Measuring the Growth Performance of Blackbelly Sheep (*Ovis aries)* Fed with Substituted Local By-products

One-Page Summary

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Summary

As a nation, Barbados tends to be extremely costly, partly because over 70% of their food is imported due to the lack of proper resources to become self-sufficient, and partly because the standard of living is exceptionally high. This is a direct result of the high disparity of income and because of this, many farmers are trying to improve the nutrition of livestock while also decreasing their costs of production. The native mammal of Barbados, the Blackbelly sheep, is essential for the nation due to its quick adaptation to tropical conditions and high protein content, providing populations with a basic source of food and by extension improving the state of food insecurity in the region (FAO, 2017). As a result of increasing prices, a local by-products feed made of cassava peels, cottonseed cake, and *Leucaena leucocephala* has been produced at the Ministry of Agriculture to reduce costs. Barbados has an abundance of these resources as they are native to the island, meaning that high quantities can be harvested for exceptionally low costs. All three ingredients provide protein, high amounts of readily digestible carbohydrates, fibre, and essential nutrients for ruminants (Tilteller, 2021).

To test the viability of this feed, an experiment using sixteen randomly selected male Blackbelly sheep has been arranged. Over a six-week period, eight sheep were fed the commercial feed, while the other eight were fed the mixed local by-product feed. Each subject was weighed and placed in isolated pens to control for physical activity and the amount of feed provided. The feed was provided twice a day for a total of 0.45 kg (1 lb) of feed per sheep. This fulfilled their daily nutritional requirements as well as providing ease of calculating feed conversion ratio (FCR), the proportion of feed required for the average subject to gain one gram of weight. To determine the efficiency of the local by-products feed, the growth of the isolated sheep was measured weekly by scale and their average daily weight gain (ADWG) was determined.

Our experimental results demonstrated our mixed local by-product feed required twice as much dry feed to perform at the same rates as the commercial feed, and thus our hypothesis is incorrect since the local feed proves less effective than the commercial feed. However, two experimental subjects experienced significantly high rates of weight gain compared to the commercial control group, demonstrating the promise local by-product feed may have in future experimentation.

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