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## Factors Influencing Cooperation and Collective Action: Implications for Communal Cattle Breeding Schemes in Trypanosomosis Prevalent Areas in Eastern Africa

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### Abstract

In sub-Saharan Africa, many rural populations live in absolute poverty and suffer from chronic hunger. Most of these populations comprise livestock keepers and smallholder farming communities who eke out a living under harsh environmental conditions. Animal diseases are serious constraints to livestock productivity in African rural areas and reduce opportunities for improving food security and reducing poverty. Modern biotechnology approaches provide key components of improving livestock productivity by introducing genes that control desirable traits such as disease tolerance through marker assisted breeding with great precision, resulting in improved strains of livestock. In order for rural populations to benefit from such kind of innovations, sustainable access pathways need to be identified. Communal group breeding schemes have been identified in literature as sustainable and potential pathways to achieve measurable genetic gains of desirable livestock traits from nucleus herds in subsistence systems of developing countries. However, there exists a knowledge gap on factors that may influence the likelihood of success of such communal-based schemes. Such information would be useful in developing appropriate interventions as community participation and cooperation in developing countries increasingly get centre stage in the policy arena as a pathway towards achieving sustainable economic development. This paper investigates factors that influence community participation in communal development initiatives in trypanosomosis prevalent production systems in Narok and Suba district of Kenya and the Ghibe valley in Ethiopia, which mainly comprise pastoral, agro-pastoral and mixed crop-livestock systems. In these systems, cattle keepers have preferences for traits associated with trypanotolerance, fecundity and traction potential; traits which could be integrated in breeding objectives and selection indices in breed improvement programs. Game theoretic models as well as econometric models are applied.

**Keywords:** Communal participation, Eastern Africa, livestock productivity, trypanotolerance