

Conclusions

Among these populations of Brazilian goats, Nambi and UDB-PI had the best propensity for meat production based on these indices.

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Breed and trait preferences of Sheko cattle owners in south western Ethiopia

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Introduction

Sheko is among 32 recognized cattle breeds in Ethiopia (DAGRIS, 2007) and is the only taurine of the east African region (Hanotte *et al.*, 2000). Sheko is kept by smallholder farmers of different ethnic origins that inhabit its breeding tract. These smallholder farmers practice crop dominated crop livestock agriculture and rear different types of farm animal species. Like their subsistent smallholder counterparts in developing countries; Sheko cattle keepers have broad perspectives for breed and trait preferences. Our study has documented breed and trait preferences of Sheko cattle keepers in south western Ethiopia, which represents the natural breeding tract of Sheko cattle. Breed and trait preferences usually vary based on the production system and the community's need. Therefore, this could result in re-ranking of preferences for a particular trait or breed of interest under different production environments. Our study was, therefore, intended to elicit the knowledge of Sheko cattle owners on breed and trait preferences using phenotypic ranking.

Materials and methods

Our report is based on the results of extensive survey conducted between August 2004 and February 2005. Data were collected through formal survey using semi-structured questionnaires and focus group discussion with Sheko cattle owners. The study area is the Bench Maji Zone Located in the tsetse belt of south western Ethiopia between geographic coordinates of 5°12' to 36°18' N latitude, and 34°30' to 36°12' E longitude. The study area consisted of three districts: Bench, Sheko and Shei Bench; and two agro-ecological lowland and highland zones. The reported rank by the respondents were summed up and averaged across districts and agro-ecological zones to calculate the weighted average preference ranks. Therefore, comparison was made across districts and agro-ecological zones.

Table 1 Reported ranks of trait preferences by district and agro-ecological zone

Ranked trait	Weighted averages of trait preference ranks (<i>M</i>)				
	District			Agro-ecological zone	
	Sheko	Bench	Shei Bench	Lowland	Highland
Milk yield	1.30 (23)	2.01 (77)	3.36 (25)	1.64 (50)	2.49 (75)
Growth	3.00 (12)	4.00 (62)	3.36 (25)	3.42 (31)	3.85 (68)
Adaptation	3.33 (9)	3.70 (73)	4.32 (25)	4.44 (25)	4.75 (67)
Fertility	2.83 (12)	3.27 (71)	3.08 (24)	4.37 (30)	3.12 (66)
fat%	3.00 (4)	4.30 (61)	4.20 (25)	5.26 (23)	4.91 (66)
Traction	3.00 (12)	3.38 (63)	4.00 (29)	3.42 (33)	3.19 (62)
Coat color	6.00 (6)	5.83 (46)	4.89 (19)	6.39 (18)	5.29 (59)

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Results and discussions

Our results showed that due to their multi-functionality; cattle are the most preferred livestock species (93.8%). Farmers showed slightly more preference to local Zebus (46.7%) compared to Sheko (43.2%) due to the high feed requirements of Sheko cattle, which cannot match with ever increasing feed shortage because of expansion of farm land to feed the rapidly growing population. Moreover, due to the strong physique and aggressive temperament of Sheko cattle, especially older individuals face difficulties in practicing tethered feeding which is now becoming the most common feeding strategy since there is a shortage of herders and shrinkage of grazing land. However, it was reported that Sheko cattle outperform their local Zebu counterparts in their milk yield, draught power, trypanotolerance, longevity and reproductive lifetime, less selective behavior and in adapting to environmental stress (Taye *et al.*, 2009). At the trait level, overall milk production was consistently reported as the most preferred trait, followed by fertility (age at first calving, calving interval and lifetime calf crop) and traction. This order of trait preference perfectly matched with reported ranks for the use of Sheko cattle. However, re-ranking of breed preferences was very common among respondents. However, except for the Shei Bench district for which fertility was the most preferred trait due to remoteness of the district for marketing of milk and milk products, for the other two districts, trait preferences almost showed a similar trend. As a result the breeding stock is largely supplied from the Shei Bench district. Breed preference is not matched with reported trait preferences because for example Sheko excel Zebus in all three most preferred traits. Therefore, the breed management plan for Sheko cattle should target at improving feeds and feeding practices and on selection of less aggressive animals; in line with the improving of the desirable traits of Sheko cattle.

Conclusions

Trait preference of smallholder Sheko cattle owners is multifaceted therefore breeding strategy of Sheko cattle should account for multiple trait preferences using their weighted average rank. Change in the production system has resulted in re-ranking of trait preferences and evolution of the farming system has resulted in the re-ranking of breed preferences.

References

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A short overview on the main features enabling goats to dwell productively in hot and harsh environments

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It is estimated that over 80% of the world's goat population is located in tropical, sub-tropical and arid areas across, Asia, Africa, Central and South America. What makes goats so popular in these areas is their ability to provide high quality food under diverse climatic conditions and resilience to extreme and capricious environments.

Goats employ both panting and sweating to maintain homeothermy, though the level of heterothermy increases under the most severe heat stress conditions. However, in hot-dry environments, the degree of heterothermy employed is determined not by ambient temperatures alone, but also by aridity. When goats have access to sufficient water, they maintain homeothermy rather than implementing heterothermy, even under quite severe heat stress. Indeed, goats increase their water consumption during the summer months. However, when goats do not have access to sufficient water, they abandon homeothermy and display heterothermy, which would allow them to conserve body water.

Low body mass and low metabolic requirements of goats are important qualities that enable them to minimize their maintenance and water requirements, in areas where water sources are widely distributed and food sources are limited by their quantity and quality. An ability to reduce metabolism allows goats to survive even after prolonged periods of severe limited food availability.

A combination of clever grazing behavior and an efficient digestive system enable goats to attain maximal food intake and efficient food utilization in a given condition. In tropical, sub-tropical and Mediterranean environments goats eat a diet composed of tree-leaves and shrubs (browse), which ensure a trustworthy and stable supply of food all year around, albeit, from a low to medium quality food.

Unlike sheep and cattle which abandon grazing on leafy material during the spring, research in different areas of the world have shown that browse constitutes most of the forages selected by goats all year around. Such a non-opportunistic behavior appears odd at first view,

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