The effect of grazing intensity and frequency during spring and early summer on the sward characteristics of a ryegrass-white clover pasture

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ABSTRACT

The effect of grazing intensity (to approximately 150 (H), 450 (M) and >750 (L) kg lamina DM/ha at a 14 day rotation length, i.e. H14, M14 and L14) and grazing frequency (at 7, 14, 21 and 28 day rotation lengths at the M level of intensity, i.e. M7, M14, M21 and M28) on the sward characteristics of a perennial ryegrass-white clover sward was examined over 24 weeks in spring, summer and early autumn.

The grazing treatments were imposed over a 12 week (treatment) period (mid-Sept to mid-Dec) in spring and early summer to determine a) whether or not pasture 'control' (or some intermediate state) resulted and b) why differences between managements arose. It was found that treatments H14, M7 and M14 could be considered 'controlled' but treatments L14, M21 and M28 could not. This was largely because in the latter, the proportion and mass of ryegrass reproductive stubble, green and total herbage masses, sward height and emerged inflorescence density were much greater; and Leaf:Stem ratio, tiller density and lamina accumulation were much lower, than in the former. The individual mass of reproductive tillers was the most important factor determining differences in ryegrass reproductive stubble mass, rather than reproductive tiller density.

Over the following 12 week (post-treatment) period (mid-Dec to early-Mar) subsequent pasture production on these swards was measured under a common grazing regime. It was concluded that a greater 'risk' of poor lamina accumulation was associated with lack of pasture 'control' and this was largely influenced by the recovery of tiller density. During this period ryegrass reproductive stubble died and 'uncontrolled' swards had higher herbage mass due to a greater mass of dead herbage.

The proportion of white clover in herbage mass and lamina accumulation was greater on M7 swards during the treatment period and on both M7 and H14 swards during the post-treatment period.

In practice, herbage mass and sward height probably the best criteria on which to base spring grazing decisions because both are highly correlated with individual ryegrass reproductive tiller mass. Pasture 'control' may be maintained on a ryegrass-white clover sward by grazing to a sward by grazing to a sward height of 6-9 cm (1400-1600 kg green DM/ha) from a pregrazing sward height of less than 20 cm (2700-3000 kg green DM/ha).

Key Words perennial ryegrass, white clover, grazing intensity, grazing frequency, sward characteristics, pasture 'control'