

## THE REALTIONSHIP BETWEEN BIRTH AND WEANING WEIGHTS IN KIDS OF MALAWIAN LOCAL GOATS, BOER AND THEIR CROSSES

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An assessment of the relationship between does' weights at parturition, birth weight and weaning weight, in kids of Malawian local, Boer and their crosses was investigated. Birth and weaning weights for male kids were 3.8 and 20.2 (Boer), 2.6 and 16.3 (Malawian local), 2.9 and 16.0 (Malawian x Boer); while for female kids were 3.7 and 18.7, 2.3 and 15.4, 2.5 and 15.2 for the Boer, Malawian local and their crosses respectively. Birth weight and weaning weight were positively and significantly ( $P < 0.01$ ) correlated in the Malawian local and their crosses with the Boer ( $r = 0.48, 0.47$  respectively). In the Malawian local kids, the weaning weight was significantly ( $P < 0.05$ ) correlated to the does' weights at parturition ( $r = 0.39$ ).

Key words: Malawian local goat, Boer, their crosses, birth weight, weaning weight, correlation coefficient

In the tropics the goat is kept predominantly by smallholder farmers and other low income groups in the rural areas, as a source of income and a meat animal. Its importance to the rural community of Malawi can be judged by the relative number of goats (810,500) and cattle (790,000) as recorded by the Ministry of Agriculture and Natural Resources (1979). In 1971, a small herd of pure bred Boer goats was established at Mikolongwe, Malawi, for crossing with the Malawian local goats. However, little information is available on any aspects of the production of both breeds in Malawi. The objectives of this study were to investigate the effects of sex, breed and does' weights at parturition on the birth and weaning weights in kids of Malawian local goats, Boer and their crosses, maintained under a village management technique.

### Materials and Methods

The data used in this study came from kids of a flock of pure bred Boer goats and a flock of Malawian local goats and Boer male goats kept at two governmental stations. The animals were allowed to graze and browse in enclosed paddocks of established Rhodes grass, with some shrubs and low tree species, throughout the year. Males were left with the herd continually while the kids were allowed to remain with their dams until the weaning age of 4 months. The dams were weighed at parturition and the kids weighed at birth and monthly until weaning. Male kids were castrated at about 4 weeks of age. The data were subject to statistical analyses.

### Results and Discussion

The birth and weaning weights of male Boer kids were higher than of the females, but these differences were not statistically significant

( $P > 0.05$ ) as shown in Table 1. The mean birth weight of 3.8 kg reported here for the Boer kid is similar to 4.0 kg reported by Naude and Hofmeyr (1981) outside South Africa.

Table 1:  
*Birth and weaning weights of male and female Boer kids*

Sex	Birth weight (kg)		Weaning weight (kg)		
	$\bar{x}$	s.d	$\bar{x}$	s.d	
Male	3.8	0.85	20.2	5.39	(n = 52)
Female	3.7	0.66	18.7	4.60	(n = 55)

n = number of animals

The statistical analysis of the data presented in Table 2 revealed a significant effect of breed ( $P < 0.05$ ) and of sex ( $P < 0.01$ ) on the birth weight of the kids. These are in line with the findings of Devendra and Burns (1970) and Morand-fehr (1981). There were no significant effects of breeds ( $P > 0.05$ ) and sex on the weaning weights.

Table 2:  
*Birth and weaning weights according to breed and sex*

Breed		Birth weight (kg)		Weaning weight		No. of animals
		$\bar{x}$	s.d	$\bar{x}$	s.d	
Malawian local	Male	2.6	0.52	16.3	2.99	22
	Female	2.3	0.53	15.4	3.62	16
Malawian local x Boer	Male	2.9	0.62	16.0	4.16	26
	Female	2.5	0.54	15.2	3.74	13

The correlation coefficients between birth weight and weaning weight were 0.48 and 0.47 for Malawian local goats and their crosses with Boer respectively; both were positively and highly significant ( $P < 0.01$ ) as shown in Table 3. The estimated correlation coefficients were similar to

Table 3:  
*The simple correlation coefficients (r) between pairs of variables separated by breeds.*

	Weaning weight		Does weight at parturition	
	a	b	a	b
Birth weight	0.48**	0.47**	0.06 n.s.	0.03 n.s.
Does weight at parturition	0.39*	0.05 n.s.		

a = Malawian local; b = Malawian local x Boer; n.s. not significant ( $P > 0.05$ )

\* ( $P < 0.05$ ); \*\* ( $P < 0.01$ )

the estimates reported by Sacker and Trail (1966) for East African Mubende goats in Uganda. This suggests that selection can be made either at birth or at weaning. The birth weight was not significantly ( $P > 0.05$ ) correlated to the does' weight at parturition. There was no significant ( $P > 0.05$ ) correlation between weaning weight and does' weight at parturition except in the Malawian local kids ( $P < 0.05$ ). Thus indicating that weaning weight may be used as selection criteria for retaining does for further breeding.

These preliminary data must be interpreted with caution in view of the small number of animals that was employed. Nevertheless, the results demonstrate that the Malawian local goat may be superior to some other tropical breeds (Devendra and Burns 1970; Morand-fehr 1981) as a meat animal. The benefit of the use of foreign breeds like the Boer to improve the Malawian local goat through crossbreeding has not been demonstrated in view of the non-significant differences between the Malawian local kids and their crosses with the Boer ( $F_1$  generations) in terms of weaning weight. However, the positive correlation between dam's condition at parturition and weaning weight in the case of the local goats may indicate that the growth rate of the cross-bred kids is limited by the amount of milk available. Higher weaning weights might be expected from kids suckling cross-bred dams as a heterosis effect on milk yield would be expected. Investigation into this effect is in progress.

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