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Fodder Scarcity and Its Impact on Dairy Animals in Bundelkhand Region

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Bundelkhand, spread over parts of Uttar Pradesh and Madhya Pradesh, is widely known as a drought-prone and water-scarce region. The Inter-Ministerial Central Team on drought mitigation reported that Bundelkhand experienced a major drought once in 16 years during the 18th–19th century, but this frequency increased three times during 1968–1992. un-spider.org+1 In such a fragile environment, rural livelihoods depend heavily on livestock—cows, buffaloes, goats and sheep. Dairy animals act like a "living bank" for small farmers, but their productivity directly depends on feed and fodder availability. When fodder is scarce, animals lose weight, milk yield falls and farmers' income as well as nutritional security are badly affected.

Fodder Situation in Bundelkhand: Evidence from Studies

A detailed study on "Fodder status in Bundelkhand region of India during drought year and the practice of free range grazing" conducted by ICAR-IGFRI, Jhansi, analysed both secondary and primary data from 13 Bundelkhand districts. The study found that:

- 67.44% farmers in Bundelkhand follow free-range grazing for their animals.
- 62.79% farmers clearly stated that shortage of fodder and water in summer is the main reason for this practice. Indian Agricultural Research Journals+1

The same study showed that crop residues (bhusa and stalks) are the major feed resource, while the contribution of green fodder and concentrate feed is very limited, especially in drought years. AGRIS+1 At a broader level, feed and fodder shortage is also reflected in national assessments. The Government of India's feed–fodder assessment (based on NITI Aayog and ICAR studies) estimates a deficit of about 35% in green fodder, 10% in dry fodder and around 33–44% in concentrates at the national level, with higher gaps expected in arid and semi-arid regions. Desagri+2aerc.du.ac.in+2 For Uttar Pradesh, a State-specific fodder resources development plan prepared by ICAR-IGFRI, Jhansi, reports a deficit of about 24% in green fodder and 30% in dry fodder. IGFRI Bundelkhand—being one of the driest sub-regions within U.P.—naturally faces an even more severe fodder gap.

Why Fodder is So Scarce in Bundelkhand

From government and research reports, the main reasons behind fodder scarcity in Bundelkhand can be summarised as:

1. **Recurrent droughts and rainfall variability**

- Drought studies show that the frequency and intensity of drought in Bundelkhand have increased many-fold in recent decades, with several districts now experiencing hydrological and agricultural drought at short intervals. nidm.gov.in+2ASCE Library+2
- Poor rains mean low biomass production – both grain and fodder suffer.

2. **Very small area under cultivated fodder crops**

- Nationally, only a small share of arable land is under fodder; most farmers prefer food or cash crops.
- NITI Aayog's working group reports highlight that green and dry fodder mainly come from crop residues and common lands, leaving little scope for expansion without planning. NITI Aayog+1

3. **Degraded and shrinking common lands**

- Pastures, village commons and wastelands are heavily overgrazed and degraded, while some areas are diverted to other uses. Feed resource analyses for Bundelkhand show that dependence on these commons remains high, but their productivity is low. AGRIS+1

4. **Limited fodder conservation and storage**

- The fodder development plan for U.P. notes poor post-harvest management, very little hay or silage making, and lack of organised fodder banks at village level. IGFRI

Together, these factors create a situation where fodder becomes acutely scarce during summer and drought years, exactly the time when animals need more support.

Impact on Dairy Animals and Farmers

Because of this structural fodder shortage, most Bundelkhand farmers manage their animals with:

- low-quality dry crop residues as the main feed,
- free-range grazing on forests, fallows and village lands, and
- a small quantity of purchased feed, which many poor households cannot afford regularly. Indian Agricultural Research Journals+1

Field studies and drought reports from Bundelkhand indicate several typical impacts:

- Body condition loss: Under-feeding and poor quality fodder cause animals to lose body weight during lean months.
- Milk yield decline: In drought-prone semi-arid systems, a green fodder deficit of around 30–35% can reduce milk production by roughly 15–25%, especially in smallholder herds already on marginal diets. agrijournal.org+1
- Reproductive problems: Farmers often report delayed heat, repeat breeding and longer calving intervals, linked to chronic under-nutrition.
- Distress sale and mortality: Drought mitigation reports for Bundelkhand mention cases of distress sale of cattle and increased mortality when fodder and drinking water become critically scarce. un-spider.org+2Indian Agricultural Research Journals+2

Economic studies on dairying in Bundelkhand further show that the region already suffers from low milk productivity, mainly due to poor feeding, inadequate fodder and frequent droughts. idc.icrisat.org

Thus, fodder scarcity directly squeezes farmers from both sides – higher cost of purchased feed and lower income from milk.

Emerging Solutions and Government / Research Initiatives

Despite these challenges, some promising solutions are being developed, especially by institutions located within Bundelkhand itself:

1. **Fodder on Bunds – using "waste" space around fields**

- ICAR-IGFRI, Jhansi has developed the "fodder on bunds" technology, where high-yielding hybrid napier and other fodder grasses are planted along field bunds.

- Studies show that this is a **resource-efficient technology for Bundelkhand**, requiring minimal extra land or water but providing **year-round green fodder** and even protecting adjacent crops from heatwaves. Indian Agricultural Research Journals+2AGRIS+2

2. **Fodder Resources Development Plan for Uttar Pradesh**

- IGFRI's fodder plan for U.P. recommends expanding area under fodder crops, improving pasture lands, promoting fodder trees, and strengthening fodder seed supply and extension services, with special attention to deficit regions like Bundelkhand. IGFRI+1

3. **Integrated and livestock-based farming systems**

- Recent research on integrated crop–livestock systems in drought-prone areas suggests that combining food crops, fodder crops, grasses, trees and dairy animals on the same farm can improve both income and fodder security. idc.icrisat.org+1

4. **National and state-level drought mitigation programmes**

- The Bundelkhand Special Package and various drought mitigation strategies emphasise water harvesting, pasture development, cattle camps and fodder depots during severe droughts, to reduce livestock losses. un-spider.org+2nidm.gov.in+2

Conclusion

Bundelkhand represents a classic example of how climate stress, land degradation and policy gaps together create a serious problem of fodder scarcity. Government and research documents show:

- Rising drought frequency,
- 24–30% fodder deficit even in a major livestock state like Uttar Pradesh, and
- 67% farmers depending on free-range grazing because summer fodder and water are simply not enough. phytojournal.com+3un-spider.org+3IGFRI+3

This structural shortage translates into poor animal health, reduced milk yield, reproductive problems and distress sale of cattle, seriously affecting the livelihood and nutritional security of small and marginal farmers in Bundelkhand. At the same time, innovations such as fodder on bunds, pasture development, fodder banks, integrated farming systems and targeted drought mitigation schemes offer a clear way forward. If these measures are implemented on a large scale with farmer participation, Bundelkhand can gradually move from fodder scarcity to fodder security, ensuring more resilient dairy farming and a more stable future for rural households in this vulnerable region.