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## The Role of Seed Systems in the Adoption of Improved Forages: The Colombian Case

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### Abstract

Forage improvement processes, which began in Latin America in the 1980's, have resulted in the release of new cultivars and hybrids superior in term. of productivity, sustainability and adaptability. Increasing the adoption rate of these technologies stands as one of the most promising strategies for the sustainable intensification of bovine livestock production in the tropics. In Colombia, 22 cultivars have been released (through formal channels) since then, most of them specifically aimed towards the country's tropical lowlands (0–1200 m a.s.l.). While positive impacts are found and documented within productive systems implementing these technologies, adoption rates remain low. This research expands on the roles and dynamics of both Research & Development (R&D) institutions and seed supply companies as potential explicative factors behind the processes of adoption and diffusion of forage technologies. We used a qualitative approach and developed a meta-analysis that addresses the functioning of seed systems in developing countries. We also conducted focus groups and semi-structured interviews with key agents (research and development centres, seed suppliers, producers and government agencies, among others). Our findings identify a lack of cohesion among R&D institutions and seed supply companies, prompted by their divergent productive goals and means of financing. As a direct consequence, we note several dynamics hindering the adoption of improved forages: a) duplicated efforts and investments resulting in poorly optimised processes; b) “premature” liberation of cultivars from research institutions that lack proper seed availability; c) simultaneous promotion of forage technologies by both actor types as aligned with distortions in the information given to producers; and d) a primacy of interpersonal relations that further complicates adoption and diffusion processes, as it circumscribes technological advances to a non-institutional realm. These results illustrate the complex dynamics behind forage technology dissemination, underscoring the critical role of a well-established synergy between institutions that can effectively contribute to overcome bottlenecks lying at the core of technology adoption in the country.

**Keywords:** Livestock, productivity, R&D, scaling, sustainable intensification, technology adoption