

Forage Quality Assessment of Different Sorghum (*Sorghum bicolor*) Varieties as Animal Feed in Malaysia

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Sorghum (*Sorghum bicolor*) which belongs to the family Poaceae, is the fifth most important cereal crop cultivated for its versatility in the world of Agriculture especially in arid and semi-arid regions. It is widely grown in Africa, America and Asia, however, in Malaysia it is newly introduced as animal feed. The study was conducted in the field two of the Universiti Putra Malaysia. Seven treatments (SAMSORG45, Bahausa, Sambalma, Kaura, Zabuwa, Janjari, and Kabo) were laid out in a randomized complete block design replicated three times. Data was collected on morphological, growth, yield and nutritional compositions at flag and soft dough stages. Results indicated that Kabo (325.95 cm, 418.35 cm), Sambalma (308.69 cm, 414.64 cm), Zabuwa (307.76 cm, 422.20 cm) and Bahausa (308.90 cm, 403.56 cm) were significantly higher on plant height at flag leaf and soft dough stages. However, Kaura variety obtained the highest leaf number (10, 22) and leaf width (3.57). Result of the growth parameters indicated that, Kaura (15.70) and Sambalma (15.82) varieties have the highest net assimilation rate (NAR), however, Kaura variety was significantly higher on leaf area index (LAI) and leaf area ratio (LAR) 3.5 and 31.88 respectively. Results of the CGR were significantly higher with Bahausa (0.94 g•m²•day), Sambalma (0.71 g•m²•day), Kaura (0.99 g•m²•day), Zabuwa (0.73 g•m²•day) and Kabo (0.64 g•m²•day). Crude protein contents were significantly higher with SAMSORG45 (10.72, 6.84%), Kaura (13.01, 9.35%), Zabuwa (10.53, 6.81%) and Kabo (9.77, 6.38%) varieties at flag leaf and soft dough stages. The Kaura variety obtained least neutral detergent fiber (NDF), acid detergent fiber (ADF), and acid detergent lignin (ADL) 47.49%, 49.36%; 31.58%, 38.65%; 3.18, 5.02% respectively. Due to the higher leaf number, protein content and digestibility of Kaura variety, this variety is recommended for animal feed in Malaysia.

Keywords: Forage, nutrition, quality, sorghum, varieties