

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

Validation of an alternative method to estimate dry matter content of common feedstuffs used in commercial feedlots in Brazil

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Measuring dry matter (DM) content of ingredients used in diet formulation is an important step in management practices of feedlots. There is a demand for a simple, reliable, and cheap method to obtain DM values. The objective was to validate an alternative method (air fryer) to estimate DM content of feedstuffs used in feedlots in Brazil. The gold standard method used to generate reference data was an forced air ventilation oven (105 °C). Koster was also included as another gold standard, as it is the most common equipment used in feedlots. Three types of ingredients were used in the validation: grass hay (6 samples), sugar cane bagasse (6) and corn silage (7), summing up 19. The ingredients were collected in such a manner to obtain a broad range of DM content. Each feed sample was split into 3 sub-samples (80 – 200 g). The air fryer temperature / time were set at 105 °C and 50 minutes. Afterwards, the dry sample was weighed every 5 minutes until the final weight stabilized. The same approach was used in the koster, which temperature was set at 150 °C following instructions from the maker. The gold standard DM were determined in the forced air ventilation oven, where the samples were dried during 16 h at 105 °C. The REG procedure of SAS was used to validate actual (oven/koster) and predicted (air fryer) DM content of samples. The model used to compare actual x predicted values of DM was $Y = \beta_0 + \beta_1 \times X + \epsilon$, where Y = air fryer DM content (%); β_0 = intercept; β_1 = slope; X = oven or koster DM content (%); ϵ = random error. Interval estimation technique was used, with 95% confidence of the intervals (95% CI), to verify if the lower and upper limits contained the parameters $\beta_0 = 0$ and $\beta_1 = 1$, respectively. In the comparison between air fryer and oven, the β_0 and β_1 were: 0.005 and -0.068 and 1.095 and 0.974, respectively. In the comparison between air fryer and Koster, the β_0 and β_1 were: 0.014 and -0.027 and 1.035 and 0.966, respectively. For both regressions, the R² was equal to 0.99. Air fryer can be used as an alternative method to measure DM content of commonly used feeds in feedlots, enabling a practical approach to adjust diet formulation on a daily basis in a simple, fast and cheap way.

Keywords: corn silage, feedlot management, grass hay, sugar cane bagasse.

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