

## Prediction of live weight from morphometric measurements in goats

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In goats, estimation of live weight is imperative for efficient breeding, health and management practices. However, obtaining direct weight measurements at the field level has practical limitations. Indirect estimation of live weight to an acceptable degree of accuracy using a prediction formula based on morphometric measurements is of tremendous practical use due to its simplistic nature. Furthermore, this type of formulae aids development of weighing bands for the local goats and crosses in Sri Lanka. Objective of this study was to develop formulae to predict live weight of goats based on three morphometric measurements (i.e. body length, height and chest girth). The study was conducted at a state farm in the North Western province using a random sample of 932 goats belonging to Kottukachchiya and Jamnapari breeds and their crosses with German Boer breed. The general feeding practices in the farm included 9 hours of grazing under improved pasture with supplementation of fodder and concentrates in the evening. Monthly measurements of live weight (kg), body length (cm), height (cm) and chest girth (cm) were recorded from individual goats from birth up to 17 months of age. For the 11300 records collected, simple linear regression and multiple regression analyses were carried out between live weight (dependent) versus one or more of the three morphometric traits (independent). All regression analyses (multiple as well as linear) resulted in significant results ( $P < 0.05$ ). The following multiple regression formula provided the best prediction of live weight with a coefficient of determination of 0.86.

Live weight = (0.569 x Chest girth) + (0.139 x Length) + (0.092 x Height) - 28.172 ...[1]

However, the following simple linear regression formula based only on chest girth also recorded a coefficient of determination of about 0.70.

Live weight = (0.756 x Chest girth) - 26.123 .....[2]

Therefore, while formula [1] could be used to obtain a more accurate estimate of live weight of goats in the absence of a weighing machine, formula [2] can be used effectively for the development of a weighing band for the goats in Sri Lanka.