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Factors affecting the success of community based bull breeding programs. evidence from the regional pastoral livelihood resilience project in Uganda

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Abstract

Community-Based Breeding Programs (CBBPs) have emerged as a promising strategy for improving livestock productivity among smallholder farmers in sub-Saharan Africa. However, their effectiveness remains inconsistent, with many programmes failing to achieve sustained outcomes. This study examines the factors influencing the success of CBBPs in Uganda, using evidence from the Regional Pastoral Livelihood Resilience Project (RPLRP). Success is conceptualised through two key indicators: the survival of distributed breeding bulls and their reproductive performance, measured by the ability to sire offspring and the intensity of siring.

The study employs a quantitative approach, utilising primary data collected from 225 bull-hosting households across pastoral and agro-pastoral regions. A double-hurdle econometric model is applied to simultaneously analyse the determinants of both the likelihood and intensity of success outcomes. The results reveal that the drivers of bull survival and reproductive performance are related but largely distinct. Bull survival is positively associated with host-level human capital and institutional factors, including education, literacy, livestock farming experience, prior community consultations, and access to local government technical support. In contrast, reproductive success is primarily influenced by herd structure and management practices, particularly the number of reproductive female cattle, ownership of improved breeds, and the use of controlled grazing systems such as tethering.

The findings further highlight the critical role of animal health interventions, including regular spraying and vaccination, as well as collective financing mechanisms, in enhancing programme sustainability. Conversely, competing livelihood activities, particularly crop farming as a primary occupation, negatively affect programme outcomes. These results underscore the importance of aligning breeding interventions with local production systems and strengthening institutional support frameworks.

The study concludes that the success of CBBPs depends on an integrated approach that combines technical, institutional, and socio-economic considerations. Policy recommendations include strengthening extension services, promoting participatory programme design, enhancing animal health systems, and encouraging management practices that optimise breeding efficiency. These insights provide valuable guidance for scaling sustainable livestock genetic improvement initiatives in similar contexts.

Keywords: Based breeding program, community, factors, success

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