



## Intake and digestibility of five forage sorghum silages harvested in a Brazilian semi-arid region

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Sorghum is one of the most used and well known crops for silage production in Brazilian semi-arid areas owing to its high dry matter yield/ha. In addition, sorghum tends to have higher DM and carbohydrates contents and lower buffering capacity, factors that may result in better quality silages and lower production costs. However, intake, digestion, absorption and animal metabolism are variables that should be considered while evaluating feed sources for ruminants as these factors contribute to select the best genotypes before recommending them for public use. Thus, the objective of the current work was to determine intake and apparent digestibility of dry matter (DM), organic matter (OM) and crude protein (CP) of five forage sorghum silages (BRS Ponta Negra, BRS 655, BR 601, BRS 506 and BRS 610 - treatments) harvested in a Brazilian semi-arid region. Plants were harvested as grain exhibited dough stage of maturity and chopped in a stationary silage harvester to a length of 2 cm. Twenty-five rams (average body weight of  $21.7 \pm 1.6$  kg) were used in this experiment. During the first 25 days, animals were adapted to the diets in metabolic cages, with total collection of feces being conducted over a 5 day period by using individual bags. A completely randomized design with five treatments and five replications was used, with variables being tested to check if data had normal distribution before carrying out the analysis of variance. Means were compared using Tukey test at 5% probability ( $P < 0.05$ ). Chemical analysis of the five silages revealed the following properties: DM, OM and CP of 32.4%, 94.7% and 8.4%, respectively. No difference in DM intake (in  $\text{g day}^{-1}$  and  $\text{g per unit of metabolic size (g UMS}^{-1}\text{)}$ ) and in DM apparent digestibility were observed. DM intake (in  $\text{g day}^{-1}$ ) ranged from 604.0 to 700.0, while intake in UMS ranged from 63.4 to 68.4  $\text{g UMS}^{-1}$ . DM apparent digestibility was on average of 59.6%. Organic matter intake (in  $\text{g day}^{-1}$  and  $\text{g UMS}^{-1}$ ) was the same among treatments, with rams consuming on average 632.4  $\text{g day}^{-1}$  and 62.6  $\text{g UMS}^{-1}$ . However, difference was observed ( $P < 0.05$ ) in OM apparent digestibility with BR 601 and BRS 506 having higher apparent digestibility for that variable than BRS 655, which, in turn, had the same OM apparent digestibility as BRS 610 and BRS Ponta Negra. In regarding to CP intake (in  $\text{g day}^{-1}$  or in  $\text{g UMS}^{-1}$ ) and digestibility, it was observed differences ( $P < 0.05$ ). For instance, BRS Ponta Negra silages resulted in a higher CP intake ( $90.1 \text{ g day}^{-1}$ ) than BRS 655 and BRS 610 ( $64.2$  and  $64.9 \text{ g day}^{-1}$ , respectively). Similarly, CP intake (in  $\text{g UMS}^{-1}$ ) was greater in rams that ingested silages generated from BRS Ponta Negra ( $8.8 \text{ g UMS}^{-1}$ ) than in those that consumed silages produced from BRS 655 and BRS 610 ( $6.7$  and  $6.3 \text{ g day}^{-1}$ , respectively). With regards to CP digestibility, which had mean value of 57.4%, the current study revealed that BRS 506 possessed a more digestible CP content (67.0%) as compared to BRS 610 and BRS 655 (51.5% and 46.1%, respectively). These findings suggest that these new cultivars may serve as a forage source under semi-arid conditions as they result in silages that have intake and digestibility comparable to Brazilian well-known cultivars such as BR 700 and BRS 701.

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SP 6639  
P. 217