Variation in the functions and breeding stategies of village goats in Zimbabwe and South Africa

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Introduction

Goats play an important role in both commercial and subsistent farming systems in South Africa (Lehloenya *et al*., 2005) and Zimbabwe (Hargreaves *et al*., 2004). The relative importance of the different functions and breeding systems vary with agro-ecological zones, production systems and cultural values (Kosgey *et al*., 2008). These differences should be understood prior to initiation of sustainable development programmes for the resource-limited farmers. The functions of goats determine traits that farmers select for and, consequently, the breeding stategies (Dossa *et al*., 2007). The objective of this study was, therefore, to determine the variation in the functions and breeding practices of goats in the Eastern Cape, South Africa and Zimbabwe.

Material and methods

The study was conducted in three locations; Chirumanzu district of Zimbabwe, Peddie of Amatole district and Matatiele of Alfred Nzo district of the Eastern Cape Province of South Africa. Focus group discussions were the main participatory rural appraisal (PRA) method used whilst a structured questionnaire was administered to 345 goat owners; 132 in Zimbabwe, 69 in Matatiele of Alfred Nzo district and 144 in Peddie of Amatole district within a period of six months.The questionnaire was designed to capture data such as household characteristics, functions of goats, goat breeds and breeding startegies employed.

Statistical analyses

Frequencies for breeds, number of bucks and management practices were determined using PROC FREQ (SAS, 2003). Ranks of functions of goats, within each district and the level of agreement between ranks from individuals from the same district were compared using PROC NPAR1WAY (Kendall‟s W Coefficient) (SAS, 2003).

Results and discussion

Farmers in Chirumanzu mainly kept the Mashona goat, whilst 74 % of farmers in Alfred Nzo kept the crossbreds between the Angora and Nguni goats. Nearly 70 % of the farmers in Amatole kept the Nguni goat genotypes. Most farmers (51, 49 and 94% for Alfred Nzo, Amatole and Chirumanzu, respectively) used the community bucks for breeding, with a few farmers owning bucks; 15, 29 and 27% for Alfred Nzo, Amatole and Chirumanzu, respectively. Observations from this study indicate that farmers did not implement planned breeding and selective mating. Uncontrolled breeding makes it difficult to keep reproductive records and promotes inbreeding in communal areas (Dorsa *et al*., 2007). Controlled breeding, if carefully planned, ensures that kidding occurs when feed is available. Farmers

from the three districts revealed that they preferred fast growing and large-framed goats, which are also hardy and require less veterinary intervention. A few farmers in Chirumanzu and Alfred Nzo, however, reported that they also needed the milk-producing Saanen goats. The majority of farmers in Amatole reported that they were in need of Boer bucks.

Ninety-seven, 83 and 21 % of the farmers in Alfred Nzo, Amatole and Chirumanzu castrated their goats, respectively. The main reasons for castration by farmers from Amatole and Alfred Nzo districts were to control breeding and improve meat quality. The most important reason for culling goats in Amatole and Chirumanzu was the size of the goat, while reproductive performance was ranked the highest in Alfred Nzo district. Coat colour of the goats was more important in the Amatole and Alfred Nzo districts than in Chirumanzu, although it was generally lowly ranked. Dominant coat colours were black, brown and white or a combination of these. The finding that white colour was predominant in Amatole and Alfred Nzo concurrs with observations by Manton (2005) who established that it is the colour required for goats slaughetered for boys during their rites of passage into manhood.

Farmers in Zimbabwe concurred that goats are a viable vehicle for rural development, since they are small and have low land requirements. In Amatole and Alfred Nzo, the farmers suggested that sheep production has more potential for rural development than goats. This finding is in harmony with an observation by some authors (Timmermans, 2004; Kunene and Fossey, 2006) who reported that goats are important in bestowing good fortune at households, to ward off evil spirits, and to enable rites of passage and are rarely slaughtered outside a ceremonial context in the Eastern Cape Province. In Chirumanzu, however, goats were mainly used for home consumption (Table 1). The rankings of the functions of goats from the focus group discussions concurred with the ranking by adults for the three major functions, in all the three districts. The youths in Chirumanzu ranked meat and milk as the most important functions of goats, respectively. Milk was more important in the Eastern Cape than in Chirumanzu, probably because of the crossbred genotypes used in the former which produce higher milk yields than the indigenous genotypes (see also Masika and Mafu 2002). Goat skins were ranked highly in Chirumanzu (Table 1), especially among female respondents. The observation that farmers in Chirumanzu considered skins to be more important than farmers from Amatole and Alfred Nzo could be the lack of ready markets for the skins. In Chirumanzu, goat skins are salted and dried and used as mats to sit on. In the communal areas of Zimbabwe, women are largely responsible for sourcing of mats, which could explain why they valued the skins more than men. The use of goats for bridewealth was relatively more ($P<0.05$) important in Chirumanzu than in the Amatole and Alfred Nzo districts.

Conclusion

Goat production objectives vary with natural and cultural environments. Farmers in both countries should be encouraged to kept more bucks and exchange them after using them for a few years so as to reduce the effect of inbreeding. They should also be encouraged to implement controlled breeding. Farmers in Chirumanzu kept goats mainly for home consumption and for sales. Improvement of goat productivity in Zimbabwe should, thus be better geared towards processing of goat meat into various products and identifying markets for them.

Table 1: Reasons for keeping goats as ranked by respondents

Function	District		
	Alfred Nzo	Amatole	Chirumanzu
	N=69	N=144	N=132
Meat	3.36[a] (3)[b]	3.85 (3)	1.42 (1)
Milk	6.00 (6)	5.01 (5)	6.21 (7)
Manure	4.24 (4)	4.99 (4)	2.87 (3)
Skin	6.17 (7)	5.82 (6)	2.95 (4)
Sales	3.14 (2)	2.22 (2)	1.99 (2)
Investment	6.20 (8)	5.86 (7)	4.00 (6)
Bridewealth	4.92 (5)	6.31 (8)	3.81 (5)
Ceremonies	1.96 (1)	1.93 (1)	6.38 (8)
Kendall's Coeffient (W) [b]	0.58[*]	0.65[*]	0.70[**]

[a] The mean rank for farmers in the particular districts
[b] The lower the rank, the greater the importance of the trait
[b] W ranges fron 0 (no agreement) to 1(complete agreement). The higher its value, the higher the level of agreement between individual farmers
[*] $P<0.05$ [**] $P<0.01$

- In the Eastern Cape Province, the high importance of goats for ceremonies suggests that efforts should be put towards ensuring that goats are used to improve the sustainable rural livelihoods of goat farmers. In the Eastern Cape Province, however, farmers should also improve goat production and target export markets. In developing sustainable goat breeding programmes, it is, therefore, futile to ignore the functions of goats in any given community.

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