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Performance of steers grazing star grass supplemented with multi-nutritional blocks

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Introduction Low efficiency of animal production under grazing conditions in the Mexican tropical area has required we look for supplementation alternatives in order to improve production .It has been suggested that supplementing with multi-nutritional blocks offered in plastic bins could be an option ,as it covers animal nutritional requirements and there is less waste of the product .Therefore ,the objective of this study was to evaluate live-weight changes of grazing steers supplemented with multi-nutritional block under Mexican tropical conditions .

Material and methods The experiment ,lasting 90 days ,took place in Tabasco State ,México .Thirty steers of 360 ± 30 kg of initial weight ,grazing star grass (*Cynodon plectostachyus*) ,were allocated at random to 3 treatments : 1) grazing + multinutritional block (MB) 2) grazing + non-commercial supplement (NCS) ,and 3) only grazing .A completely randomised design was used .The multinutritional block offered in a plastic bin had 21% of crude protein (CP) plus minerals and vitamins . The non-commercial supplement was made locally and had 16 % of CP .The MB was offered *ad libitum* and the NCS in a ratio of 2 kg animal⁻¹ d⁻¹ .Herbage dry matter intake (DMI) (Geerken *et al.* ,1987) ,total DMI ,and live weight change were determined .Results were analysed by ANOVA using the GLM procedure of SAS ,with initial liveweight as a covariate .Animal performance was also analysed by a dynamic mechanistic model for tropical beef cattle (Vargas ,2003) .

Results The average crude protein of herbage was 6 .8% ,NDF 74 .0% ,ADF 51 .9% ,and *in situ* digestibility ,38 .5% ,which were due to the high proportion of dead material in the herbage .The multinutritional block intake was low compared to other studies ,while the non-commercial supplement was eaten close to the target (2 kg animal⁻¹ d⁻¹) .Herbage dry matter intake with only grazing was 27 .8% higher than with grazing plus MB and intermediate with grazing plus NCS .Total dry matter intake had a similar pattern .Live-weight daily gain was not affected by treatments ,averaging 0 .43 kg animal⁻¹ d⁻¹ .According to herbage DMI estimated by the mathematical model and the chemical composition of both multinutritional block and herbage ,the mineral concentration of Co ,I ,Mn ,Se y Zn ,was not good enough to cover the animal requirements ,and consequently daily weight gain was low .

Table 1 Means of dry matter intake and live-weight change (kg animal⁻¹ d⁻¹) of steers grazing star grass under different supplementation strategies .

	Treatment		
	Grazing + multinutritional block	Grazing + non-commercial supplement	Only Grazing
Supplement intake	0 .32	1 .56	0 .0
Herbage dry matter intake	10 .46 ^b	11 .91 ^{ab}	14 .49 ^a
Total dry matter intake	10 .78 ^b	13 .47 ^{ab}	14 .49 ^a
Live weight change	0 .400 ^a	0 .493 ^a	0 .413 ^a

a .Mean values within a row with different superscripts are significantly different (P<0 .05) .

Conclusions Under the conditions that the study was conductedt ,supplementing with multinutritional block offered in plastic bins had no positive effects on live weight gain of grazing steers .A better response could be expected either during the dry season or by using growing steers .The mathematical model is a practical tool to the biological explanation of animal performance ; however it is strongly recommended to develop a model to specific conditions .

References

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