether, by means of engaging in goat farming.

Review of Literature

In a study conducted by (Khadda et al.), the researchers examined the effects of technological interventions on the attitudes of goat raising farmers in the Panchmahals area of Gujarat. The adoption of improved technologies in goat production has the potential to enhance the overall attitude of goat rearers towards these advancements. This can be achieved by demonstrating efficient technologies that promote healthy goat rearing. Such demonstrations not only create awareness but also contribute to a positive shift in the attitude of goat rearers. In a study conducted by (Kumar et al.), it was determined that the implementation of a production system would require various forms of technological, governmental, and institutional support. The Role of Goats in Enhancing Livelihood Security for Rural Populations in Challenging Environments The research findings revealed that goats played a pivotal role in ensuring the livelihood security of the rural population residing in resource-constrained areas. Due to its relatively low fat content and reduced cholesterol levels, goat meat is expected to have a higher rate of demand in both domestic and international markets. Consequently, the trajectory and organisation of the nation's goat industry would be contingent upon factors such as market demand, price dynamics, technological advancements, and resource accessibility. There are three distinct goat production methods: large-scale commercial farms, smaller units operating under semi-intensive and intensive systems, and small to medium-sized flocks farmed on communal pasturelands (CPRs). Each goat production system would require different sorts of technological, political, and institutional support.

In a study conducted by (Khobarkar) titled "Performance of Self-help Groups in Micro Finance," it was found that self-help groups were able to generate an average annual income of 14,528 per member via dairy enterprises and 19,600 through goat farming. The study further determined the degree to which participants obtained different degrees of empowerment as a result of their involvement in self-help groups (SHGs). The pursuit of personal, social, economic, and financial empowerment was facilitated via the use of microfinance. According to (Hossain et al.), the practise of goat farming in the Mymensingh region of Bangladesh has been found to contribute positively to the socioeconomic conditions of impoverished farmers, leading to an enhancement in their overall quality of life. The improvement of livelihoods may be achieved via the practise of goat rearing. The acquisition of a kid, or young goat, can be accomplished for a cost ranging from BDT 1500 to BDT 5450. The whole net profit amounted to 2142 BDT. The most effective strategy for enhancing the socioeconomic status of farmers with limited capital, as determined by net income, was identified as the practise of goat husbandry.

In a study conducted by (Ahmed), an examination was undertaken to explore the many opportunities, limitations, and potential associated with the practise of sustainable goat farming in Bangladesh, with a specific focus on its potential for enhancing livelihoods. In addition to facilitating sustenance, goats provide impoverished individuals, particularly those without land ownership, the opportunity to engage in the financial system, with a particular emphasis on women's involvement. Investing in research and development might be considered a viable technique for enhancing goat production. By mitigating the aforementioned challenges in goat production, it is plausible to enhance goat production in the country, therefore concurrently alleviating poverty, empowering women, and generating employment opportunities. The study conducted by (Islam et al.) sought to examine the socio-economic characteristics of goat rearing farmers and assess the

prevailing goat management practises in the Sylhet district of Bangladesh. The study involved a sample of 150 goat raising farmers from three districts in Sylhet, selected by a random sampling method. The findings of the current study indicate that a majority of the agricultural practitioners surveyed were of middle age, had a moderate-sized family, and possessed minimal or no land ownership. The farmers in question also found it necessary to secure a loan in order to begin their goat-rearing enterprise, despite it not being their primary occupation. Furthermore, the housing management of the individuals in question was found to be inadequately structured, likely owing to a lack of technical understanding. Additionally, it was seen that they continued to rely on a traditional feeding system, which involved the utilisation of natural fodder and wheat bran as a concentrate feed.

The study conducted by (Sahoo et al.) examines and compares the socio-economic status of contract and non-contract goat farmers in Odisha. Contractual goat farming has predominantly been embraced by landless and marginalised tribal farmers who reside in poor socioeconomic circumstances. This practise resembles the traditional pattern of goat rearing commonly observed in rural areas, where individuals with limited access to resources engage in this activity throughout various regions globally. The practise of contract goat farming has incentivized individuals with little resources to engage in goat farming, even if their families did not have a history of goat rearing. Contractual goat farming has been found to provide a greater proportion of income and job opportunities to individuals with limited resources, in comparison to non-contractual goat farming. Therefore, it is essential to educate farmers on the benefits of contact goat farming, as it has the potential to optimise gains and mitigate risks for goat farmers with limited resources. In his study titled "Socio-Economic Characteristics and Composition of Sheep and Goat Farming under Extensive System of Rearing," (Shivakumara et al.) examines the various socio-economic factors and the composition of sheep and goat farming under the extensive rearing system. Sheep and goats represent significant economic value in the Indian context, serving as a crucial source of subsistence and employment for several rural communities. In India, sheep and goats are primarily sustained by consuming natural vegetation found on communal grazing pastures, wastelands, uncultivated (fallow) fields, as well as by feeding on stubbles of cultivated crops and top feeds such as tree loppings. They are seldom maintained on grain, farmed feed, or agricultural leftovers. The practise of sheep and goat keeping serves as a fundamental pillar of the economic activities undertaken by small-scale and landless farmers within the Indian context. The research was conducted in the districts of Tumakuru, Chitradurga, Belagavi, and Kalaburagi in the state of Karnataka. The analysis conducted by (Monau et al.) focused on the examination of sustainable use of indigenous goats in the Southern Africa region. It is essential to ensure that these genetic resources are utilised in a sustainable manner and concurrently conserved, while also being integrated into the market. This will facilitate the efficient provision of support and promotion for specific products. It is imperative for each nation to establish regulatory laws that effectively protect and manage the sustainable utilisation of indigenous goat populations. Additionally, the formulation of comprehensive developmental plans is crucial to provide clear rules for the commercialization of indigenous goat goods.

In a recent study conducted by (Jegoda et al.), an examination was undertaken to investigate the socioeconomic characteristics of those engaged in goat keeping and the many constraints they encounter. The author emphasises the significance of goat farming as a vital economic resource for those lacking land ownership and small-scale farmers across the whole country. As per the observations made by individuals engaged in goat keeping, the primary socioeconomic obstacles associated with this practise encompass apprehensions pertaining to nocturnal predators, limited literacy levels, nocturnal theft losses in remote interior areas, and fluctuations in meat prices or demand corresponding to seasonal variations. Hence, it is imperative for the respondents to improve their management practises by implementing structured training programmes, offering high-quality breeding germplasm, conducting field demonstrations and workshops, and supporting the establishment of regional goat

markets. These measures are necessary to address the challenges encountered by goat keepers. According to the findings of a recent study conducted by (Sahu et al.), it has been shown that goat husbandry in the Kandhamal region of India has a significant social impact on the tribal goat farmers. Based on his evaluation of the study's results, there has been a notable enhancement in the social status of the goat farmers belonging to the tribal community. This phenomenon may be attributed to a rise in their occupational income level. Within the realm of study, it is observed that a significant proportion of tribal farmers engage in the practise of rearing goats as a supplementary means of generating revenue. In order to incentivize tribal farmers to engage in goat rearing for commercial purposes and enhance their financial prospects, developmental agencies have the potential to establish both forward and backward linkages within the designated study district.

(Halpati and Vahoniya) The potential of commercial goat rearing in India. The rearing of goats is a fundamental component of agricultural practises and serves as a crucial means of sustenance for impoverished rural communities. The goat is a valuable livestock animal that may provide many resources such as meat, milk, skin, and dung, which can be utilised for economic purposes. Commercial Goat Farming refers to the practise of keeping goats within intensive and semi-intensive systems with the primary objective of achieving commercial productivity. Commercial goat farming has emerged as a significant catalyst for agricultural expansion in India. Commercial goat farming presents a significant opportunity for rural development because to the possibility for exporting goods, capital accumulation, household income generation, and job opportunities. A total of 34 goat breeds were recorded and registered throughout various regions of India. The study revealed that commercial goat farmers employ scientific management practises, such as implementing appropriate housing practises, adhering to vaccination schedules, and adopting efficient feeding practises, in order to enhance the economic viability of their farms. Additionally, it was noted that commercial goat farmers engaged in several activities. Farmers choose the price of goats by considering factors such as weight, age of kids, body shape, and breed. The findings indicate that a commercial goat farm has more profitability in comparison to a traditional goat farm.

The article by (Palsaniya et al.) largely discusses the strategy of rainwater gathering as a means to reduce the risk of crop failure due to droughts, promote double cropping with a cropping intensity of up to 200%, and achieve sustainable intensification in rainfed regions. The incorporation of goats into the water harvesting and agroforestry-based rainfed agricultural system model has the potential to significantly enhance net returns, with an increase of 26% and 89% respectively. In order to enhance the financial viability and robustness of the system, perennial features such as grasses and trees are used. In order to significantly transform rainfed smallholder agricultural systems, it is imperative for farmers to widely embrace technological advancements such as rainwater collecting, agroforestry, and goat-based farming. In a study conducted by (Haque et al.) it was determined that the practise of goat rearing had a positive impact on the socioeconomic conditions of impoverished farmers, leading to an improvement in their overall quality of life. The individual had the belief that engaging in goat farming contributed to the improvement of the socioeconomic status of those involved in this occupation. Goat farming has emerged as a profitable sector due to its low capital requirements and effectiveness in poverty reduction and women's empowerment within rural communities. In order to maximise production within the present community, it is imperative to improve management procedures through the farmers' heightened comprehension of goat husbandry.

Methodology

Research Design

In the current study, the requirement for choosing a sample was that each family or farms maintain at least two adult goats (with offspring) during the course of a year. Therefore, households with less than two adult goats were disqualified from the study. With the assistance of some seasoned goat keepers in the research region, who made up the population, fifty farmers were chosen at random to participate in the study. Pre-testing was done before the data gathering instruments were finalised, and the

results were used to modify and adjust the devices. The chosen farmers were personally questioned after the schedule was decided. After completing the interview, each schedule was examined to ensure that the data for each item had been accurately recorded. All of the acquired data was carefully examined before being coded, compiled, and prepared for analysis. The data were first transferred to master sheets in the first stage. Second, using SPSS software, processed data were entered into the computer.

Results and Discussions

Table 1 Percentage Analysis

	Category	Frequency	%
Gender	Male	14	28.0
	Female	36	72.0
Age	25 - 30	10	20.0
	31 - 35	20	40.0
	36 - 40	13	26.0
	40 above	7	14.0
Educational	Illiterate	6	12.0
	primary	34	68.0
	secondary	6	12.0
	Hr. sec. school	4	8.0
Monthly income	below 30,000	6	12.0
	30,000 - 40,000	7	14.0
	40,000 - 50,000	33	66.0

Source: SPSS software

In the above table, 72% of the respondents are female, where 40% age group of people belongs to 31-35 years and 68% of the respondents are in primary stage, 66% of the respondents earning monthly income of 40,000-50,000 followed by 14% of the respondents are earning 30,000-40,000 per month.

Table 2 Cross Tabulation of Educational Qualification and Goat Market in Sivaganga

Educational qualification	Goat market in Sivaganga					
	Local market	District level	Regional or state	Direct sale	others	Total
illiterate	3	0	0	3	0	6
primary	0	0	0	34	0	34
secondary	1	1	3	0	1	6
HR.SEC	4	0	0	0	0	4
Total	8	1	3	37	1	50

Table 3 Chi-square Tests

	value	df	Asymptotic significance (2-sided)
Pearson chi-square	75.056	12	.000
Likelihood ratio	60.904	12	000
Linear-by-linear association	8.751	1	.003
N of valid cases	50		

A.18 cells (90.0%) have expected count less than 5.the minimum expected count is .08.

Since P value is less than 0.01 at one percent level of significant hence it is concluded that there is an association between educational qualification and goat rearers. Based on the value primary level of education prefer direct sale followed by hire secondary level of respondents of prefer local market and illiterate prefer local market.

Table 4 Correlation Analysis

		Goat rearing impact of household income level	Goat rearing contribute to your overall
House hold income level	Pearson Correlation	1	-.193
	Sig. (2-tailed)		.179
	N	50	50
Overall house old income	Pearson Correlation	-.193	1
	Sig. (2-tailed)	.179	
	N	50	50

Correlation value - 1, Significant level - 0.003

The value of Correlation between impacted household income level and goat rearing contribute to your overall household income level is 1. Therefore positive relationship between goat rearing impacted household income level and goat rearing contribute to your overall household income level and significant level is 5%.

Regression

Table 5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.545a	.297	.282	.75090

a. Predictors: (Constant), household income

Table 6 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.435	1	11.435	20.280	.000b
	Residual	27.065	48	.564		
	Total	38.500	49			

a. Dependent Variable: basic needs

b. Predictors: (Constant), household income

Table 7 Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1	(Constant)	1.234	.558	.545	2.213	.032
	household income	.639	.142		4.503	.000

a. Dependent Variable: basic needs

The regression analysis results, as summarized in the table shows the relationship between household income (independent variable) and basic needs (dependent variable). The model presented in Table 5 explains approximately 29.7% of the variance in basic needs. While the adjusted R-squared of 0.282 suggests that additional independent variables had limited impact, the reasonable fit indicated by the standard error of estimate (0.75090) implies that the model captures trends within the data. The moderate correlation coefficient (R) of 0.545 signifies a positive linear relationship, indicating that changes in household income correspond to changes in basic needs. While the model provides a moderate explanation of variance, the adjusted R-squared suggests potential for improvement, though it still adequately fits the data.

The ANOVA results in Table 6 confirm the model's significance in explaining variance in basic needs. The highly significant F-statistic (20.280) and very low p-value (0.000) underscore the substantial relationship between household income and basic

needs. This emphasizes the statistical validity of the model and highlights the meaningful influence of household income on determining basic needs. Furthermore, the coefficients presented in Table 7 offer specific insights into the model's variables. The constant term (1.234) establishes the expected value of basic needs when household income is zero. The coefficient for household income (0.639) indicates that a one-unit increase in income corresponds to a 0.639-unit increase in basic needs. The significant standardized coefficient (Beta) of 0.545, supported by a high t-statistic (4.503) and low p-value (0.000), underscores the substantial impact of household income on basic needs.

Suggestions and Policy Implications

This study provides valuable suggestions into the significance of goat rearing as a means to enhance livelihoods, particularly in regions with challenging terrain. There are pertinent policy implications that can be drawn. Firstly, recognizing the strategic importance of goat rearing in impoverished regions; policymakers should prioritize the development of targeted training programs. These programs should equip small and marginal farmers with modern goat farming techniques, disease management strategies, and market linkages, empowering them to harness the potential of goat rearing for sustainable livelihood improvement. Secondly, considering the feasibility of goat farming on marginal terrains, policies should focus on improving rural infrastructure. Investments in veterinary services, water availability, and transportation networks can facilitate efficient goat production, enhance animal welfare, and consequently contribute to improved livelihoods. Lastly, fostering collaborations between research institutions, extension services, and local communities is crucial. By aligning research findings with the practical needs of goat rearers, policymakers can ensure that policy interventions are evidence-based and contextually relevant, fostering a holistic approach to rural development.

The following are the major policy suggestions:

1. Develop targeted training programs for small and marginal farmers in modern goat farming techniques, disease management, and market engagement.
2. Invest in rural infrastructure improvements such as veterinary services, water supply, and transportation networks to support efficient goat production.
3. Establish collaborative platforms that bridge the gap between research institutions, extension services, and local communities, ensuring evidence-based policy interventions.
4. Promote financial inclusivity by facilitating access to credit and financial services for aspiring goat rearers.
5. Encourage the conservation and utilization of local goat breeds through research and awareness campaigns, preserving genetic diversity and cultural heritage.
6. Implement comprehensive monitoring and evaluation mechanisms to assess the impact of policy interventions on goat rearing and livelihood enhancement.

Conclusion

The research on goat farmers' contributions to bettering livelihoods highlights how important they are to rural communities and economies. Increasing livelihoods through goat farming has proven to be a viable and accessible option, especially in areas with low resources and other sources of income. People and households can improve their nutrition, income, and resistance to economic shocks through judicious management and investment in goat farming. In addition to offering a variety of income streams, goat farming also helps to advance the status of underrepresented groups, such as women and small-scale farmers. It promotes social cohesion, knowledge exchange, and skill development within communities. The by-products of goat farming, such as meat, milk, and hides, also have the potential to produce value-added goods that can help people's incomes and standard of living.

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