

## SHORT COMMUNICATION

### Bonga Sheep: A strain of Horro sheep or a different breed?

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#### Abstract

Bonga sheep is equivocally believed to be different from the Horro sheep breed. In this study a preliminary comparison was made between the two sheep based on observations and measurements made on 42 Bonga and 95 Horro sheep breed. All the observed Bonga sheep were from a market at a small town known as Shishinda while all the Horro sheep were from a flock at Bako research center. In the Bonga sheep proportionally more animals have coat colours other than light to dark brown (typical colour of Horro sheep) than in Horro sheep. Additionally 5 out of 42 Bonga sheep have small ear size (vestigial) which is not common in Horro sheep. Heart girth, height at withers, and length from withers to center of hipbone for female sheep with four pairs of permanent incisors were 78.8(S.D.=5.9), 65.8(S.D.=2.7) and 46.1(S.D.=1.5) for Bonga and 79.6(S.D.=2.2), 65.2(S.D.=3.0) and 45.1(S.D.=2.6) for Horro sheep respectively. The size measurements did not show clear differences. Further work with larger samples from representative areas is required to give a definite answer to the position of Bonga sheep with respect to Horro sheep.

Keywords: Horro sheep, Bonga sheep, Coat colour, Ear size, size measurements

#### Introduction

Ethiopia is believed to be endowed with diverse domestic animal genetic resource. Though systematic and exhaustive description of the animal genetic resource is far from complete, characterization of some indigenous cattle (Horro, Boran, Fogera, Begayet (formerly known as Barca) and Arsi) sheep (Horro, Blackhead Somali, Afar (formerly known as Adal) and Menz) and goats (Afar) have been done in the past. Additionally a number of names have appeared representing breeds of livestock in the country. Bonga is among the breed names mentioned for sheep (Brännäng *et al.*, 1987; Galal, undated). Galal (undated) indicated that from observation based on two visits to Bonga area that it appeared the Bonga is not different from the Horro sheep. Adequate physical description of the Horro sheep has been given by Galal (1983) and extensive work has been done to characterize the breed in terms of its productive and reproductive performance. The Horro sheep is widely distributed in the western part of the country in the area which lies within 35°-38°E and 6°-10°N (Galal, 1983). This area includes the former Kefa province (Kefacho zone) where the Bonga breed is believed to inhabit. In this short communication an attempt is made to make some preliminary comparisons between Bonga and Horro sheep.

#### Materials and Methods

Physical observations (including measurements) were made on 42 (24 female and 18 male) Bonga sheep of various age categories. The data was collected at a market in Shishinda a district of Kefacho zone (formerly Kefa province) in 1990 E.C. For comparison similar measurements were taken from 95 (64 female and 31 male) sheep from the Horro sheep flock kept at Bako Agricultural Research Center. Age was categorized based on the number of pair of permanent incisor teeth. Horro sheep attain maturity at about 3 years of age (Solomon and Gemed, 2000) and animals with all (four) pairs of their permanent

incisor erupted are believed to have attained this age (Wilson and Durkin, 1984). Except presentation of the statistics (mean and S.D.) it was not possible to make meaningful statistical comparison due to the difference in the environment the two breeds were kept and in sample size (no animals in some age categories).

## Results

**Coat color:** Out of 41 Bonga sheep for which color was recorded 51.2, 9.8, 7.3 per cent were found to have light to dark brown, black and white color respectively while the remaining 31.7 per cent were having brown and white or black and white color. In Horro sheep coat colors other than light to dark brown are not as frequent as were observed in Bonga sheep.

**Ear size:** Description of ear size was done by classifying ear size into large and small (vestigial) ears. Out of 42 sheep 5 (11.9%) were found to have very small ears while the rest 37 (88.1%) have large semi-pendulous ears. Small ear size is not common in Horro sheep.

**Horn:** All of the Bonga sheep were polled. Similarly the frequency of appearance of horn in Horro sheep is low.

**Body size:** Measurements on heart girth, height at withers and length from withers to center of hip bones are presented in Table 1. Basically it is measurement from animals after maturity that can give indication of the size of the breed. No clear trend was found in size differences between the two samples at various growth stages. Height at withers for both sheep at full mouth (four pairs of permanent incisors) in this study is lower than the value of 68 cm reported by Galal (1983) for adult female Horro sheep.

## Conclusion

Presence of ear size variation and more frequent appearance of colors other than brown in the population of Bonga than in Horro sheep may indicate breed level genetic differences which delineate these sheep as two distinct breeds. Additionally from cursory examination it appears that the Bonga sheep has a better hind quarter fill (thigh region) than the Horro sheep. At the same time, however, similarity in size and some other physical characteristics (polled ness) may indicate that the two sheep types may belong to the same breed or are strains (local ecotypes) of the same breed. Further characterization work on a larger number of animals from representative sites based on additional variables (e.g. tail type, presence or absence of wattles and beards, presence of mane in males etc.) including carcass measurements (to see if Bonga has larger per cent of hind quarter than Horro sheep) is necessary (with genetic characterization) to conclusively determine whether Bonga is a strain of Horro breed or a breed in its own right.

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Table 1. Average ( $\bar{X}$ ) and standard deviations (S.D.) of body size measurements of Bonga and Horro sheep categorized by age (pair of permanent incisor) and sex

Ser. No.	Pair of permanent incisor	Sex	Heart girth				Height at withers				Length from withers to center of hip-bone			
			Bonga		Horro		Bonga		Horro		Bonga		Horro	
			N	$\bar{X}$ (S.D.)	N	$\bar{X}$ (S.D.)	N	$\bar{X}$ (S.D.)	N	$\bar{X}$ (S.D.)	N	$\bar{X}$ (S.D.)	N	$\bar{X}$ (S.D.)
1	0	F	10	69.0(3.1)	15	66.1(3.3)	10	62.6(4.4)	15	58.7(3.2)	10	40.2(3.5)	15	38.5(2.4)
2	0	M	14	67.1(6.7)	20	73.6(4.2)	14	58.4(3.6)	20	65.8(4.0)	14	37.9(3.0)	20	40.7(3.0)
3	1	F	1	79.0	10	70.6(3.4)	1	70.0	10	63.9(4.1)	1	43.0	10	40.8(2.3)
4	1	M	4	85.3(4)	-	-	4	71.5(3.5)	-	-	4	48.0(4.1)	-	-
5	2	F	4	72.5(2.7)	17	74.2(3.4)	4	64.3(2.2)	17	63.6(3.3)	4	44.0(1.9)	17	42.5(3.0)
6	2	M	-	-	11	79.6(3.6)	-	-	11	70.4(3.0)	-	-	11	44.3(1.5)
7	3	F	-	-	11	79.4(3.1)	-	-	11	68.3(3.5)	-	-	11	42.5(2.7)
8	3	M	-	-	-	-	-	-	-	-	-	-	-	-
9	4	F	9	78.8(5.9)	11	79.6(2.2)	9	65.8(2.7)	11	65.2(3.0)	9	46.1(1.5)	11	45.1(2.6)
10	4	M	-	-	-	-	-	-	-	-	-	-	-	-

F=female M=male

