

Small Millet Fodder: A Nutritious Boost for Cattle

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In an era of climate uncertainty and resource scarcity, livestock farmers face mounting pressure to secure nutritious, sustainable fodder for cattle. Small millets resilient grains like finger millet (ragi), pearl millet (bajra), barnyard millet, and little millet emerge as a game-changer, thriving on marginal lands with minimal water and inputs while delivering superior nutrition. This article explores their rich mineral profile, digestibility advantages over corn or sorghum, and proven boosts to milk yield and calf health, drawing from agronomic research and farm trials. By integrating harvesting best practices and sustainability benefits, small millets offer a pathway to carbon-neutral livestock farming. Small millets like finger millet, barnyard millet, and little millet serve as highly nutritious fodder options for cattle, offering superior mineral content, protein digestibility, and water efficiency compared to traditional feeds like corn or sorghum. These resilient crops thrive in marginal lands and dry conditions, making them ideal for sustainable livestock farming. Farmers feeding small millets report healthier calves, higher milk yields, and reduced feed costs. The proper time to harvest small millet for green fodder is at the emergence of panicles, which is when the panicles just start to appear. For dry fodder or grain (seed) harvest, it is best to harvest when the panicles change color and the lower leaves start to yellow, indicating maturity of the seeds.

Harvesting Small Millet Green Fodder

- Harvest at panicle emergence stage.
- This stage offers maximum nutrient availability and good quality green fodder.
- Usually occurs around 50 to 60 days after sowing depending on variety and conditions.

Harvesting Small Millet Dry Fodder (Seed)

- Harvest at physiological maturity indicated by panicle color change and yellowing of lower leaves.
- Seeds become hard and grain moisture reduces to around 12-13%.
- Typically occurs about 60 to 90 days after planting.

Harvesting at these stages balances the yield and nutritive value of the small millet for either green fodder or dry fodder use effectively. There are various other ethnobotanical uses of small millets as depicted in Fig.1

Nutritional Powerhouse

Small millets pack essential nutrients vital for cattle health. Finger millet provides twice the calcium of corn, four to five times more phosphorus, and ample potassium, addressing deficiencies that stunt growth and milk production. Pearl millet offers comparable protein and fiber to corn silage while requiring less supplemental protein in dairy diets. Barnyard millet stands out with high iron, zinc, fiber, and protein levels per 100g dry matter, enhancing digestibility over rice or wheat straw. Pearl millet silage matches corn in supporting milk yield and composition when replacing up to 30% of the diet. Finger millet grain supplementation boosts milk fat, solids-not-fat, and yield by 1.9 liters per cow daily while lowering urea levels.

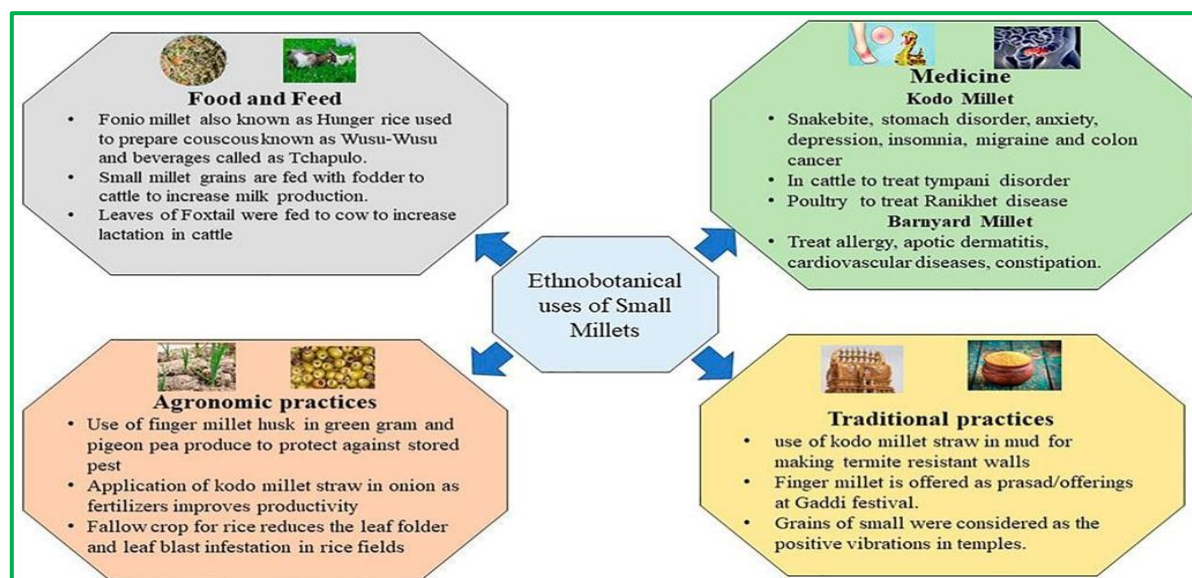


Fig. 1 Ethnobotanical uses of small millets

Benefits for Dairy and Livestock

Dairy cows on finger millet forage wean healthier calves and digest feed better due to methionine content. In India, it cuts water use by 10-20% versus sorghum, vital in water-scarce regions. Pearl millet forage yields similar dry matter intake as sorghum for goats, with superior protein uptake. (AICRP on Sorghum and Small Millets agronomy reports). For mid-lactation cows, brown mid-rib finger millet silage maintains production equal to corn silage. Straw from small millets like little and barnyard sustains productivity with biofertilizers, cutting fertilizer needs by 15-30 per cent Bhatt, D et al. (2022). It improves milk quality and volume without extra protein. Small millets fodder enhances reproductive health in high-urea cows by balancing feed's rumen-degradable protein can lower urea toxicity effects on hormones and uterine pH, supporting better fertility outcomes. This aligns with sustainable fodder options like small millets, which may help maintain reproductive performance in urea-stressed cows.

Sustainability edge of small millets

Small millets align with carbon-neutral farming by growing on poor soils with minimal inputs. Low nutrient uptake preserves soil fertility over intensive corn. In drought-prone areas, they outperform traditional fodders, reducing irrigation demands. This makes them a greener choice for livestock nutrition amid climate challenges.

Conclusion

Small millet fodder revolutionizes cattle nutrition by combining high protein, minerals, and fiber with unmatched resilience to drought and low fertility. Farmers adopting these crops achieve healthier herds, higher yields, and lower costs, paving the way for eco-friendly dairy systems amid global challenges. Future research should scale biofortified varieties and farmer training to fully unlock their potential in sustainable agronomy.

References

1. Bhatt, D., Sood, S., Agrawal, P. K., & Kant, L. (2022). Nutritional Advantages of Barnyard Millet. *Indian J. Plant Genet. Resour.*, 35(3), 2748–2760.
2. Renganathan, V. G. (2020). Barnyard Millet for Food and Nutritional Security. *Frontiers in Nutrition*, 7, 81.
3. Finger Millet Shows Promise as Cattle Feed. U.S. Department of Agriculture, Agricultural Research Service (USDA, ARS) n.d. (No date available).
4. AICRP on Sorghum and Small Millets: Agronomy Reports. Indian Council of Agricultural Research (ICAR)Varies by Report ICAR Website/Report Series.
5. Finger Millet for Cattle Feed. Shree Shubham Exim (Website Article) 2025 Shree Shubham Exim Website.