

Herbage mass and *in situ* dry matter ruminal degradation kinetics of *Brachiaria* spp

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Keywords: herbage mass, *Brachiaria* spp, *in situ*, dry matter degradation

Introduction In Puerto Rico, *Brachiaria decumbens* cv. Basilisk has been promoted as a potential forage for acid soils and humid areas, but with limited success. Recently, *B. brizantha* cv. Marandú and a hybrid (*B. brizantha* x *B. Ruziziensis*) cv. Mulato were introduced for evaluation on acid soils and as a potential replacement for cv. Basilisk, but little information is available on yield performance under grazing or nutritive value. The objective of this study was to assess herbage mass and nutritive value of grazed pastures consisting of Basilisk, Marandú, and Mulato and determine the rate of *in situ* dry matter degradation.

Materials and methods This study was conducted at the Corozal substation, Agriculture Experiment Station of the University of Puerto Rico, Puerto Rico (18.0° and 18.5° N and 65.6° and 66.3° W). Fully established stands (three replicates of 0.5 ha each) of Basilisk, Marandú and Mulato were stocked every 28 d with yearling steers (mobgrazed to 15-cm height). Prior to grazing, a disc meter (Santillan *et al.*, 1979) and a double sample technique (Ortega-S. *et al.*, 1992) were used to determine herbage mass (all grass above soil level) of pastures. Double samples (plant height in cm, followed by clipping a 0.25-m² quadrat to ground level) were taken at four sites in each pasture every 28 d. In addition, disc heights (20 randomly selected sites) were taken from each pasture. Herbage mass of actual values were regressed on plant height to generate prediction equations. Means of the 20 plant height from each pasture and the prediction equations were used to predict herbage mass. Chemical composition was determined in forage samples using standard procedures (AOAC, 1990; Van Soest, *et al.*, 1991). The *in situ* dry matter (DM) degradation study was conducted using the suspended nylon bag technique in two fistulated cows maintained on a grass diet. Triplicate samples of each cultivar were incubated for 0, 6, 12, 24, 30 and 48 h and analysed for rate of degradation and DM disappearance. Data was analysed using the non-linear model; Degradation = $a+b*(1 - \exp(-c*t))$, where; a = soluble fraction, b = degradable fraction, c = rate of degradation and t = incubation time (SAS, 1990).

Results Mean herbage masses of Basilisk (3.6 t/ha), Marandú (2.6 t/ha), and Mulato (3.0 t/ha) were not different ($P>0.05$), but there were differences in CP and NDF. Crude protein concentration of Basilisk (4.4%) was 1.6 units lower than Marandú (6%) and 2.6 units lower than Mulato (7%). Neutral detergent fiber values were also higher for Basilisk (72%), than for Marandú (67%) and Mulato (66%). *In situ* DM disappearance was higher in Marandú after 48 h incubation compared to the other two forage species (Figure 1). Ruminal degradation rate (Kd^s) was faster ($P<0.05$) for Mulato (.07) than Basilisk and Marandú (.09).

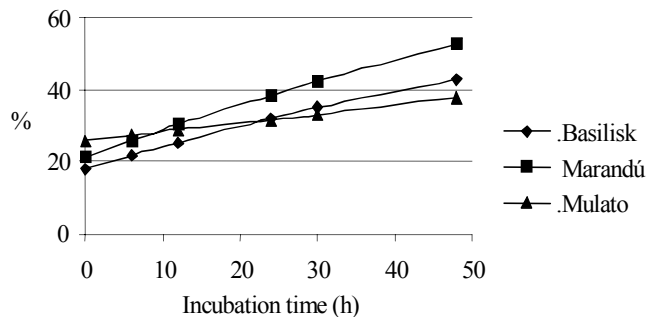


Figure 1 DM disappearance of forages species evaluated (point values according to the non linear regression)

Conclusions Mulato and Marandú exhibited comparable yields, higher CP and lower NDF values than Basilisk. *In situ* DM disappearance was higher in Marandú than either of the other forage species. Both Mulato and Marandú represent a potential replacement for Basilisk in the animal industry in Puerto Rico.

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