



Tropentag, October 5-7, 2011, Bonn

“Development on the margin”

## Farmers Innovations in Livestock Feeding and Management in Semi-arid Areas of Ethiopia

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### Abstract

This study was conducted in Meiso district located 300 km east of Addis Ababa. Most of the district has an elevation of about 1700 m asl and is surrounded by a chain of mountains. Mean annual temperature is around 21°C, while average annual rainfall ranges from 635 to 945 mm. The district has mixed crop-livestock, agropastoral and pastoral production systems. Sorghum, maize, sweet potato, chat and vegetables are the major crops grown and cattle, goats and camels are the dominant livestock species. The rainfall is erratic and unreliable, often resulting in recurrent drought and hence relief aid is a regular source of livelihood for many rural families. Crop failure and shortage of feed are the most limiting factors for development in all the farming systems. This is aggravated by climate change as manifested by reduced biomass productivity due to shortage of rainfall, shrinkage in grazing land, water shortage and loss of biodiversity. This paper explains and discusses innovative adaptation mechanisms developed by farmers in both crop production and livestock rearing systems to cope with food and feed deficits. The farmers' innovations include a) change in cropping system - intercropping sorghum with sweet potato and beans to increase food and biomass yield, cultivating sole maize or sweet sorghum for animal feed, application of manure on farm land on regular basis; b) change in feed production and conservation - enclosing pasture lands and with some rehabilitative measures, timely collection of crop residues and tillers of sorghum, hiring enclosures on temporary basis, exchange animal feeds for draught power, establishing grass strips on farm bunds; c) improving nutritive value of feed resources by applying fresh urine and salt on roughages; d) change in feeding systems - use of locally available mineral soils, use of cereal grain as supplementary feeds with different forms of presentation such as roasting, boiling, heat treatment of cactus leaves and roots prior to feeding animals, grinding, malting, dehulling; e) use of local herbal medicines as part of fattening animals; and f) complete shift in animal management to cut and carry feeding system, and use of spate water harvesting for irrigation.

**Keywords:** Ethiopia, farmer innovation, feeding systems, livestock