

# Mithun farming:

## A boon for the tribal farmers of eastern Himalaya

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*In the misty, verdant hills of the eastern Himalaya, where dense forests meet rugged terrains, a unique bovine species thrives- The mithun (Bos frontalis). Revered as the equally important to humans, this unique genetic bioresource holds immense cultural, economic, and ecological significance for the tribal communities of northeast India, Bhutan, Myanmar, Bangladesh, and parts of China. For centuries, mithun has been more than just livestock; it's a symbol of pride, a measure of wealth, and a cornerstone of tribal traditions. Today, as the world shifts towards sustainable livelihoods and eco-friendly practices, mithun farming emerges as a potential boon for the tribal farmers of this region, offering economic opportunities, cultural preservation, and environmental benefits. This article explores how mithun farming empowers tribal communities across the eastern Himalaya, delving into its socio-economic advantages, challenges, and future potential. With a population estimated at around 0.28 million in India (based on the 2003 livestock census), mithun farming is concentrated in states like Arunachal Pradesh, Nagaland, Manipur, and Mizoram. It's growing recognition as a "food animal" by the Food Safety and Standards Authority of India (FSSAI) in 2023 further underscores its commercial promise. Through sustainable practices and scientific interventions, mithun farming could transform the lives of tribal farmers, ensuring both prosperity and the preservation of their rich heritage.*

**Keywords:** Economic opportunities, Environmental benefits, Heritage, Tribal farmers

**O**FTEN mistaken for a domesticated form of the Indian Gaur due to its similar appearance, mithun (Gayal) is a distinct bovine species native to northeast India, Bangladesh, China, and Myanmar. It holds significant cultural and economic value for the ethnic tribes of northeast India, particularly in Arunachal Pradesh and Nagaland. Unlike other domesticated bovines, mithun is predominantly reared under free-range conditions in forested areas. In India, its population is unevenly distributed across Arunachal Pradesh, Nagaland, Mizoram, and Manipur, with Arunachal Pradesh hosting the largest share, followed by Nagaland. This large and majestic species typically produces two calves over a three-year period and plays a multifaceted role in tribal communities. It is regarded as a symbol of prestige and is traditionally used as a medium of exchange in barter transactions.

Mithun thrives in the hilly forests of northeast India at elevations ranging from 300–3,000 meters. Known for its adaptability, it can survive across diverse climatic zones, from tropical and subtropical plains to sub-

temperate and temperate regions. Indigenous tribes in Arunachal Pradesh, Nagaland, Mizoram, and Manipur are the primary caretakers of mithun, and its rearing is deeply integrated into their sustainable livelihood practices. More than just livestock, mithun is a cultural emblem, representing wealth and social status among tribal communities. Phylogenetically distinct from other Bos species, its origin remains complex and somewhat ambiguous. Research from ICAR-National Research Centre on Mithun, Nagaland, suggests a shared ancestry between mithun and Gaur, tracing back to an ancient and now-extinct bovine species. Locally, mithun is known by different names 'Eso', 'Hoho', or 'Sebe' in Arunachal Pradesh, 'Sial' in Mizoram, 'Sandong' in Manipur, and 'Wei' or 'Seizang' among Naga tribes.

Mithun is a medium to large-sized ruminant, typically characterized by a black coat with an ash-colored forehead and white stockings on the legs. However, variations exist in coat colour, horn shape and placement, and frontal bone structure across different populations. Coat colour ranges from solid black to pure

white, with some individuals displaying a mix of both.

As per the 2019 Livestock Census, the total mithun population in India stands at 3.8 lakh. Arunachal Pradesh accounts for approximately 90% of the total mithun population, followed by Nagaland (5.98%), Manipur (2.36%), and Mizoram (1.02%). The 20<sup>th</sup> Livestock Census (2019) recorded a significant 30.6% increase in mithun numbers, highlighting its growing importance in the region (Basic Animal Husbandry Statistics 2018–19, Government of India 2020).

### Cultural and historical significance of mithun

Mithun is deeply woven into the socio-cultural fabric of the tribal communities in the eastern Himalaya. For tribes such as the Adi, Nyishi, Galo, and Apatani in Arunachal Pradesh, Angami and Chakhesang in Nagaland, and Zo in Myanmar, mithun is more than an animal, it's a living emblem of status and identity. Historically, the number of mithuns a person owns has been a marker of wealth and influence. In many villages, it serves as a traditional currency, used in barter trade, settling disputes, or paying bride prices during marriages.

Festivals and rituals often revolve around mithun. For instance, the Nyishi tribe's Nyokum festival includes mithun sacrifices to appease deities, while the Adi community uses it in communal feasts to mark significant occasions. Beyond its ceremonial role, Mithun provides practical benefits, viz. its meat is a delicacy, its milk (though underutilized) is nutritious, and its hide offers leather potential. This multi-faceted utility has made mithun a lifeline for tribal households, often dubbed the "family bank" due to its economic reliability during emergencies.

The forest free nature of mithun adds to its mystique. Unlike conventional cattle, mithuns roam freely in community forests, requiring minimal human intervention. This free-range system aligns with the tribal ethics of living in harmony with nature, a practice honed over generations. However, as modernization encroaches and forest habitats shrink, this traditional rearing method faces challenges, prompting a need for innovation to sustain its benefits.

### Economic potential: A pathway to prosperity

Mithun farming holds untapped economic potential for tribal farmers, particularly as demand for its products grows. The meat, known for its lean texture and low fat content (2–4% compared to 20% in mutton), is a sought-after delicacy in northeast India, fetching prices as high as ₹ 300/kg in local markets. An adult mithun, weighing between 400 and 650 kg, can be sold for ₹2 lakh or more, offering substantial returns for farmers who traditionally slaughter it only for special occasions like festivals or weddings.

The FSSAI's recognition of mithun as a "food animal" in September 2023 has opened new commercial avenues. Entrepreneurs and startups, such as North East Farm Sales Promotion in Guwahati, are exploring value-added products like vacuum-packed dry meat,

pickles, soups, and instant biryani, aiming to position mithun meat as a premium product for health-conscious consumers beyond the region. This diversification could elevate mithun farming from a subsistence activity to a profitable enterprise, boosting the income of tribal households.

**Table 1.** Economic contributions of mithun farming to tribal communities

Aspect	Contribution	Economic Value (Approximate)
Meat Sales	High demand in local markets	₹ 300/kg; ₹ 2 lakh per adult
Cultural Transactions	Used as bride price, dispute settlement	Varies by community
Potential Dairy Products	Nutritious milk (underutilized currently)	Yet to be commercialized
Hide and Leather	Source of raw material	₹ 5,000–10,000 per animal

Beyond direct sales, mithun farming supports ancillary livelihoods. For instance, the construction of "living fences" made from barbed wire and orchid tree stumps to protect grazing areas has created jobs for local artisans and labourers. Initiatives like the ICAR-National Research Centre on Mithun's (NRCM) training programmes further equip farmers with skills to process meat and adopt semi-intensive rearing, enhancing productivity and market reach.

### Ecological benefits: Guardians of the forest

Mithun's ecological role is as significant as its economic one. As a free-ranging animal, it thrives in the sub-tropical broadleaf forests of the eastern Himalaya, contributing to biodiversity conservation. Its grazing habits help disperse seeds and enrich soil through manure, promoting forest regeneration. Studies suggest that silvo-pastoral systems integrating trees and pasture used in mithun rearing can sequester carbon dioxide, mitigating climate change. A 2023 study in the eastern US estimated that such systems could capture 4.9 to 25.6 million metric tonnes of CO<sub>2</sub> annually if scaled up, hinting at similar potential in the Himalayas.



Mithuns thrive in the Eastern Himalaya's forests, blending tradition with ecology

The Nagaland government has recognized this synergy, promoting mithun farming as an alternative to slash-and-burn agriculture (*Jhum*), which depletes forests and causes landslides. By designating "Mithun forests" near villages, communities preserve natural habitats while sustaining their livestock, striking a balance between livelihood and environmental stewardship.

### Challenges in mithun farming

Despite its promising benefits, mithun farming faces significant hurdles. Habitat loss due to deforestation and agricultural expansion has reduced grazing areas, pushing mithuns into conflict with farmers as they forage on crops. Diseases like foot and mouth disease (FMD) pose a severe threat, with outbreaks decimating herds due to the animals' free-ranging nature and limited vaccination coverage. A study in Nagaland and Manipur identified FMD as a primary reason for population decline, emphasizing the need for awareness and veterinary support. Traditional rearing practices also limit scalability. The zero-input, free-range system, while sustainable, offers little control over breeding or health, leading to low productivity. Predators like wild dogs further endanger young calves, as seen in the case of Yang Ering Moyong, an Adi tribe farmer in Arunachal Pradesh, who lost nearly half her herd of 50 mithuns to attacks. Additionally, lack of institutional support such as credit facilities, insurance, or marketing networks deters farmers from transitioning to commercial models.

### Innovations and interventions

To unlock mithun farming's full potential, scientific and community-driven interventions are underway. The ICAR-NRCM in Nagaland has been a pioneer, developing technologies like semen cryopreservation and estrus synchronization to improve breeding outcomes. Their M-ANITRA app, launched in 2023, connects mithun farmers as buyers and sellers, fostering a competitive market. Training programmes, such as those attended by farmers like Kewiribam from Tening village, teach modern practices like fencing and meat processing, shifting the focus from ritual slaughter to sustainable commerce. Community-led efforts complement these initiatives. The Adi tribe's "living fences" in Arunachal Pradesh, supported by ICAR-NRCM, protect mithuns from straying while enhancing grazing areas. Night shelters made from bamboo sheets safeguard calves, reducing predation losses. These innovations not only boost productivity but also empower women like Yang Ering Moyong, who, as the sole female herder in her



Living fences blend innovation with tradition, safeguarding mithuns and forests

village, exemplifies resilience and adaptability (ICAR-NRC on Mithun 2020).

### The future of mithun farming

The future of mithun farming lies in balancing tradition with modernity. Scaling up semi-intensive rearing systems—where mithuns are partially confined with supplementary feeding—could enhance productivity without losing their ecological benefits. Commercializing dairy products, given mithun milk's nutritional value, offers another revenue stream, though cultural reluctance to milk must be addressed through awareness campaigns.

Transboundary cooperation among eastern Himalayan countries could further amplify benefits. Cross-border festivals showcasing mithun culture might attract tourists, boosting rural economies, while collaborative research could tackle shared challenges like disease and habitat loss. The NRCM remains the world's only dedicated mithun research institute, underscoring the need for global investment to elevate its status.

### SUMMARY

Mithun farming is more than a livelihood, it's a legacy that binds the tribal farmers of the Eastern Himalaya to their land and traditions. As a source of income, a cultural icon, and an ecological ally, mithun offers a sustainable path to prosperity amid the region's challenges. By addressing hurdles like habitat loss and disease through innovation and support, and by tapping into its commercial potential, mithun farming can uplift tribal communities while preserving their unique way of

**Table 2.** Key challenges and proposed solutions

Challenge	Impact	Proposed Solution
Habitat Loss	Reduced grazing areas, human-wildlife conflict	Reforestation, designated Mithun forests
Disease (e.g. FMD)	High mortality rates	Vaccination drives, farmer education
Predation	Loss of calves	Living fences, night shelters
Limited Commercialization	Subsistence-focused, low income	Training, value-added product development

life. For these farmers, the Nature's gardener- Mithun is not just a boon, it's a bridge to a thriving, resilient future. Mithun can be fully exploited to its marketable potential only if the farmers shift from the traditional method of rearing. The constraints of the high cost of inputs involved in fencing and predator attack may be mitigated by adopting a scientific and alternative semi-intensive method of rearing wherein the diversified use of mithun for meat, milk, hide, and draught potential

can be encouraged. The state government should also work for inclusion of mithun under the National Livestock Mission and take initiatives to frame policies, strategies and legislative laws so that mithun can be a constant source of their livelihood security for the farmers without having any impact on the population conservation and propagation.

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Last date for submission: 28<sup>th</sup> February 2026