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Research Application Summary

Contribution of camel production to household well being amongst pastoralists in Karamoja sub-region

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Abstract

The contribution of camel production to household wellbeing and its potential in building household resilience to climate variations in the Karamoja region was examined. A cross-sectional survey was conducted covering a sample of 50 camel rearing and 70 non-camel rearing households in Amudat and Moroto districts. Preliminary findings revealed that camels contribute to household wellbeing mainly through milk and blood production for both food and income. A lactating camel produces a stable supply of milk for over 12 months compared to cows whose milk production fluctuates with season. The milk from camels is perceived to be medicinal, more nutritious and healthier compared to cow milk. Besides food products, camels are in a few instances used as bride price, and rarely sold. Camels have not been observed to migrate in the dry season as compared to other livestock. This enhances the nutritional status of women and children who often remain at home in the dry period. Milk production for camels is stable throughout the lactation period (over 12 months). The high volume of milk produced (6-8 milking per day) enhances household resilience to drought induced food insecurity. While camel rearing is still at its subsistence, it presents a viable opportunity for household resilience enhancement in the area especially as cattle that have traditionally been relied upon start experiencing production challenges due to the recurrent and prolonged droughts.

Key words: Climate variations, lactaion period, milk production

Résumé

La contribution de l'élevage des chameaux pour le bien-être des ménages et son potentiel dans la construction de la résilience des ménages aux variations climatiques dans la région de Karamoja a été examinée. Une enquête transversale a été réalisée sur un échantillon de 50 ménages des éleveurs des chameaux et 70 ménages non-éleveurs des chameaux dans les districts d'Amudat et Moroto. Les résultats préliminaires ont révélé que les chameaux

contribuent au bien-être des ménages principalement par le lait et la production de sang pour la nourriture et le revenu. Un chameau allaitant produit un approvisionnement stable de lait pour plus de 12 mois par rapport aux vaches dont la production laitière fluctue par saison. Le lait de chameaux est perçu comme médicament, plus nutritif et plus sain par rapport au lait de vache. Outre les produits alimentaires, les chameaux sont dans quelques cas, utilisés comme la dot, et rarement vendus. Les chameaux n'ont pas été vus migrer pendant la saison sèche contrairement aux autres animaux d'élevage. Cela améliore l'état nutritionnel des femmes et des enfants qui restent souvent à la maison pendant la période sèche. La production laitière par les chameaux est stable tout au long de la période de lactation (plus de 12 mois). Le volume élevé du lait produit (6-8 traites par jour) améliore la résistance des ménages à l'insécurité alimentaire induite par la sécheresse. Alors que l'élevage des chameaux est encore à sa subsistance, il présente une opportunité viable pour le renforcement de la résilience des ménages dans la région d'autant plus que les bovins, desquels l'on dépendait traditionnellement, commencent à éprouver des difficultés de production en raison des sécheresses récidives et prolongées.

Mots clés: les variations climatiques, la période de lactation, la production laitière

Background

With reduced precipitation, pastoral and other dry land livelihoods are being negatively affected by climate variations (UNDP, 2009) through recurrent and prolonged droughts. This has led to serious ecological and economic consequences to rangelands and rangeland users especially in Africa's dry lands (Vetter, 2009). The hot and dry, with low and erratic rainfall nature of Arid and Semi-arid lands (ASALs) leaves a few viable livelihoods that are suited to this arid environment other than mobile livestock-keeping that has particularly been well adapted (Oxfam, 2008). According to Heffernan (2012), livestock keeping in ASALs presents both productive and buffer assets, through serving as saving options but most important as food security hence reducing vulnerability during times of stress like drought periods. Livestock are a major source of income and food security in arid and semi-arid lands where livestock-crop integration farming is generally limited (Descheermaerker *et al*., 2010).

Traditionally, pastoral communities survive drought effects through breeding locally adapted livestock species or diversifying livestock species kept depending on aridity index of the location (IUCN, 2010). The range of livestock species kept by pastoral communities in drylands include cattle, goats, sheep, camels, donkeys and poultry. Of recent, pastoral tribes, Samburu and Turkana in northern Kenya have begun to increase the number of camels they manage in place of cattle in order to have more drought-resilient livestock (IUCN, 2010; Kagunyu and Wanjohi, 2014; Kagunyu and Wanjohi, 2015).

Camels are important livestock species in the subsistence economy of rural pastoral communities (Aujla *et al*., 2013) particularly in arid and semi-arid lands (Field, 2005). They contribute to household food security through meat and milk (Ahmad *et al*., 2010), are used as pack animals for transport and provide household income through sale of live animals,

meat, milk, fat and other by-products like hides (Mochabo *et al*., 2005; Faye *et al*., 2010; Aujla *et al*., 2013). Field (2005) estimated that the volume of milk produced by camels is six times that produced by indigenous cattle reported in the dry lands especially during the dry periods. Mochabo *et al*. (2005) further identifies that camels are given as bride price in Kenya and are kept as security against calamities and natural disasters like drought and disease that may be devastating to other livestock species kept.

Literature summary

In the ASALs recurring and prolonged droughts are making it increasingly hard for cattle (the most important livestock species in African dry lands) to survive (Kagunyu and Wanjohi, 2014) necessitating adaption by pastoral communities in the ASALs to sustain their livelihoods. In northern Kenya, Zwaagstra *et al*. (2010) reported that strategies such as migration to neighbouring districts, use of previous season's food stocks, sale of household assets (including livestock), moving to less drought affected areas and relying on assistance from friends/ relatives and food aid were resorted to by pastoralists. These strategies were however regarded unsustainable as sale of household assets and productive livestock means such households will find it difficult to recover from such shocks. The rising populations in neighbouring districts that are predominantly agricultural settlements and pressure on reduced land per household will make migration to these districts increasingly hard and breed conflicts between pastoral and agricultural communities.

Camels present an exceptional opportunity for adaptation to droughts and varying pasture quality in ASAL. They are able to survive well in the ASALs due to their biological and physiological adaptations (Kagunyu and Wanjohi, 2014; Yosef *et al*., 2014). They drink less water compared to other livestock species, and are able to stay for long without water due to their tolerance of dehydration while keeping the blood volume normal. Camels possess a unique ability to convert the scanty desert plant resources into milk, meat and fiber (Ahmad *et al*., 2010). They have got almost no competition for feed with other animals, are hardy and comparatively eat less (Khan *et al*., 2003) hence able to be easily integrated into other production systems.

There is growing awareness that camels can serve as major food (meat and milk) producers in ASAL areas (Aujla *et al*., 2013). Due to their unique adaptability to ASALs, studies elsewhere in the East African region (Farm-Africa, 2002; Kagunyu and Wanjohi, 2014; Kagunyu and Wanjohi, 2015) documented an increased integration of camels into main stream pastoral activities mainly as an adaption strategy to droughts (Zwaagstra *et al*., 2010). Studies have been done on camel milk value chain in Kenya (Musinga *et al*., 2008 and Aujla *et al*., 2013). These studies have documented the potential of camel milk production in poverty alleviation and resilience building. Moreover, milk production does not change with a change in forage and water availability. However, while there is information about the increasing number of camels in the Karamoja region (Nalule, 2010) there are considerable information gaps on the population figures, potential contribution to household well being and on pastoralists' resilience to climate variation. This study examined the contribution of camel

production to household well being, and the potential impact of the activity on pastoralists' resilience to droughts.

Materials and methods

Community-level and key informant discussions as well as individual interviews were conducted between November 2015 and February 2016. Community-level meetings were used to set rapport and gain general information about camel rearing in the area. The key informants provided specific information on the camel rearing households which facilitated identification of potential respondents for individual interviews. A cross-sectional survey was conducted covering a sample of 50 camel rearing households and 70 non-camel rearing households in both Amudat and Moroto Communities. The analysis compares households with and without camels based on resilience indices constructed using a set of selected indicators of household resilience to these shocks.

Preliminary findings

Preliminary findings revealed that camels contribute to household wellbeing mainly through milk and blood production. A lactating camel produces a constant supply of milk for over 12 months compared to cows whose milk production fluctuates with season depending on the quality and availability of pasture and water. Milk produced is consumed by the household or given to neighbours when they lack milk or as gifts, but is not commonly sold in the neighbourhood. This unfortunately affects the direct economic gains from milk production. The milk from camels is believed to have medicinal value and more nutritious compared to cow milk (higher protein content and lower fat). Besides food products, camels are in a few instances used as bride price, and rarely sold to meet household needs. Although the numbers of camels kept per household have been increasing over time, the numbers of households adopting camel rearing have only been growing at a low pace. This is partly due to the very limited supply of camel starting stock attributed mainly to the unwillingness of the current owners (within the area) to sell from their stock. But also, camels are expensive, an adult female costing as high as US$ 600 (1.8 million Uganda Shillings). They are also not easy to multiply in a short time as gestation and weaning takes 12 and over 18 months, respectively.

Camels do not migrate in the dry season as compared to other livestock. This enhances the nutritional status of women and children who often remain at home in the dry period. Milk production which is stable throughout the lactation period (over 12 months) and higher volumes (6-8 milking per day of about 1.5-2 litters per milking) obtained enhance household resilience to drought induced food insecurity.

Conclusions

While camel rearing is still at its subsistence, it presents a great opportunity for enhancing household resilience in the dry lands as cattle easily succumb to prolonged droughts. To increase economic gain from camel production, improvement of especially health, transportation and market infrastructure are very crucial for camel and camel products

related investments. This will create economic incentives for greater integration of camels into mainstream livestock herds. The supply constraint for camels needs attention. It is recommended that animal breeding and restocking programs start considering camel too.

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