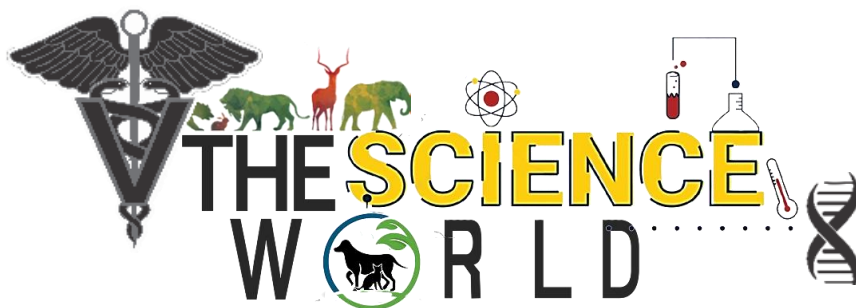




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Assessment of Fodder Scarcity and Its Impact on Livestock Rearing in Khanapara, Assam

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Abstract

Khanapara, a peri-urban locality of Guwahati, Assam, hosts one of the largest livestock markets in Northeast India. Despite the high density of cattle, goats, and poultry, the availability of quality green fodder remains critically low, especially during the dry winter months (November–February). This study assessed the seasonal availability, nutritional quality, and socio-economic impact of fodder scarcity on 85 smallholder livestock farmers in Khanapara. A mixed-method approach involving field surveys, fodder biomass measurement, and proximate analysis was employed. Results indicate a 62% decline in green fodder availability during winter compared to the monsoon. Crude protein content of available forages fell below 7% (critical threshold 8–10%). Farmers reported reduced milk yield (average 32% decline), increased feed costs (₹45–60 per animal per day), and early disposal of livestock. The study recommends promotion of hydroponic fodder, silage making, and community-based fodder banks to mitigate scarcity.

Keywords: Fodder scarcity, Khanapara, livestock, nutritional stress, peri-urban agriculture.

1. Introduction

Khanapara (26.12°N, 91.78°E) lies on the southern fringe of Guwahati city. The area is characterised by a mix of rural and semi-urban land use, with livestock rearing as a primary source of livelihood for many families. The College of Veterinary Science, Khanapara and the state-run livestock market attract traders from across the region. However, rapid urbanisation has reduced common grazing lands, and climate variability has exacerbated seasonal fodder shortages. While national reports (DAHD&F, 2022) highlight an overall deficit of 35.6% in green fodder in India, local-scale data for Khanapara are absent. This study fills that gap.



2. Materials and Methods

2.1 Study Area and Sampling

A cross-sectional survey was conducted from October 2024 to March 2025 covering four villages under Khanapara: Bonda, Nizarapar, Kachari Gaon, and Hatigaon fringe. Eighty-five households (40% marginal farmers, 35% small, 25% medium) with at least two cattle or five goats were purposively selected.

2.2 Fodder Availability Assessment

Biomass of green fodder (grasses, tree leaves, crop residues) was measured monthly from 10 randomly placed 1×1 m quadrats on common lands, roadside verges, and fallow fields. Fresh weight (kg/m²) was recorded and converted to kg/hectare.

Commonly available fodders I collected during my research work are:

Serial number	Fodder Picture	Local / English Name	Scientific Name
1.		Makoi / Maize	<i>Zea mays</i>
2.		Dal ghah / Dal grass	<i>Hymenachne amplexicaulis</i>



3.



Cowpea / Lobia / *Vigna*
Black eye pea *unguiculata*

4.



Peepal *Ficus religiosa*

5.



Centrosema / *Centrosema*
Butterfly pea *molle*

6.



Bam / Bamboo *Bambusa spp.*



7.



Fig

Ficus carica

8.



Dubori bon / Doob grass
Cynodon dactylon

9.



Kathal / Jackfruit
Artocarpus heterophyllus

10.



Sojina / Moringa / Drumstick
Moringa oleifera



11.



Guinea grass

*Megathyrsus
maximus*

12.



Banana

*Musa
paradisiaca*

13.



Helosi / Helonsa / *Alternanthera
philoxeroides*

14.



Carpet grass

*Axonopus
compressus*

15.



Goose grass

Eleusina indica



16.



Jharubon / Broom grass
Thysanolaena latifolia

17.



Para / Water grass / Buffalo grass
Urochloa mutica

18.



Congo signal grass
Brachiaria ruziziensis

19.



Oat
Avena sativa



20.



Hati-Khutura / Spiny *Amaranthus*
Amarnath *spinosus*

21.



Bonguti / Love thorn *Chrysopogon*
/ Crested spear grass *aciculatus*

2.3 Nutritional Analysis

Samples of predominant forages (*Cynodon dactylon*, *Pennisetum purpureum*, rice straw, banana leaves) were collected during peak (August) and lean (January) seasons. Proximate analysis (AOAC methods) determined dry matter, crude protein (CP), crude fibre (CF), and total ash.

2.4 Farmer Interviews

Semi-structured interviews captured perception of scarcity, coping strategies, milk production changes, and additional feed expenses. Data were analysed using descriptive statistics (mean, percentage) and paired t-tests (seasonal differences).

3. Results

3.1 Seasonal Fodder Biomass

Green fodder biomass declined sharply from monsoon (August: 2.85 ± 0.42 kg/m²) to winter (January: 1.08 ± 0.31 kg/m²) – a reduction of 62.1% ($p < 0.01$). Roadside grazing areas were reduced by 45% compared to five years ago due to construction and encroachment.

3.2 Nutritional Quality

Parameters	Monsoon (August)	Winter (January)	Critical Threshold
Crude protein (%)	9.6 ± 1.2	6.8 ± 0.9	<8% – deficient



Crude fibre (%)	28.4 $\pm$ 2.1	33.7 $\pm$ 2.5	>35%–low digestibility
Dry matter (%)	24.5 $\pm$ 3.0	42.3 $\pm$ 4.1	—

Winter forages had CP below the 8% minimum required for maintenance of non-lactating cattle (NRC, 2001).

3.3 Farmer-Reported Impacts

- **Milk yield reduction:** 83% of farmers reported a decline in milk production, averaging 32% (from 4.6 to 3.1 litres/day/cow).
- **Feed cost increase:** 91% purchased concentrate or green fodder from distant markets (Jalukbari, Panikhaiti). Daily feed cost rose from ₹28 to ₹62 per animal during scarcity months.
- **Livestock disposal:** 27% of households sold pregnant or lactating animals early; 12% reduced herd size permanently.
- **Health issues:** 64% observed weight loss, 41% reported repeat breeding failures, and 18% had cases of bloat due to sudden feeding of unconventional forages (e.g., banana pseudostem alone).

3.4 Current Coping Strategies (multiple responses allowed)

- Purchasing green fodder (78%)
- Using crop residues only (62%)
- Tree lopping (49%)
- Reducing number of animals (34%)
- Migration to nearby char areas (11%)

None of the farmers used silage, hay, or hydroponic fodder.

4. Discussion

The study confirms a severe seasonal fodder deficit in Khanapara, aligning with regional reports (Saikia et al., 2021) but more acute due to land use pressure. The CP level of 6.8% in winter is below maintenance requirement, explaining poor animal performance. High CF (33.7%) further limits digestibility.

The absence of fodder conservation technologies is striking. Farmers rely on expensive purchased feeds, eroding profit margins. Unlike other parts of Assam where community fodder



banks exist (Boruah & Das, 2020), Khanapara has no such institution. The proximity to Guwahati city drives land prices upward, discouraging fodder cultivation.

Limitations: This study did not measure heavy metal contamination in roadside forages, nor did it include economic loss calculation at the household level.

5. Conclusion and Recommendations

Fodder scarcity in Khanapara is real, seasonal, and worsening. It directly harms livestock productivity and farmer livelihoods. Immediate interventions are needed:

1. **Promote hydroponic fodder (maize/barley)** – can produce 6–8 kg of green fodder from 1 kg of seed in 7 days, using minimal land.
2. **Establish community silage making units** using maize or hybrid Napier, especially during monsoon surplus.
3. **Develop a fodder bank** on unused veterinary college land, operating on a “deposit-withdraw” model.
4. **Train farmers in urea treatment** of paddy straw to improve CP from 4% to 10–12%.
5. **Revise land use policy** to allocate at least 5% of peri-urban common land for perennial fodder grasses.

Further research should assess cost-benefit of hydroponic system and evaluate fodder trees (*Leucaena*, *Subabul*) for round-year availability.

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References

- AOAC. (2019). *Official Methods of Analysis (21st ed.)*. Association of Official Analytical Chemists.
- Boruah, R., & Das, P. (2020). Community fodder banks in Assam: A case study from Nagaon district. *Indian Journal of Animal Nutrition*, 37(2), 145–151.
- DAHD&F. (2022). *Annual Report 2021-22*. Department of Animal Husbandry & Dairying, Govt. of India.
- NRC. (2001). *Nutrient Requirements of Dairy Cattle (7th rev. ed.)*. National Academies Press.
- Saikia, A., Bora, K., & Deka, R. (2021). Seasonal forage availability in peri-urban Guwahati. *Journal of Livestock Research*, 15(3), 78–86.

