A grazing method to solve the lack of pastures in the dry season of tropical areas with long periods of drought

R.O. Martinez, R. Tuero and M.F. Díaz
Instituto de Ciencia Animal. Apartado 24 San José de las Lajas La Habana Cuba, Email: romartinez@ica.co.cu

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Introduction Rotational grazing systems used in tropical areas in Latin America do not solve the great difference in pasture availability between the dry and the rainy season. The main studies on rational grazing (Voisin, 1963) were performed in temperate areas where the deficit of feeds in winter may only be solved with external feeds such as forages and silages produced out of the grazing system. The objective of this work was to demonstrate that it is possible to maintain pasture availability throughout the year with the use of a *Pennisetum purpureum* clone (Cuba CT-115) adapted to grazing (Martínez *et al*., 1995), in spite of the dry season.

Materials and methods A dairy unit with 130 cows of the Siboney de Cuba breed (5/8 Holstein, 3/8 Zebu) was used for eight years. The cows grazed 60 ha divided into 80 plots. The grazing system was rational, according to Voisin (1963), with two days of occupation on average. The milking cows grazed first and the dry cows afterwards (leaders and followers). The system was organised with the pastures Cuba CT-115 (*P. purpureum*) and star grass (*Cynodon nlemfuensis*). The principal variable was the progressive increase in the area of CT-115, up to 30 % of the total area. In the rainy season, the area with CT-115 was separated to store feed for the dry season. The system was not replicated, but was of sufficient scale to be representative of farm conditions. Measurements of yield and quality of the pastures and animal production were made. Neither irrigation nor chemical fertilisers were used. The cows were milked twice and grazed 18 h each day.

Results It was found that the gradual increase of the grazing area with CT-115 up to 30 % of the total area (18 ha) allowed the production and storage of the necessary biomass to balance the needs in the dry season. There were three rotations on the pasture Cuba CT-115 in the dry season (15 Nov.- 15 May) and two in the rainy season (15 May- 15 Nov.). With star grass, there were two rotations in the dry season and four in the rainy season. One hectare of Cuba CT-115 fed 700 cow days in the 180 d of the dry season (total of 12600 for the 18 ha), while star grass, on the rest of the area, produced 285 cow days/ha (total of 12000 for the 42 ha). In the rainy season, the biomass provided by star grass was higher (550 cow days/ha), compared to Cuba CT-115 (350 cow days/ha). The daily intake of pasture dry matter (calculated using the chromic oxide technique) was 10 to 12 kg /cow. Table 1 presents the increase in milk yield in the dairy unit over time. Figure 1 illustrates the stability in monthly milk yield (average for three years) and shows little influence of the rainy season.

Table1 Increase in performance over time (milk in thousands of litres)

Per year	1995	1997 (1)	1999	2001 (2)	2003
Total milk	78.9	165.5	155.4	191.9	232.9
L/cow per day	3.27	6.7	6.40	7.55	8.18
Birth rate (%)	52.1	90.2	94.5	87.8	94.8
Milk/ha	1314	2747	2590	3198	3882
CT-115, ha	5.7	12.0	18	20	20

(1) Start artificial rearing, (2) start 30% CT -115

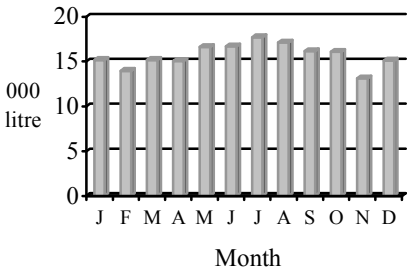

Figure 1 Monthly milk production

Conclusions It is concluded that with adequate management of each pasture in every season and the combination of species of long and short growth cycles, standing feed could be stored and enough regrowth produced to keep 2.3 cows/ha in grazing throughout the year, without bringing feed from outside the grazing system, despite the 180 d of low rainfall (200 mm from 15 Nov. to 15 May).

References

Voisin, A. (1963). Productividad de la Hierba. Editorial Tecnos. S.A. Madrid.

Martinez, R.O., R.S. Herrera, R. Cruz & V. Torres (1995). Tissue culture and mutation breeding in tropical pastures. *P. purpureum*:another example for obtaining new clones. *Cuban Journal of Agricultural Science*, 30, 1-11.