THE RELATIONSHIP BETWEEN THE COAT COLOURS WITH MORPHOMETRIC TRAITS OF WEST AFRICAN DWARF GOAT RAISED IN AKWA IBOM STATE, NIGERIA

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ABSTRACT

This study was conducted to determine the relationship between the coat colours with morphometric traits of West African Dwarf (WAD) goats raised in Akwa Ibom State. A total of three hundred and eighty four (384) goats comprising of 291 females and 93 males were sampled from the three senatorial districts of Akwa Ibom State. Sampled goats were classified into various coat colours; black (Bl), brown (Br), black-brown (Bl-Br), white (Wh), white-brown (Wh-Br) and white-black (Wh-Bl), and age groups (1 – <2 and 2 – <3 years) for males and (2 – <3, 3 – <4, 4 – <5 and 5 years and above) for females. The data obtained were subjected to Analysis of Variance. Results showed that goats with White-brown and black-brown coat colour combination had similar body conformation traits in body length. BL (53.78 ± 2.49 and 53.17 ± 2.59 cm respectively), height at wither, HW (44.45 ± 0.98 and 45.08 ± 0.92 cm respectively), heart girth, HG (61.48 ± 1.25 and 63.20 ± 3.22 cm respectively), rump height, RH (47.02 ± 1.08 and 48.33 ± 1.01 cm), body depth, BD (68.64 ± 0.36 and 71.39 ± 5.31 cm respectively) and body weight, BW (22.59 ± 0.69 and 21.69 ± 3.59 kg respectively). The least BL, HW, RH and BW were observed in goats with brown coat colour. It was concluded that coat colours have influence on morphometric traits and morphometric traits affected varied with age. Coat colours of goats above five years of age, had no significant effect on morphometric traits. However, white-brown goat should be selected if body weight is desired.

Keywords: West African Dwarf goat, Coat colour, Age, Morphometric traits

INTRODUCTION

Small ruminants (goats) must be given adequate attention because of the role they play in Nigeria economy. They produce meat, milk, skin and hair (French, 1970). Alikwe *et al.* (2011) noted that goat meat is the major form in which goats consumed in Nigeria. Getaneh *et al.* (2016) reported that goat meat and milk can be used to solve the problem of protein malnutrition in Nigeria. Salako and Ngere (2002) asserted that goats are valuable experimental animal for scientific research. They added that goats have potential to store unique genetic information which becomes useful when environment necessitate changes in production strategy. Fajemilehin and Salako (2008) opined that genetic improvement is centered on indigenous breeds of goats because they have been adapted to tropical environment and might

be more productive in their native environment than the exotic breeds.

West African Dwarf (WAD) goats are widely distributed across the rain forest zone of southern Nigeria and they are well adapted to this environment (Mourad *et al.*, 2000). According to Chiejina and Behnke (2011), WAD goats are endowed with the capacity to resist trypanosome and intestinal worm more than any other breeds of goats.

The diversity of coat colours that can be seen in goats is due to the presence, distribution, and biochemical activity of melanocytes. Melanocytes produce two pigment types, eumelanin and pheomelanin (Fontanesi *et al.,* 2009). Due to the lack of melanocytes, White markings, spotting or completely White phenotypes can be produced (Sponenberg, 2004).

Coat colour is very important characteristic that allows one to distinguish individual animal within the same breed in terms of intensity, pattern and amount of each colour (Becerril *et al.*, 1994). Researchers have reported that coat colour is related to milk yield and morphometric traits (Sam, 2012; Shoyombo *et al.*, 2018; Williams *et al.*, 2019). Adalsteinsson *et al.* (1994) observed that coat colour is repeatable trait with high heritability estimate and can help animal to adapt to different environmental conditions as well as influencing performance of various animals.

Therefore, the objective of this experiment was to determine the effect of various coat colours on morphometric traits of WAD goats raised in Akwa Ibom State, Nigeria and to determine Whether coat colour can be used as basis for selection of goat for breeding.

MATERIALS AND METHODS

Study Area: The study was conducted in the three senatorial districts of Akwa Ibom State. These were Eket, Ikot Ekpene and Uyo. Eket is located between longitude $7^0 52'$ East and latitude $4^0 45'$ North (Udofia *et al.*, 2013). Eket is identified with fresh water and mangrove swamp forest ecological structure. The area is dominated with varieties of vegetation such as tall tree which yield timber and pulps. The area experiences two main seasons, the dry and wet seasons. The people of Eket are notably small farmers, fishermen and hunters. Ikot Ekpene senatorial district is located between longitude $7^0 33'$ East and latitude $5^0 35'$ North (Udom *et al.*, 2023). The location falls within humid tropic characterized by bimodal rainfall with annual ranges from 1712 – 2000 mm. Average daily temperature of about 29 ± 3^0C. Vegetation is of heavy rainforest type. The people of Ikot Ekpene are notably small scale livestock and crop farmers. Uyo senatorial district is located between latitude $04^0 56'$N and longitude $07^0 56'$E. The climate is tropical and it belongs to swamp forest agro-ecological zone of Nigeria (Udom *et al.*, 2023).

Animals and Management: A total of three hundred and eighty four (384) goats were sampled between April 2023 – July 2023 using the formula for calculation of **s**ample size $n = N \times [Z^2 \times p \times (1-p)/e^2] / [N - 1 + (Z^2 \times p \times (1-p)/e^2]$ (Srivastav and Vaidya, 2023) from a population of 1,826,780 goats in Akwa Ibom State reported by NBS/FMARD (2011) from the three senatorial districts. One hundred and twenty eight (128) goats were sampled from each of the senatorial districts. Goat management system by goat farmers in Akwa Ibom State is intensive system. Goats are tethered in the stall to avoid damage that could be caused by goats to crops. The animals were fed with browse plants that were cut and fed to them in the stall. Sometimes supplementary feed in form of cassava peel, yam peel and kitchen wastes were also given to them.

Measurement: Animals selected for measurement were brought out with acceptance from the owner and restrained before measurement. The following measurements were taken using tailors' tape in centimeter (cm) except body weight in kilogram (kg) on each of the animals using the methods as described by Sam (2012).

Body length (BL): Body length was measured using a flexible tape, as the distance from the occipital protuberance to the base of the tail.

Height at withers (HW): The height was measured as the distance from the ground to the withers using a measuring tape.

Heart girth (HG): The heart girth was measured by taking the measurement of the circumference of the chest with measuring tape.

Rump height (RH): The rump height was measured as the distance from the ground to the rump using a measuring tape.

Body depth (BD): This was measured by a measuring tape as the circumference of the region immediately after the hind leg towards the abdomen.

Body weight (BWT): This was measured using a hanging scale in grams.

Age: Age of the animals selected for measurement was determined from the record provided by the goat owner and dentition method of age determination (Soltero-Rivera, 2022) was used to confirm the information on ages of goats. The animals were grouped into the following age interval 1 – <2, 2 – <3, 3 – <4, 4 – <5 and 5 years and above.

Coat colour: Coat colours were identified using visual appraisal. Observed coats colours were classified into black (Bl), brown (Br), black-brown combination (Bl-Br), White (Wh), White-black combination (Wh-Bl), and White-brown combination (Wh-Br) (Sam, 2012).

Data Analysis: The data collected were analyzed using the General Linear Model procedure of SPSS (2000). $Y_{ij} = \mu + C_i + A_j + e_{ij}$, Where Y_{ij} = observations on morphometric traits, μ = overall means, C_i = fixed effect of i^{th} colours (1, 2), A_j = fixed effect of j^{th} age (1, 2, 3, 4, 5 and >5) and E_{ij} = random error associated with measuring each animal.

RESULTS AND DISCUSSION

Table 1 showed the effect of coat colour on morphometric traits of WAD buck between 1 - <2 and 2 - <3 years of age.

For bucks that were between the ages of 1 and <2 the result showed that HW, HG, RH, BW, TL, EL and NC were not significantly affected ($p>0.05$) by coat colour, While significant effect ($p<0.05$) of coat colour was observed in BL and BD. Longest body (BL) (50.00 ± 1.15 cm) was observed in buck with Wh-Bl coat colour but statistically similar ($p\geq0.05$) to buck with Bl-Br (49.50 ± 7.50 cm) coat colour. Bucks with Bl, Wh, Wh-Bl pigment recorded similar BD of 66.58 ± 1.50, 62.50 ± 1.11 and 63.00 ± 4.72 cm respectively. The range of BD (53.50 ± 1.15 cm -66.58 ± 1.50) and BW (16.33 ± 0.50-19.34 ± 1.75 kg) are within range reported by Shoyombo *et al*. (2018) for WAD buck of the same age group.

In WAD bucks that were between the ages of 2 and <3 years, HG, RH, and BD were significantly ($p<0.05$) influenced by coat colour, while BL, HW, BW, TL, EL and NC were not significantly ($p>0.05$) affected by the coat colour. Wh-Bl bucks were superior in height (42.76 ± 2.06 cm), HG (62.50 ± 2.82) and weighed heavier (19.90 ± 2.96 kg) than others.

In does that were between the ages of 2 and <3 (Table 2), significant differences ($p<0.05$) were observed in BL, HW, RH, BW and NC. Coat colours did not significantly affect ($p>0.05$) HG, BD, TL and EL. Superiority in BL (49.67 ± 3.28 cm), BD (68.00 ± 2.08 cm and BW (20.67 ± 3.38 kg) were observed in does with Wh-Br coat colour. The mean BW observed in bucks and does between 2 - <3 years of age was heavier than the mean BW reported by Fajemilehin and Salako (2008), who observed 14.59 ± 0.24 cm for WAD does but lower than that reported by Adamu *et al*. (2020), who observed 27.71 ± 0.86 cm for Red Sokoto goat at the same age group.

The effect of coat colour on morphometric traits of WAD does between 3 – <4, 4 – <5, and >5 years are presented in Tables 2 and 3. In does between the ages of 3 – <4 (Table 2), there were significant differences in all the studied traits except for HW, RH, TL and EL. Highest BL, HG, RH and BW were observed in Bl-Br does.

Does that fell between 4 – <5 years (Table 3) were not significantly ($p>0.05$) influenced by coat colour except BL, RH and NC.

Table 1: Effect of coat colour on morphometric traits of West African dwarf buck aged 1 - <2 and 2 - <3 years

Age	Coat colour	Obs	Morphometric Traits (Mean ± SEM)								
			BL	HW	HG	RH	BD	BW	TL	EL	NC
1 - <2	Bl	8	42.56 ± 6.50^{a}	39.00 ± 1.00	58.00 ± 4.00	42.00 ± 1.00	66.58 ± 1.50^{b}	19.34 ± 1.75	10.63 ± 1.50	9.65 ± 0.50	34.00 ± 8.00
	Bl-Br	12	49.50 ± 7.50^{b}	42.50 ± 1.50	51.30 ± 0.50	44.00 ± 1.00	53.50 ± 3.50^{a}	16.33 ± 0.50	10.34 ± 0.50	9.36 ± 0.50	27.50 ± 1.50
	Wh	14	43.67 ± 2.48^{a}	40.16 ± 0.47	56.86 ± 2.60	41.84 ± 0.40	62.50 ± 1.91^{ab}	19.32 ± 1.08	11.00 ± 0.71	10.67 ± 0.60	32.16 ± 2.79
	Wh-Bl	13	50.00 ± 1.15^{b}	42.00 ± 1.273	58.66 ± 2.96	42.67 ± 2.96	63.00 ± 4.72^{ab}	18.33 ± 0.33	9.00 ± 0.57	8.68 ± 0.33	31.00 ± 1.53
2 - <3	Bl	10	44.50 ± 2.12	41.50 ± 0.71	55.00 ± 2.82^{a}	41.55 ± 0.71^{a}	65.00 ± 2.16^{ab}	17.50 ± 2.12	10.50 ± 1.29	9.00 ± 1.41	30.50 ± 2.12
	Bl-Br	9	44.00 ± 3.53	42.25 ± 1.41	58.51 ± 2.16^{ab}	42.00 ± 1.41^{a}	62.74 ± 5.65^{a}	19.50 ± 2.12	10.75 ± 0.96	9.75 ± 9.96	32.50 ± 2.12
	Wh	12	45.86 ± 4.20	42.14 ± 2.54	58.85 ± 3.07^{ab}	43.71 ± 3.86^{a}	64.076 ± 3.30^{ab}	18.75 ± 3.15	9.00 ± 1.82	9.25 ± 0.50	32.57 ± 4.50
	Wh-Bl	15	45.00 ± 9.89	42.76 ± 2.06	62.50 ± 2.82^{b}	46.54 ± 7.07^{b}	72.74 ± 5.65^{a}	19.90 ± 2.96	11.75 ± 0.96	11.25 ± 0.50	36.75 ± 7.70

a, b means on the same column(for the same age group)having different superscripts are significantly different (p<0.05). Bl= black; Bl-Br= black and brown; Wh=White; Wh-Bl= White and black; BL=body length; HW= height at wither; HG= heart girth; RH= rump height; BD= body depth; BW= body weight; TL= tail length; EL=ear length; NC=neck circumference, SEM =standard error of mean, Obs = observations

Table 2: Effect of coat colour on morphometric traits of West African dwarf doe aged 2 - <3 and 3 - <4years

Age	Coat colour	Obs	Morphometric Traits (Mean ± SEM)								
			BL	HW	HG	RH	BD	BW	TL	EL	NC
2 - <3	Bl	11	45.86 ± 0.46^{a}	40.57 ± 0.37^{ab}	56.14 ± 1.35	41.29 ± 0.52^{ab}	62.14 ± 1.14	16.86 ± 0.85^{ab}	10.00 ± 0.55	8.86 ± 0.55	28.85 ± 1.56^{ab}
	Br	12	41.50 ± 5.30^{a}	39.00 ± 1.00^{a}	61.50 ± 1.50	39.50 ± 0.50^{a}	64.21 ± 4.00	18.75 ± 0.25^{ab}	11.07 ± 2.00	9.50 ± 1.00	28.85 ± 1.56^{b}
	Bl-Br	8	48.23 ± 2.10^{ab}	46.42 ± 0.50^{c}	58.00 ± 0.00	48.50 ± 0.50^{c}	61.50 ± 1.50	15.10 ± 0.20^{a}	9.00 ± 0.07	9.10 ± 0.50	37.80 ± 5.00^{c}
	Wh	17	49.18 ± 2.21^{b}	42.18 ± 0.81^{ab}	59.08 ± 0.76	43.92 ± 1.17^{bc}	65.08 ± 1.16	19.90 ± 0.76^{b}	10.00 ± 0.60	9.33 ± 0.33	23.13 ± 1.00^{a}
	Wh-Bl	24	49.09 ± 0.68^{b}	42.47 ± 0.90^{bc}	57.07 ± 0.95	45.13 ± 0.79^{bc}	64.60 ± 1.08	18.13 ± 0.83^{ab}	9.47 ± 0.24	9.66 ± 0.32	30.36 ± 1.41^{b}
	Wh-Br	12	49.67 ± 3.28^{b}	42.33 ± 0.67^{b}	58.56 ± 1.20	44.33 ± 1.45^{bc}	68.00 ± 2.08	20.67 ± 3.38^{b}	10.50 ± 1.00	9.50 ± 0.88	29.60 ± 0.92^{ab}
3 - <4	Bl	9	45.66 ± 1.13^{ab}	41.33 ± 0.83	60.36 ± 1.21^{a}	42.65 ± 1.23	65.43 ± 2.28^{a}	18.33 ± 0.71^{a}	11.03 ± 1.17	9.67 ± 0.43	33.42 ± 0.42^{bc}
	Br	13	41.63 ± 3.07^{a}	40.20 ± 0.63	60.13 ± 1.01^{a}	41.03 ± 0.51	63.32 ± 1.32^{a}	18.37 ± 0.61^{a}	11.12 ± 1.14	9.11 ± 0.45	35.20 ± 0.45^{c}
	Bl-Br	11	56.20 ± 0.90^{b}	43.31 ± 1.70	69.09 ± 3.00^{b}	46.50 ± 0.50	79.68 ± 1.50^{b}	27.47 ± 0.60^{c}	11.07 ± 2.00	10.10 ± 0.20	29.14 ± 0.30^{b}
	Wh	21	51.34 ± 1.66^{ab}	43.33 ± 0.80	59.67 ± 1.27^{a}	45.08 ± 1.22	64.63 ± 1.29^{a}	20.44 ± 0.66^{ab}	9.33 ± 0.37	10.20 ± 0.36	29.50 ± 0.36^{b}
	Wh-Bl	22	50.34 ± 1.13^{ab}	42.32 ± 0.72	61.38 ± 0.93^{a}	45.08 ± 1.09	66.68 ± 1.22^{a}	20.33 ± 0.70^{ab}	9.68 ± 0.41	9.10 ± 0.23	28.84 ± 0.22^{b}
	Wh-Br	21	50.33 ± 1.62^{ab}	43.36 ± 0.37	60.66 ± 0.60^{a}	46.26 ± 1.11	69.03 ± 0.81^{a}	22.69 ± 1.17^{b}	11.33 ± 0.47	9.68 ± 0.50	29.55 ± 0.50^{b}

abc mean on the same column(for the same age group)having different superscripts are significantly different (p<0.05). Bl= black; Br= brown; Bl-Br= black and brown; Wh=White; Wh-Bl= White and black; Wh-Br=White and brown; BL=body length; HW= height at wither; HG= heart girth; RH= rump height; BD= body depth; BW= body weight; TL= tail length; EL=ear length; NC=neck circumference, SEM =standard error of mean, Obs = observations

Table 3: Effect of coat colour on morphometric traits of West African dwarf doe aged 4 - <5 and 5 years and above

Age	Coat colour	Obs	Morphometric Traits (Mean ± SEM)								
			BL	HW	HG	RH	BD	BW	TL	EL	NC
4-<5	Bl	8	41.09 ± 1.05^{ab}	42.41 ± 2.00	62.50 ± 0.50	44.20 ± 2.00^{ab}	71.08 ± 1.41	16.95 ± 0.55	12.50 ± 0.50	12.50 ± 0.50	40.40 ± 1.03^{b}
	Br	8	39.05 ± 1.08^{a}	42.46 ± 2.00	65.50 ± 1.50	41.50 ± 1.50^{b}	69.50 ± 1.50	19.17 ± 3.00	11.50 ± 0.50	11.08 ± 0.60	42.21 ± 1.41^{b}
	Bl-Br	6	55.50 ± 4.50^{c}	45.50 ± 3.50	62.50 ± 3.50	50.56 ± 2.00^{c}	73.10 ± 1.20	22.50 ± 3.50	10.00 ± 1.08	10.40 ± 1.03	28.06 ± 1.41^{a}
	Wh	19	55.50 ± 4.50^{c}	43.10 ± 1.04	60.40 ± 1.06	46.20 ± 1.20^{b}	67.70 ± 2.04	20.20 ± 0.89	9.90 ± 0.43	10.20 ± 0.29	28.60 ± 1.66^{a}
	Wh-Bl	18	50.67 ± 2.28^{bc}	43.11 ± 1.36	61.89 ± 2.15	46.78 ± 1.36^{ab}	69.00 ± 2.34	20.17 ± 0.39	10.89 ± 0.86	10.44 ± 0.47	29.11 ± 2.37^{a}
	Wh-Br	13	54.60 ± 1.72^{c}	46.60 ± 1.47	62.20 ± 1.98	49.00 ± 1.61^{c}	69.40 ± 3.58	23.00 ± 1.79	9.40 ± 0.40	9.80 ± 0.24	26.40 ± 0.75^{a}
>5	Bl	6	54.50 ± 3.50	46.50 ± 1.50	61.00 ± 3.00	49.00 ± 2.00	70.50 ± 0.50	26.50 ± 7.50	9.50 ± 0.50	11.50 ± 0.51	27.20 ± 0.80
	Br	6	57.09 ± 1.06	45.40 ± 0.70	62.50 ± 3.50	46.50 ± 1.50	70.17 ± 1.20	18.22 ± 1.02	10.31 ± 0.19	9.50 ± 0.51	26.07 ± 2.10
	Wh	11	49.40 ± 3.57	43.00 ± 1.26	60.60 ± 1.69	45.60 ± 1.81	68.20 ± 2.22	18.50 ± 1.28	11.40 ± 1.24	11.00 ± 0.32	31.00 ± 3.36
	Wh-Bl	7	47.33 ± 3.19	40.33 ± 2.19	61.67 ± 0.88	43.33 ± 2.90	66.67 ± 3.28	21.09 ± 2.52	10.67 ± 0.66	10.33 ± 0.33	31.67 ± 4.70
	Wh-Br	8	60.50 ± 0.50	45.50 ± 2.50	64.50 ± 1.50	48.50 ± 1.50	68.03 ± 3.00	24.07 ± 1.30	10.50 ± 0.50	11.10 ± 0.40	29.21 ± 1.08

abc means on the same column(within the same age group)having different superscripts are significantly different (p<0.05). Bl= black; Br= brown; Bl-Br= black and brown; WH=White; Wh-Bl= White and black; Wh-Br=White and brown; BL=body length; HW= height at wither; HG= heart girth; RH= rump height; BD= body depth; BW= body weight; TL= tail length; EL=ear length; NC=neck circumference, SEM =standard error of mean, Obs = observations

Coat colour did not have significant (p>0.05) effect on morphometric traits in does that were >5 years of age. These findings were in agreement with the study of Fajemilehin and Salako (2008), who observed that between 4 – <5 years, mature BW of goat was fully attained and at maturity linear body measurements are essentially constant.

Generally, no coat colour showed consistence superiority in morphometric traits at various ages. Shoyombo *et al*. (2018) had reported that influence of coat colour on morphometric traits varies between breeds, sex and age.

However, on average, goats with Wh-Br and Bl-Br coat colour combinations performed better in BL (53.78 ± 2.49 and 53.17 ± 2.59 cm), HW (44.45 ± 0.98 and 45.08 ± 0.92 cm), HG (61.48 ± 1.25 and 63.20 ± 3.22), RH (47.02 ± 1.08 and 48.33 ± 1.01 cm), BD (68.61 ± 0.36 and 71.39 ± 5.31 cm) and BW (22.59 ± 0.69 and 21.69 ± 3.59 kg) (Table 4). The least BL, HW, RH and BW were observed in goats with Br coat colour. These findings were in agreement with the report of Shoyombo *et al*. (2018), who reported that goats with brown and white spots were heavier (BW), taller (HW) and had greater depth (BD) and girth (HG). Williams *et al*. (2019) observed that coat colour significantly affect milk yield in WAD goats and those with white and black coat colour had highest milk yield. Sam *et al*. (2018) observed that coat colour in combination with haemoglobin genotype significantly affect body weight and average daily milk yield in agropastoral goats. In contrast, Olfaz *et al*. (2011) reported insignificant effect of coat colour on milk production in Turkish Hair goats. They added that dark colored animals are more susceptible to climatic stress, while light colored ones are susceptible to sunburn and females handle heat better than males. They concluded that coat color is related to the amount of heat absorbed from solar radiation. Contrary, Ozoje and Mgbere (2002) reported no significant effect of coat pigmentation on linear body measurement except on leg length. They added that black goat had the longest leg followed by brown goat and then the white goats.

Table 4: Overall effect of coat colour on morphometric traits of West African Dwarf goat

Coat colour	Obs	Morphometric Traits (Mean ± SEM)								
		BL	HW	HG	RH	BD	BW	TL	EL	NC
Bl	52	46.76 ± 2.82^{ab}	42.60 ± 1.33^{ab}	60.00 ± 1.36	44.24 ± 1.68^{ab}	67.27 ± 2.12	19.66 ± 2.30	10.75 ± 0.66	10.63 ± 0.83	32.32 ± 2.89^{ab}
Br	39	44.78 ± 4.12^{a}	41.50 ± 1.32^{a}	62.41 ± 1.13	42.13 ± 1.52^{a}	66.73 ± 1.78	18.53 ± 0.22	10.91 ± 0.32	9.65 ± 0.46	35.05 ± 3.34^{b}
Bl-Br	46	53.17 ± 2.59^{b}	45.08 ± 0.92^{b}	63.20 ± 3.22	48.33 ± 1.01^{c}	71.39 ± 5.31	21.69 ± 3.59	10.00 ± 0.57	9.66 ± 0.33	26.67 ± 1.85^{a}
Wh	94	50.11 ± 0.51^{ab}	42.06 ± 0.25^{ab}	59.94 ± 0.35	45.20 ± 0.48^{abc}	66.40 ± 0.90	19.76 ± 0.43	10.23 ± 0.44	10.13 ± 0.34	29.86 ± 0.52^{ab}
Wh-Bl	99	49.34 ± 0.76^{ab}	42.06 ± 0.60^{ab}	60.50 ± 1.15	45.08 ± 0.70^{abc}	66.73 ± 0.89	19.91 ± 0.62	10.18 ± 0.35	9.86 ± 0.33	28.99 ± 1.09^{ab}
Wh-Br	54	53.78 ± 2.49^{b}	44.45 ± 0.98^{b}	61.48 ± 1.25	47.02 ± 1.08^{bc}	68.61 ± 0.36	22.59 ± 0.69	10.56 ± 0.42	10.00 ± 0.34	28.49 ± 0.70^{ab}

a, b means on the same column(for a coat colour) having different superscripts are significantly different (p<0.05). Bl= black; Br= brown; Wh=White; Wh-Bl= White and black; Wh-Br=White and brown; BL=body length; HW= height at wither; HG= heart girth; RH= rump height; BD= body depth; BW= body weight; TL= tail length; EL=ear length; NC=neck circumference, SEM =standard error of mean, Obs = observations

Conclusion: Coat colours have influence on morphometric traits and morphometric traits affected varied with age of goat. Above five years of age, no morphometric trait was affected. The reason could be that at maturity linear body measurements are constant and goats have attained its optimum growth. However, white-brown goats should be selected if body weight is desired.

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