

Forage yield and quality of Signal grass-Clitoria mixture grazed at different frequencies

R. Jiménez-Guillen, J. Olivares-Pérez, S. Rojas-Hernández and A. Martínez-Hernández
 Campo Experimental Chilpancingo, Col. Burócratas s/n, Chilpancingo, Guerrero, México,
 rjguillen@hotmail.com

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Introduction A Signal grass-Clitoria mixture provides good quality forage in the dry tropic of southern Mexico. Grazing frequency is a management tool that determines yield, botanical components and quality of pastures. The objective of this study was to determine forage yield, quality and botanical components in a Signal grass (*Brachiaria decumbens*)-Clitoria (*Clitoria ternatea*) mixture when grazed at different frequencies.

Materials and methods Field work was undertaken at the Coastal Experimental Station of the University of Guerrero (17° 20'N, 100°02'W). Grazing frequencies were once every 5, 6, 7 and 8 weeks. Experimental design was a randomized complete-block with four replications in an experimental unit of 400 m² of pasture. The grazing period lasted 24 hours and in each the number of heifers used was such as to keep herbage allowance 4.0 kg of dry matter (DM)/100 kg live weight across all frequencies. Five and four grazing periods were completed in the 5 and 6 week frequencies, respectively, and three grazing periods for the 7 and 8 week frequencies. Seeding was carried out the previous year consisting of three rows of Signal grass and two of Clitoria. Available and residual forage were determined, for both, on a fixed transect and distance using 8 sampling units (0.5X3 m) located perpendicular to rows, allowing for two rows of each species to be inside the sampling unit. Cuts were taken to ground level. Total yield and components were estimated on a DM basis. Crude protein (CP) and dry matter digestibility (DMD) were determined in available forage. For statistical analyses (Steel and Torrie, 1998) available and residual forage yields were divided by the number of days of the rest period and the average for the season was calculated. The CP and DMD were also averaged for the season. Mean separation was by Tukey with $\alpha=0.05$.

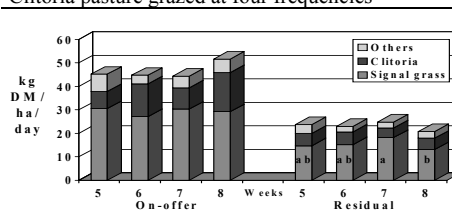
Results Available forage yield (total and components) was not affected ($P>0.05$) by grazing frequency. Forage quality decreased ($P<0.05$) after the 6-week grazing frequency. The 8-week grazing frequency showed the lowest residual forage and the lowest amount of Signal grass in the residual forage (Table 1, Figure 1). The heavy trampling of dead material and the difficulty of recovering this material at the time of sampling might explain this result. Active forage accumulation in Signal grass-Clitoria peaked between the fifth and sixth week of regrowth, which explains the decrease in forage quality and similar yield in the available forage with longer rest periods.

Table 1 Forage yield and quality in a Signal grass-Clitoria pasture grazed at four frequencies

Frequency (weeks)	Forage yield		On-offer forage quality	
	On-offer	Residual	Protein	DMD
	kg DM/ ha/day		%	
5	45.2	23.7 ^{ab 1}	6.5 ^a	42.3 ^a
6	44.7	23.0 ^{ab}	6.4 ^a	41.4 ^a
7	44.3	24.8 ^a	5.4 ^b	39.0 ^b
8	51.6	20.8 ^b	6.2 ^{ab}	41.2 ^{ab}

¹ Means within columns with one letter in common are not different ($\alpha = 0.05$; Tukey).

Figure 1 Botanical components in a Signal grass-Clitoria pasture grazed at four frequencies



¹ Within bars with one letter in common are not different ($\alpha = 0.05$; Tukey).

Conclusions In Signal grass-Clitoria, grazing frequency should be decided on the basis of forage quality rather than on forage yield.

References.

Steel, R.G.D., Torrie J.H. (1998). Principles and procedures of statistics. Mc Graw-Hill. New York, NY, U.S.A.