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From feed deficits to opportunities: The role of forage seed systems in transforming livestock systems

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Abstract

Ruminant livestock systems across Sub-Saharan Africa and Southeast Asia face persistent and widening feed deficits that constrain productivity, limit smallholder incomes, and undermine the sustainability of food systems. This study synthesizes evidence from multi-country analyses in Sub-Saharan Africa (Burundi, Ethiopia, Kenya, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Somalia, South Sudan, Sudan, Tanzania, Uganda, Zambia, Zimbabwe) and Southeast Asia (Cambodia, Laos, Timor-Leste, Thailand, Vietnam) to quantify forage gaps and evaluate the role of improved forages and seed systems in addressing them. Across regions, feed deficits remain substantial. In Eastern Africa alone, nearly 40 % of annual feed demand – equivalent to 136 million tons of dry matter – is unmet, with over 31 million tons potentially addressable through cultivated forages. Comparable deficits are observed in other parts of Sub-Saharan Africa and Southeast Asia, highlighting a systemic constraint to livestock intensification. Bridging these gaps would require large-scale transformation, including 3.2 million hectares of forage cultivation and the engagement of over 2.6 million farmers in Sub-Saharan Africa alone. Scenario analyses suggest that gradual adoption pathways are more realistic than rapid scale-up. Under conservative adoption scenarios, forage seed demand reaches tens of thousands of tons over a decade across regions, with substantial economic opportunities emerging. The forage seed market alone could generate hundreds of millions of USD, while the value of cultivated forages could reach several billion USD, reflecting strong incentives for private sector engagement. Despite this potential, adoption remains limited by systemic constraints, including underdeveloped and import-dependent seed systems, high seed costs, weak distribution networks, limited extension services, and land competition. Informal practices such as vegetative propagation play an important but insufficient role for scaling. Policy frameworks increasingly recognise feed constraints, yet implementation gaps persist, particularly in seed system development and regional harmonisation. The findings highlight that closing the feed gap is not merely a technical challenge but a systems-level issue requiring coordinated action. A systems-oriented approach to forage development offers a transformative pathway to enhance livestock productivity, strengthen climate resilience, and create inclusive opportunities for rural communities to participate in and benefit from a robust, multi-billion-dollar sector across the Global South.

Keywords: Climate resilience, feed gap analysis, forage deficit, Global South, improved forages, seed policy, seed systems, sustainable livestock

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