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## The seed system landscape for improved forages in Vietnam: Threats, trends, and opportunities

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### Abstract

Cattle farming has provided several benefits to Southeast Asian societies, such as draught power, food security, meat, milk, income generation, and status. In view of the growing demand for beef in response to the region's economic development, especially in countries like Vietnam, the sustainable intensification of beef production emerges as a road map to improve communities' livelihoods from cattle raising. Multiple efforts by stakeholders have been made to introduce and disseminate innovative practices and technologies, such as improved planted forages, which focus on overcoming barriers regarding feed shortages year round and the low nutritional and productive quality of the cattle feed basket, among others. Although producers have responded to the adoption of promising materials encouragingly, scaling remains low due to limited knowledge of new materials and barriers in the supply system. Hence, this research aims at identifying business opportunities for improved planted forages to guarantee the accessibility and affordability of these technologies, mainly to smallholder women and men farmers and ethnic minorities in the remotest areas. Our contribution relies on constructing a strategy to scale technology dissemination among cattle farmers, farmers with land available to grow forages, and forage seed companies in an effort to establish a suitable environment for sustainable cattle intensification. To achieve this, our starting point is an analytical framework of a stakeholder-based seed system to conduct a market analysis in Vietnam, marking differences among three central cattle-producing regions: Northern Mountains, Central Coast, and Central Highlands. We collected primary and secondary information using the Five Forces Framework's Porter for Industry Analysis to identify entry barriers, leading competitors in the forage seed industry, buyers and alternative feeds, suppliers, and industry threats. The actors interviewed belong to the stages of seed selection and innovation, seed production, distribution and dissemination, and variety release, protection and quality control. Although data is currently being analyzed, the highlights will illustrate the competitive environment of the improved forage industry in the country that the varieties currently promoted by multilateral organisations, government, and research entities face.

**Keywords:** Cattle farming, climate change, improved forages, seed system