# Cattle Excreta Increases Herbage Rejection and Affects Herbage Nutrient Concentration

UFRPE

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## Introduction

✓Nutrient returned by grazing cattle via dung may affect herbage mass and herbage chemical composition around dung pads.

✓This experiment evaluated the effect of three stocking rates (SR) on herbage rejection, herbage mass, and herbage nutrient concentration around cattle dung pads on signal grass (Brachiaria decumbens Stapf.) pastures.

## Material and Methods

✓Treatments: Three stocking rates [2, 4, and 6 Animal Units (AU)/ha; 1 AU = 450 kg live weight].

✓Response variables measured included : herbage rejection, herbage mass, and herbage N, P, and K concentrations from herbage collected at concentric zones away from the dung pad (0-20 cm; 20-40 cm; and 40-60 cm away from the dung border).


Figure 1 – Pictures are illustrating the sampling for analysis of forage production, chemical composition (A) and rejection (B, C & D).

✓Methods: Herbage rejection was measured in five different evaluations by comparing the height of paired samples at the pre- and post-grazing evaluations. Herbage mass and herbage nutrient concentration was performed in eight evaluations.

## Results


Figure 2 – Post-grazing of three stocking rates (SR) on signal grass pastures (*Brachiaria decumbens Stapf.)*.

Table 1 – Herbage mass around dung pads as affected by stocking rate and evaluation date; means are average across three zones away from dung border

| | Stocking rate | | |
|---|---|---|---|
| Evaluation | 2 UA/ha | 4 UA/ha | 6 UA/ha |
| | ---------- *kg MS/ha around dung pads*¶ ------- | | |
| March/2008 | 404 c A | 295 c A | 267 c A |
| April/2008 | 4.122 a A | 3.056 a B | 4.000 a A |
| June/2008 | 3.544 ab A | 3.100 a A | 3.489 a A |
| July/2008 | 3.389 ab A | 2.744 a AB | 2.533 b B |
| August/2008 | 3.967 a A | 2.356 a B | 1.820 b B |
| September/2008 | 3.967 a A | 2.811 a B | 2.533 b B |
| October/2008 | 2.789 b A | 2.962 a A | 2.237 b A |
| January/2009 | 1.044 c A | 1.244 b A | 700 c A |
| SE | | 401 | |

Average across three zones: 0-20; 20-40, and 40-60 cm away from dung border.
Means followed by the same letter, capital letters on the row and small letters on the column, do not differ (P>0.05) by the PDIFF test from SAS.

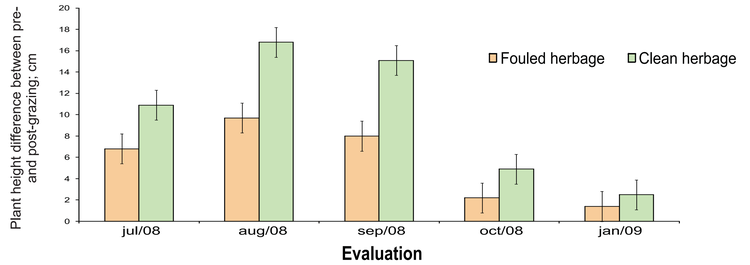


Figure 3 - Plant height difference (cm) between pre- and post-grazing samplings; **higher difference indicates lesser herbage rejection.**

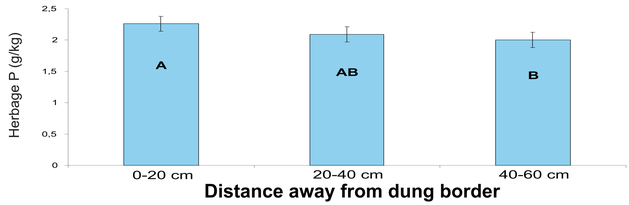


Figure 4 - Herbage P (g/kg) on different zones away from dung border.

## Conclusions

✓Herbage rejection occurred when more herbage mass was available, which happened for the lowest stocking rates at the peak of the forage growing season.

✓Higher stocking rate decreased herbage rejection which caused more immature herbage regrowth, affecting nutrient concentration as a result.

✓Herbage P concentration was higher at the zone closer to the dung and decreased it values at further zones.