

HIGH INSTANTANEOUS SPRING STOCKING RATES TO IMPROVE YEAR ROUND HERBAGE UTILIZATION IN ARGENTINE DAIRY PRODUCTION

M.H. Wade and D.E. Dalla Valle

Departamento de Produccion Animal, Facultad de Ciencias Veterinarias,
U.N.C.P.B.A., Pinto 399, (7000) Tandil, Bs As, Argentina

ABSTRACT

In much of Buenos Aires Province, Argentina 60% of the year's pasture production occurs during spring. This trial was carried out to test the minimum area necessary for grazing in the period of maximum pasture growth in the 3 to 4 months of spring, so that in turn the maximum potential area for forage conservation could be estimated. At the two levels of herbage allowance aimed for (achieving 18.1 and 36.6 kgDM/cow/d), herbage intake was 11.1 and 13.4 kgDM/cow/d and milk production 20.9 and 22.3 l/cow/d respectively. While these differences were not significant, the trial demonstrated a potential of 70 % of pasture area could be available for forage conservation in a normal spring, which compares with 5 to 15 % with some of the best milk producers.

KEYWORDS

Cattle, grazing, herbage intake, milk production, areas for conservation

INTRODUCTION

Milk production systems in the SE of Buenos Aires Province are advancing relatively rapidly in terms of the incorporation of new techniques of milking, reproduction, health and forage conservation. However progress is slower in terms of forage programming and utilization: fundamentally 60% of the year's pasture production occurs in the 3 or 4 months of spring, but stocking rates tend to be based upon the winter carrying capacity, forage conservation being minimal. One of the barriers to the further development of forage conservation, in order to increase stocking rates and productivity, appears to be difficulty on the part of farmers to estimate spring pasture growth rates and consequently judge the minimum areas necessary to maximise forage conservation, while maintaining individual production levels at this time. The present study was envisaged as the start of a series whose objective would be to demonstrate to local farmers that the potential area available for forage conservation may be several times higher in a normal year than those usually found.

METHODS

This was done with a small herd of 20 lactating cows, which were maintained on a quarter of their normal total area (20 ha) during four months of (September to December) of spring 1994 and within this scheme divided into two groups for two months to be grazed at different target levels of herbage allowance, 20 and 40 kgDM/cow/d. The pasture chosen had an area of 4.4 ha and was sown the previous autumn with perennial ryegrass (*Lolium perenne*), cocksfoot (*Dactylis glomerata*) and red and white clovers (*Trifolium pratense* and *T. repens*). The cows, which were Argentine Holsteins at 2 to 4 months of lactation, grazed strips with electric fencing, which was moved every two days. The herbage mass was measured using 8 quadrats of 0.125 m² both before and after grazing, thus herbage intake could be estimated. During this period 4 kg/cow/d of concentrate was fed and daily milk production was measured for each group and individually twice a week. After each grazing excess herbage was cut and in the pasture area not grazed (15.6 ha) hay was made in November.

RESULTS AND DISCUSSION

Some details of the daily herbage allowances and intakes and milk production are presented in Table 1. The average herbage mass before grazing was 3034 kgDM/ha and 1200 kgDM/ha at the low and 1955 kgDM/ha at the high herbage allowance. The levels of intake presented are means, which were not significantly different between the two herbage allowance treatments: however, since the actual range of allowances applied was very wide (13 to 47 kgMS/cow/d), a trend was obtained, which was a linear decline of herbage intake (HI) with decreasing allowance (HA): $HI = 7.45 + 0.17 HA$; $r^2 = 0.48$, $n = 14$. There were insufficient data to confirm the expected asymptotic curve normally found (Le Du et al, 1979), further data collected in similar conditions are required. This decline in herbage intake was reflected in a less pronounced tendency for reduced milk production in the lower herbage allowance treatment (Table 1).

The significant result of this trial was that the average stocking rate on this pasture was 4.5 cows/ha for the four months. Even at the lowest of the two herbage allowances, the average stocking rate was 3.4 cows/ha, about three times that for the best producers in practice: these could close up to 70 % of their pasture area for conservation, compared with the 5 to 15 % that is current practice. The principal value of this demonstration is to indicate to producers the benefits of programming and rationing pasture use, not only in times of shortage, but in the time of maximum growth as well. In terms of economics we recognise the need to test the efficiency of using forage conservation to raise stocking rates (and level of herbage utilization) at a whole systems level (Hutchinson, 1971). The residue sward heights found for different levels of performance in other countries (Hodgson, 1990) will have to be confirmed for these similar swards.

REFERENCES

- Hodgson, J. 1990.** Grazing Management - Science into Practice. Longmans, England.
- Hutchinson, K.J. 1971.** Productivity and energy flow in grazing/fodder conservation systems. Herbage Abstracts **41** (1): 1-10.
- Le Du, Y.L.P., J.Combellas, J. Hodgson and R.D. Baker. 1979.** Herbage intake and milk production by grazing dairy cows. 2. The effect of level of winter feeding and daily herbage allowance. Grass and Forage Science **34** (4): 249-260.

Table 1

Herbage intake and milk production of dairy cows grazing at a range of daily herbage allowances, herbage utilization and stocking rates during two months.

	Herbage allowance (kgDM/cow/d)		
	18.1	36.6	SEM
Herbage intake (kgDM/cow/d)	11.1	13.4	± 2.7 (NS)
Milk production (litres/cow/d)	20.9	22.3	± 1.1 (NS)
Herbage utilization	62 %	37 %	
Stocking rate (cows/ha)	6.9	3.4	

