



Tropentag, September 16-18, 2026, hybrid conference

“Towards multi-functional agro-ecosystems
promoting climate resilient futures”

Information access, seed market systems and forage adoption: Evidence from smallholder dairy farmers in Kenya

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Abstract

Forage seed markets in developing countries are fragmented and underdeveloped. In Kenya, uptake of new improved forages is constrained by limited seed availability, high seed prices and limited information. The study assesses uncommon connections in research on seed market perceptions (quality, availability, and affordability), information access, and forage uptake, while controlling for socioeconomic, farm, and market access factors. To investigate these relationships, a household survey was conducted among 424 dairy farmers growing Napier grass (informal system), forage maize (formal system) and Oats (semi-formal system) in Nyandarua and Uasin Gishu counties in Kenya, between July and August 2025. Data was analysed using a linear probability model and a multivariate probit regression. The results show that Napier grass adoption was associated with higher quality perceptions of planting material ($p = 0.021$). Forage maize adoption was associated with higher perceptions of availability ($p = 0.000$), affordability ($p = 0.000$), and quality ($p = 0.002$), while oats adoption was associated with availability ($p = 0.000$) and affordability ($p = 0.000$). Higher seed quality perceptions were associated with market information and membership in farmer groups. Interestingly, an increased availability perception was reported by farmers who encountered counterfeit maize seeds, indicating engagement with multiple seed sources. Increased affordability perceptions were associated with access to market information and greater trust in seed sellers. Adoption of the three crops was considerably influenced by access to market information. In addition, participation in forage projects influenced the adoption of Napier grass and oats. The adoption of forage maize was also linked to training, extension services, trust in seed sellers, prior experience with counterfeit seeds and the distance to agrovet shops. In conclusion, forage adoption across crops is closely linked to seed market perceptions, which in turn are associated with access to market information, membership in farmer groups, and trust in seed sellers. The results highlight the need for specific seed system interventions to improve forage adoption and boost milk productivity: quality-declared planting materials in informal seed systems; enhancing seed availability and lowering seed prices in formal and semi-formal systems; and expanding access to market information and extension services.

Keywords: forage seed systems, adoption, dairy farmers, information access, seed market perceptions