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Goat farming as a profitable alternative for tribal farmers: An experience from FFP at Chhattisgarh

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Goat farming has proven to be a profitable and sustainable livelihood option for small, marginal, and landless farmers in the tribal-dominated regions of Chhattisgarh under the Farmer FIRST Programme. The initiative, implemented by the ICAR-National Institute of Biotic Stress Management (NIBSM), Raipur, was carried out in five villages of Kasdol block, Balodabazar district, where a total of 83 improved breed of goats (Sirohi, Jamunapari, and Barbari) were distributed among farmer groups comprising 15–20 members each. Capacity-building programmes, along with vaccination and healthcare support, were provided in collaboration with the local veterinary department to ensure scientific management and enhance productivity. The economic analysis revealed that the total annual cost of rearing amounted to ₹1,72,330, while the gross income from the sale of live goats was ₹5,67,600, resulting in a net income of ₹3,95,270 and a benefit: cost ratio (B:C) of 3.29. These results clearly demonstrated that goat farming is a highly remunerative enterprise requiring low investment and minimal resources. The initiative not only enhanced income and livelihood security among tribal farmers but also reduced seasonal migration, promoted rural entrepreneurship, and strengthened women's participation in livestock-based enterprises, thereby contributing significantly to economic resilience and sustainability in rural communities.

Keywords: Chhattisgarh, Farmer FIRST Programme, Goat farming, Livelihood improvement, Rural entrepreneurship, Tribal farmers

GOAT, also known as the poor man's cow in India, plays a vital role in the rural economy. Goats are versatile animals that produce milk, meat, fibre, and manure. India, with a population of over 148.88 million goats, is the world's fifth-largest goat producer, accounting for 13.39% of the global population. The country also ranks second in goat meat production, contributing 8% to the GDP and employing 4% of the rural population.

Goat rearing is a profitable venture for small and marginal farmers on undulating lands, as it requires very low investment and can serve as an alternative to cow or buffalo rearing. Goats play a crucial role in the economy and nutrition of landless, small, and marginal farmers as they can survive in harsh environments with low-fertility lands. Goat milk is consumed more globally than cow milk, and goat meat is consumed more than beef. It provides nutritious and easily digestible milk to children and serves as a regular source of additional income for the poor and marginal farmers.

The Farmer FIRST Programme (FFP) has been playing a pioneering role in technology transfer, refinement, and imparting need-based training to farmers and rural youth. This particular success story highlights the achievement of tribal farm women, entrepreneurs, and technologists working together for the sustainable development of goat farming in a cluster of five villages (Bakla, Kharaha, Bamhani, Kurraha, and Kharri) in Balodabazar district, Chhattisgarh.

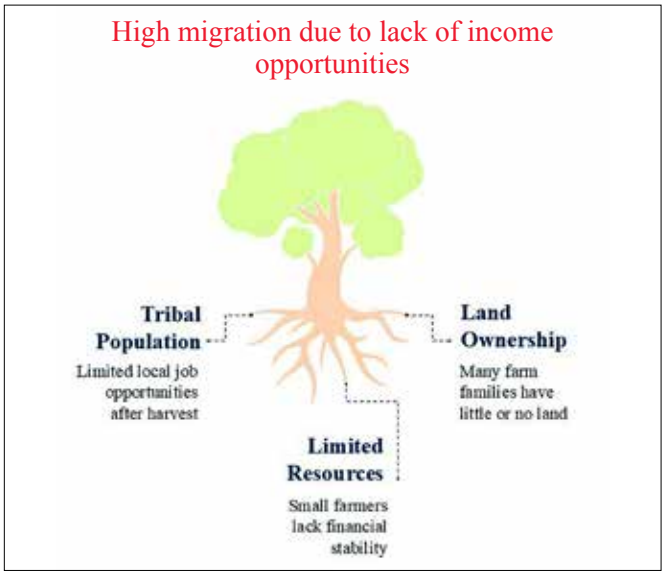
Challenges before goat farming

Before the introduction of scientific goat farming practices, several socio-economic and infrastructural challenges restricted the adoption and productivity of this enterprise among tribal and rural farmers. In the Kasdol block of Balodabazar district, where most households are small, marginal, or landless, goat rearing was largely traditional and unorganised.

The primary challenge was seasonal unemployment and migration, as nearly 40–60% of the tribal population migrated to other states in search of livelihood after paddy harvesting due to a lack of year-round income sources. Limited access to quality breeds and dependence on low-yielding local goats further reduced

productivity and profitability. Another major constraint was inadequate knowledge and technical skills in scientific feeding, breeding, and health management. Farmers were unaware of vaccination schedules, disease prevention, and balanced nutrition, leading to high mortality rates.

Scarcity of fodder and grazing land, particularly during the dry season, made it difficult to maintain animal health. In addition, poor access to veterinary services, medicines, and market linkages prevented farmers from obtaining better prices for their animals. The absence of proper housing, capital investment, and institutional support also discouraged the adoption of improved practices. Collectively, these challenges made goat farming less organized and less profitable until targeted interventions under the FFP addressed them through training, technology transfer, and input support.



Farmer FIRST interventions

At the ICAR-National Institute of Biotic Stress Management (NIBSM), Raipur, the Farmer FIRST Programme (FFP) has been implemented since 2016 with a focus on livelihood diversification, resource-use efficiency, and farmer empowerment through innovative and sustainable agricultural practices. Under this programme, goat farming was identified as a viable livelihood option in the Kasdol block of Balodabazar district, where small, marginal, and landless farmers faced livelihood insecurity, seasonal migration, and underemployment.

The farmers' dependence on rainfed paddy cultivation provided limited income opportunities beyond the harvest season, and the lack of productive livestock further restricted household earnings. To address these challenges, improved goat breeds such as *Sirohi, Jamunapari,* and *Barbari*—known for their higher growth rate, adaptability, and market demand—were introduced.

A cluster-based approach was adopted wherein five farmer groups, each comprising 15–20 members, were formed across five adopted villages. Comprehensive capacity-building programmes were provided, including training on scientific goat rearing, feeding management, healthcare, disease control, and breeding practices. Farmers were also sensitized to aspects such as housing, hygiene, record-keeping, and the importance of timely vaccination and deworming.

In collaboration with the local veterinary department, regular health camps were organized, and the supply of essential veterinary medicines was ensured. The programme also focused on market linkage development by connecting farmers with nearby livestock markets, improving price realization. Beyond technical interventions, women and youth were encouraged to actively participate in goat farming groups. Many tribal women emerged as successful livestock entrepreneurs, contributing significantly to household income and decision-making.

In essence, goat farming was transformed from a subsistence activity into a profitable, scientific, and community-driven enterprise, empowering rural and tribal farmers both economically and socially. The model stands as a successful example of participatory technology dissemination combining innovation, inclusion, and impact for sustainable rural development.

Benefits of goat farming

Low investment and high returns:

- Requires minimal initial investment compared to other livestock enterprises.
- Goats need simple housing, a small space and low-cost feed resources.
- Four goats can be maintained as economically as one indigenous cow, reducing financial stress on poor households.

Efficient feed utilization:

- Can thrive on locally available shrubs, tree leaves, kitchen waste and crop residues.
- Suited for resource-scarce areas due to efficient feed conversion and minimal maintenance needs.

Adaptability to harsh conditions:

- Highly adaptable to varied climatic conditions including semi-arid, hilly and drought-prone areas.
- Can survive on limited fodder and irregular water supply, making them ideal for rainfed regions.

Quick reproduction and income generation:

- Early sexual maturity (10–12 months) and short generation interval.
- Can produce offspring twice a year, ensuring rapid herd growth and regular income.

Nutritional benefits:

- Goat milk is easily digestible and rich in essential nutrients.
- Preferred over cow milk for its superior digestibility and lower allergenic potential.
- Goat meat is lean, low in cholesterol and highly nutritious, fetching premium market prices.

Employment and livelihood security:

- Generates regular income through the sale of milk, meat, manure and live animals.
- Enhances livelihood diversification and financial stability of rural households.

Empowerment of women and marginal farmers:

- Goats' small size and docile nature make them easy to manage by women and elderly farmers.
- Encourages women's participation in livestock-based livelihoods, fostering empowerment and self-reliance.

Support for integrated and sustainable farming:

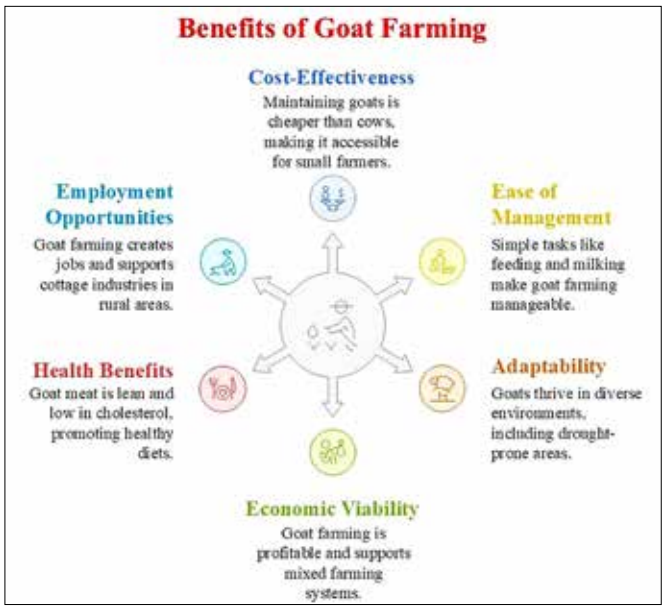
- Goat manure serves as a valuable organic fertilizer, improving soil fertility.
- Promotes integrated farming systems and sustainable agriculture.

Promotion of rural entrepreneurship:

- Supports development of cottage industries such as meat processing, leather production and composting.
- Strengthens rural economies and reduces migration in tribal and backward regions.
- Goat farming acts as a resilient livelihood option for small and marginal farmers.
- Overall, it contributes to food and nutritional security, women's empowerment and rural development.

Performance indicators

The performance indicators provided a comprehensive assessment of the economic viability and profitability of the goat-rearing enterprise. The analysis was based on a total of 83 goats, including



Sirohi, Jamunapari, and *Barbari* breeds, reared over one year. The total cost of rearing comprised expenses on labour, medicine, and shed construction or maintenance. The expenditure on labour amounted to ₹4,980 for 12 months at a rate of ₹415 per month, while the cost of medicines for all 83 goats was ₹37,350, covering routine vaccination, deworming, and healthcare needs. The cost incurred for constructing or maintaining a goat shed was ₹1,30,000 for one unit, bringing the total annual cost of rearing to ₹1,72,330.

On the output side, the major source of income was from the sale of live goats based on body weight gain. The goats collectively gained 1,320 kg of live weight, which, at the market rate of approximately ₹430/kg, generated a total income of ₹5,67,600. After deducting the total cost of rearing from the gross returns, the net income amounted to ₹3,95,270/year. The calculated benefit–cost (B:C) ratio was 3.29, indicating that for every rupee invested, the return was ₹3.29.

This high B:C ratio demonstrates that goat rearing, under the given management conditions and breed combination, is a profitable and economically sustainable enterprise. The results suggested that while the initial investment in infrastructure such as the goat shed constitutes a major portion of the total cost, the recurring expenses are relatively low compared to the high returns obtained from live goat sales, making it a financially attractive livelihood option for rural farmers.

Table 1. Economic analysis of goat farming

A total of 83 goats, including *Sirohi, Jamunapari* and *Barbari* breeds							
Input (Per Year)				Output (Per Year)			
Items	Rate (₹/Unit)	Total requirement	Total amount of recurring cost (₹)	Items	Rate (₹/Unit)	Qty (Kg)	Total amount (₹)
Labour (per month)	415	12 Months	4,980	Live body weight gain	430	1,320	5,67,600
Medicine	450	83 Goats	37,350				
Shed (No.)	1,30,000	1 Unit	1,30,000				
Total cost of rearing			1,72,330	Total benefit of rearing			5,67,600
Net income				3,95,270			
B:C ratio				3.29			

Farmers practicing goat farming in the adopted villages of FFP

Recommendations from FFP experience

Based on the successful outcomes of the goat farming initiative implemented under FFP in Balodabazar district, several measures are recommended to ensure the long-term sustainability and scalability of similar livelihood interventions:

Strengthen breeding and health infrastructure: Establish local breeding units and community-level health service centres to ensure the timely availability of quality breeds, vaccines and veterinary support.

Promote fodder and feed resource development: Encourage the cultivation of fodder crops and the use of crop residues and tree leaves to overcome feed scarcity, especially during lean seasons.

Enhance capacity building and farmer-to-farmer learning: Regular training, exposure visits and demonstrations should be organised to sustain technical knowledge and promote peer learning among goat farmers.

Develop market linkages and value addition: Establish cooperative marketing networks and support small-scale processing units for goat meat and manure products to enhance farmers' income and bargaining power.

Integrate women and youth in entrepreneurship: Special focus should be given to empowering rural women and youth through access to credit, training and enterprise management opportunities in goat-based livelihoods.

Institutional and policy support: Facilitate convergence among line departments, financial institutions and research organizations to create an enabling policy environment for scaling up goat farming as a profitable rural enterprise.

SUMMARY

The experience of promoting goat farming under the Farmer FIRST Programme (FFP) in the tribal villages of Balodabazar district, Chhattisgarh, clearly demonstrated its potential as a sustainable and profitable livelihood option for small, marginal, and landless farmers. The introduction of improved goat breeds such as *Sirohi*, *Jamunapari*, and *Barbari*, along with the provision of scientific training, healthcare support, and market linkages, significantly enhanced the productivity and income levels of participating farmers. The economic analysis revealed a benefit–cost ratio of 3.29, indicating that goat farming generates substantial returns even with modest investments.

Beyond financial gains, the intervention contributed to social and economic empowerment by engaging tribal farm women and youth in income-generating activities, thereby reducing migration and ensuring year-round livelihood opportunities. The participatory approach adopted under FFP strengthened the research–extension–farmer interface and encouraged collective action through farmer groups. The initiative not only enhanced household income and nutritional security but also demonstrated how location-specific livestock interventions can promote inclusive rural development and resilience in resource-constrained regions. In conclusion, the success of goat farming under FFP reaffirms that, with appropriate technological, institutional, and capacity-building support, small livestock-based enterprises can serve as effective drivers of farmer empowerment, livelihood diversification, and rural prosperity.

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