

ABSTRACT

Performance of cross-bred Holstein heifer calves grazing
Tanner grass (*Brachiaria arrecta*) pastures at different stocking rates
and nitrogen fertiliser applications

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Satisfactory growth rate in the rearing of dairy cattle replacements is of utmost importance in the dairy cattle industry. A grazing trial was conducted to determine the growth rate of recently weaned 82 – 144 Kg. liveweight (4 months to 8 months) crossbred dairy heifer calves on grass (*Brachiaria arrecta*) pastures and the potential nutritive value of these pastures as an improved forage for early animal growth. Two stocking rates and two nitrogen fertiliser levels were applied in a factorially designed trial.

The trial was conducted in the Waller Field area on the Piarco Fine Sand Soil Series which is characteristic of the livestock (dairy) farms of the State Lands Development Project in Trinidad and Tobago. The animals of the low stocking rate treatment gained significantly ($p < 0.05$) more weight than those of the higher stocking rate treatment. The level of nitrogen fertilisation did not significantly ($p > 0.05$) influence the difference in the daily liveweight gain. Total liveweight gain was positively correlated with the sward bulk density, herbage allowance and leaf/stem ratio and negatively correlated with the sward height, *in vitro* dry matter digestibility of the whole plant and the *in vitro* dry matter digestibility of the stem fraction. Regression analysis revealed that dry matter yield, sward bulk density, sward height and the crude protein content of the whole plant accounted for 67.48% of the total liveweight gain.

The results suggest that the sward structure and chemical composition of the pasture substantially influenced the performance of the animals by limiting their intake of energy (ME); however more work needs to be done to identify other characteristics which influence forage quality and quantity and ultimately animal performance.

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