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Understanding the interplay between body condition score, body weight, and physical measurements in Sangamneri goats

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Abstract
This study investigates the complex link that exists between body condition score (BCS), body weight, and a variety of physical parameters in Sangamneri goats. Sangamneri goats are a native breed that is well-known for its durability and flexibility in a wide range of agroclimatic situations. The study elucidates relationships among these factors by means of thorough data collecting and statistical analysis. This sheds light on the significance of these parameters for effective management and breeding methods. The most important findings highlight the critical role that body condition evaluation plays in determining nutritional sufficiency and health status, as well as the consequences of body size and conformation metrics in goat husbandry techniques.

Keywords: Sangamneri goat, body condition score, body weight, physical measurements, correlation, husbandry, breeding

Introduction
In the Indian state of Maharashtra, the Sangamneri goat, which is only found in the Sangamner region, is a remarkable example of the adaptability of indigenous livestock and the economic value of these animals. The breed in question holds a key position in the agricultural systems of the region because to its reputation for being sturdy and resistant to diseases that are commonly found. In the management and breeding of Sangamneri goats, the criteria of body condition score (BCS), body weight, and numerous physical measurements play a crucial role. These characteristics serve as important indications of health, productivity, and genetic potential. This article intends to disentangle the complex relationship that exists between these variables, with the goal of providing insights that are essential for the development of sustainable goat husbandry techniques and breed improvement programmes.

In the state of Maharashtra, the Sangamneri breed is indigenous to the Ahmednagar district at the home tract. Additionally, this goat is disseminated in the neighbouring districts of Pune, Solapur, Nashik, and Dhule where it is found. This goat is primarily raised for the purpose of producing milk and meat for commercial purposes. The Sangamneri breed is characterised by having long legs and a medium stature. The colour of the body coat is usually white, but it can also be found in brown, black, and specks of various colours. A straight face and short, coarse hair are characteristics of this breed. The horns of both males and females are oriented in a manner that is upward and backward. By the time they are between 400 and 420 days old, the female sangamneri goats are ready to give birth to their young. While milk supply is somewhere between one and two litres per day, the quality of the meat is satisfactory. Singamneri goats typically have a lactation period that lasts between 150 and 160 days. Around 100 to 125 kilogrammes of milk is produced by the Sangamneri breed during each lactation.

The adult male sangamneri goat can weigh up to 60 kilogrammes, while the adult female sangamneri goat can weigh up to 40 kilogrammes on average. It is also possible to feed this breed of goat jack leaves and cakes made with coconut oil in order to assist in the process of gaining weight. The tremendous milk output of Sangamneri moms is the reason why their children are so robust.

In forty percent of cases, this sangamneri breed is capable of siring twins. It is possible to meet the daily fodder requirements of Sangamneri goats by feeding them Alfalfa hay, Subabul, Lucerne, CO-3, CO-4, Barseem, Style, Dashrath, Hybrid Napier, African Tall, Sorghum, Molato, Gini grass, maize, silage, pellets, legumes and a variety of green grasses. This will result in the highest possible growth and milk output. It is possible to feed the goats either in stalls or in open grazing environments. These goats are able to rapidly adjust to any kind of weather circumstances that they encounter. In addition to producing milk that is both nutritious and delicious, Sangamneri goats are beneficial in lowering the rate of unemployment in rural communities. One of the finest alternatives is the body condition scoring (BCS) method, which is a straightforward and speedy approach to evaluating the condition of goats. BCS, which stands for body condition scoring, is a method of rating an animal based on the amount of muscle and fat cover that is visible on its exterior. If an animal is in poor body condition, it may be because it is not receiving enough food or because it is suffering from a sickness. If the animals are in an excessively healthy state, it is possible to reduce the amount of feed that they consume. The condition of the body will vary if there is a change in the fed supply. It is possible for producers to avoid significant losses in production by conducting animal evaluations.The BCS is a straightforward and practical method that assists producers in modifying their management decisions concerning the health of their animals as well as the quality and amount of feed that is required to maximise the goats' performance and the price at which they can be sold in the market. The difference in live weight and the body condition score are two methods that can be used to evaluate the health and nutritional status of livestock. Live weight change, which is measured with live scales, is the method that provides the most precise assessment of the condition of animals.

Materials and Methods

A wide range of agroclimatic zones that are representative of the native habitat of the Sangamneri goat were investigated during the course of the research that was carried out in the Sangamner region. A stratified sample consisting of one hundred Sangamneri goats was chosen at random for the research project. Using a standardised scoring system that ranged from 1 to 5, with different factors distinguishing each score, each goat was subjected to a rigorous assessment of its physical condition score. Additionally, computerised weighing scales were utilised in order to determine the individual's body weight. Additionally, bodily measures such as height, length, chest girth, and pelvic width were rigorously documented by means of calibrated tool

An appropriate piece of software was utilised in order to carry out the statistical analysis. In order to determine the links that exist between the body condition score, body weight, and physical measurements of Sangamneri goats, Pearson correlation coefficients were computed at the appropriate levels.

Results and Discussion

In Sangamneri goats, the statistical analysis revealed substantial connections between body condition score, body weight, and physical parameters. These relationships were found to be significant.

Table 1: Show the correlation of the interpretation

Parameters	Correlation Coefficient	p-value	Interpretation
BCS vs. Body Weight	0.75	< 0.01	Positive correlation, indicative of higher body weight with increased body condition score.
Height vs. Body Weight	0.62	< 0.01	Positive correlation, suggesting taller goats tend to have higher body weights.
Length vs. Body Weight	0.55	< 0.01	Positive correlation, indicating longer goats exhibit higher body weights.
Chest Girth vs. Body Weight	0.67	< 0.01	Positive correlation, signifying larger chest girth correlates with higher body weights.
Pelvic Width vs. Body Weight	0.61	< 0.01	Positive correlation, implying goats with wider pelvic widths tend to have higher body weights.

The findings shed light on the complex relationship that exists between the body condition score, the body weight, and the physical parameters of Sangamneri goats. There is a positive correlation between elevated body condition ratings and higher body weights, which indicates that the nutritional status and health of some individuals are improving. There are a number of physical characteristics that can be used as accurate proxies for determining body size and conformation. These measurements include height, length, chest girth, and pelvic width. These measurements have an impact on overall production and potential for breeding. When it comes to Sangamneri goat farming, these connections provide vital information that may be used to optimise management techniques, facilitate informed decisions regarding nutrition, breeding selection, and genetic improvement strategies, and optimise agricultural activities.

Conclusion

In conclusion, the findings of this study shed light on the complex relationship that exists between body condition score, body weight, and physical parameters in Sangamneri goats. The connections that have been identified serve as a basis for the development of individualised management interventions and selective breeding programmes that are implemented with the intention of boosting the production and resilience of this native breed. In order to encourage sustainable goat production systems in the Sangamner region and beyond, more research avenues are calling for a deeper investigation into the genetic foundations and environmental effects that shape these connections.

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