

Tillering pattern of early maturing perennial ryegrass, and spring growth

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Perennial ryegrass varieties used in Tasmania are early maturing. Grazing trials in Tasmania and England suggest that later maturing varieties may have advantages under intensive grazing managements in terms of spring growth.

Methods

Measurements of net growth of pasture components, and tillering and flowering patterns were made as part of the previously described trial (1). Comparison is made with results of a trial using continuously grazed yearling cattle at the Grassland Research Institute, U.G. (2), where swards of late maturing Melle perennial ryegrass were grazed to herbage masses of 2.9 and 1.6 t DM ha⁻¹ in spring.

Results and Discussion

Net pasture growth was low in spring, on both treatments and was lower with the high grazing pressure, mainly as a result of a reduced net growth of true stem (Table 1). Pasture growth rates on adjacent blocks closed over the period and cut for silage averaged 65 kg DM ha⁻¹ day⁻¹.

Table 1. Net growth of sward components in spring (October - November)

Grazing pressure	Grass leaf and sheath	kg DM ha ⁻¹ day ⁻¹					Total
		True stem	Clover	Weed	Dead		
Low	6	28	- 2	5	18	55	
High	17	- 4	17	2	11	43	
LSD 10%	4*	26*	24	15	27	110	

Table 2. Number of tillers per 100 main tillers present in early spring in England

Date	Low grazing pressure				High grazing pressure			
	Main tillers		Daughter tillers		Main tillers		Daughter tillers	
	Live	Veget- ative	Early spring	Mid spring	Live	Veget- ative	Early spring	Mid spring
Feb.	100	100	65		100	100	65	
Mar.	100	100	110		100	100	115	
Apr.	90	90	110	45	85	85	105	100

These results, in association with the tillering patterns shown in the previous paper (1) indicate a shortage of vegetative tillers in spring resulting in a low pasture growth rate in situations where flowering tillers are likely to be decapitated. The higher growth rate on the more laxly utilised swards appears to result from the increased true stem produced by the flowering tillers. Table 2 shows the tillering and flowering patterns found in England with the late maturing variety.

There appeared to be little flowering activity and the plants appeared to produce more daughter tillers in late winter. It appears that presently used early maturing perennial ryegrasses have characteristics that are inappropriate for intensively grazed situations. They appear to put more energy into flowering in early spring than into daughter tiller production and this leads to reduced growth rates in grazed pastures in spring. Previous evaluation of late maturing varieties in Tasmania found that they did not survive dry summer conditions, however, this may have resulted from their being tested under low spring utilisation managements. There is a need to re-evaluate these later maturing varieties under the high utilisation systems being adopted on many dairy farms.

1. P. Michell and W.J. Fulkerson. *Agronomy Australia*, 1985.
2. J.R.B. Tallwin, R.V. Large, J. Williams and P. Michell, unpublished 1981 results.