

CLOVER DEVELOPMENT AND ANIMAL PRODUCTION UNDER CONTINUOUS GRAZING

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INTRODUCTION

Current and previous investigational work suggests that a rotational grazing pattern increases the proportion of clover in swards grazed by sheep (Newton, Wilde and Betts, 1985). However, on grassland farms where sheep predominate a system of continuous grazing is more commonly adopted (McAdam, 1987; Parsons, Penning, Orr and Jarvis, 1987). A replicated trial was established in March 1987 to evaluate the effect of continuous variable stocking by sheep, incorporating two levels of N fertilizer, on animal production and the proportion of clover in the sward.

MATERIAL AND METHODS

The seeds mixture sown and established during May 1986 consisted of 13 kg perennial ryegrass (cv. Borvi,

Talbot, Contender), 1 kg timothy (cv. Goliath) and 1 kg white clover (cv. Grasslands Huia).

There were two levels of nitrogen: 200 kg N per ha applied in five dressings (N₂₀₀); 0 kg N per ha (N₀).

Ten mature Welsh Mule ewes and their twin lambs (core animals) were allocated to each of four 0.8-ha plots at the end of March in each year. Sward surface height (5 (±1) cm) was maintained on all plots by continuous variable stocking using dry sheep to weaning and lambs between weaning and 30 September. Sward height measurements were taken twice weekly (40 recordings per plot). Physical data of the core ewes and lambs was recorded at 14-day intervals. A total of 200 kg N per ha was applied for treatment N₂₀₀, in five equal dressings in March and at 42-day intervals. Phosphate and potash were applied when necessary to maintain a soil index 2.

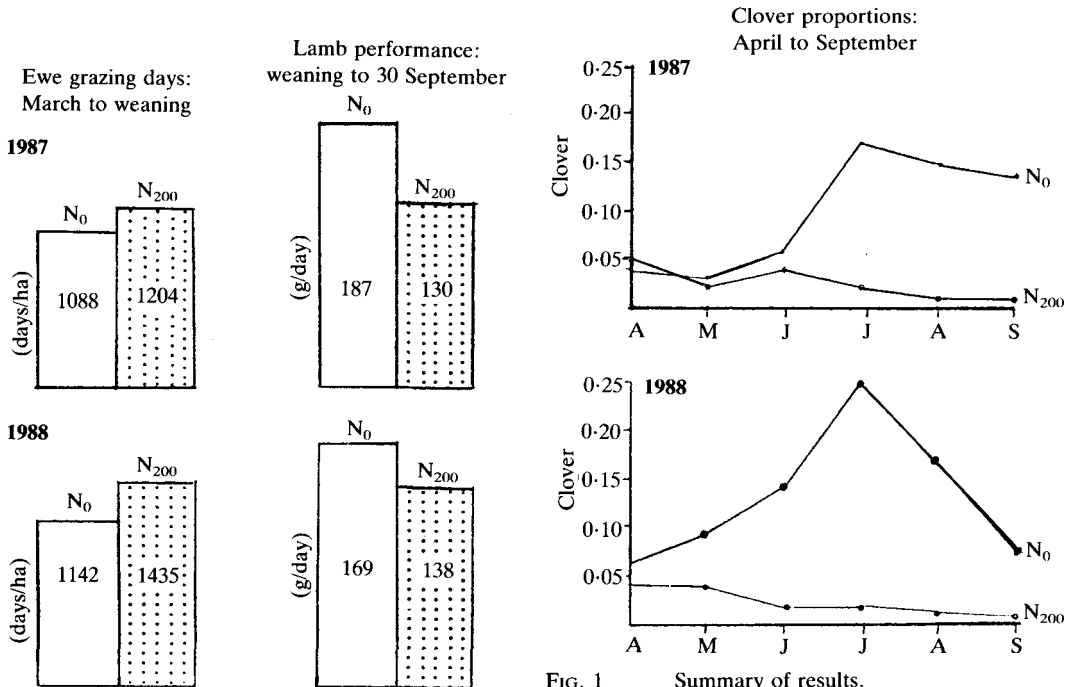


FIG. 1 Summary of results.

Net herbage accumulation (t organic matter (OM) per ha) and clover content (kg dry matter (DM) per kg total herbage DM) were recorded every 3 weeks. Lambs were selected for slaughter when they reached a minimum live weight of 38 kg and a level of finish assessed to produce a carcass of Meat and Livestock Commission (MLC) fat classes 2 and 3. In both years, supplementary feeding was introduced at the end of May when sward height fell below 4 cm. This necessitated supplementing ewes on each treatment in year one (1987) and those on N₀ in year two (1988). Feeding continued until weaning.

RESULTS

The results are summarized in Figure 1. The mean sward surface heights for both years between March and weaning were 4.25 (s.e. 0.86) cm and 4.95 (s.e. 0.75) cm for the N₀ and N₂₀₀ swards respectively. Total herbage OM production on N₂₀₀ was proportionately 0.13 greater than on N₀ (6.06 v. 6.85 t OM per ha).

Total lamb live-weight gain (kg/ha) between March and 30 September was similar for each treatment in 1987 (847 v. 845 kg/ha). In 1988 however, total production on N₀ was proportionately 0.09 greater than on N₂₀₀ (1094 v. 999 kg/ha).

The carcass weights of finished lambs on N₀ were significantly heavier in each year (17.8 v. 16.6 kg in 1987) and (17.4 v. 16.8 in 1988) ($P < 0.05$).

CONCLUSIONS

N₂₀₀ carried more ewes per ha between stocking and weaning. Lambs on N₀ had a significantly greater live-weight gain ($P < 0.05$) between weaning and 30 September, and their carcass weights were significantly greater ($P < 0.05$). The proportion of clover in the total herbage DM peaked in July in each year.

REFERENCES

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