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EFFECTS OF PRESENCE OF **LOLIUM** ENDOPHYTE ON GROWTH RATES OF WEANED LAMBS, GROWING ON TO **HOGGETS,** ON VARIOUS RYEGRASSES

L.R.FLETCHER
Grasslands Division, DSIR, Lincoln.

Abstract

Weaned lambs when growing to hoggets on old pasture acotype ryegrass, had shown significantly lower weight gains immediately prior to clinical signs of FIGS, than those on Ruanui ryegrass pasture. The difference was not correlated to quantity of harbaga on offer. Enzyme linked immunosorbent assay of plant tissue showed higher concentration of *Lolium* endophyte in that period than prior to subsequent periods.

Keywords: ryegrass staggers, *Lolium* andophyte, live weight

INTRODUCTION

Ryegrass staggers (RGS), a common neuromuscular disorder of animals grazing ryegrass *(Lolium perenne* L.) dominant pastures in summer and autumn is considered to be more of a nuisance in stock management rather than a direct threat to animal production (Mortimer 1978). Fletcher (1982) has reported lowered liveweight gain in lambs grazing *Lolium* endophyte infected pastures, just preceeding the onset of clinical symptoms of RGS. The present paper extends that observation to a second year.

METHODS AND MATERIALS

Coopworth lambs were grazed from December 1980 through to March 1982 on three different ryegrass pastures; old pasture ecotype (OP), 'Grasslands Nui' and 'Grasslands Ruanui', all established by drilling with white clover *(Trifolium repens* L) in autumn 1980 on a Templeton silt loam. There were three replicates of each pasture stocked with 8 lambs per replicate (20/ha). The lambs were set stocked during spring, summer and autumn; then over winter they were grouped into three groups of 24 and break grazed over the three replicates, with supplementary feeding as required in the second year. During the first outbreak of RGS in the summer of 1980/81 the animals grazing OP pastures were so severely affected by RGS they were temporarily replaced with similar stock for the period February 9 to March 6. During the second outbreak of RGS in summer 1982, 0.3 kg/head of lucerne hay was fed daily to all animals.

During the spring, summer, and autumn the animals were weighed every ten days, and during summer and autumn were scored for incidence of RGS according to the criteria of Keogh (1973). The mean date for peak RGS was 9 February in 1981 and 3 February in 1982. In both years clinical symptoms commenced approximately 14 days previously, while the pre-clinical period was 47 days preceding the peak in both years. The period from peak RGS until symptoms

were no longer observed (post peak) was 45 and 33 days respectively for 1981 and 1982.

RESULTS AND DISCUSSION

Clinical symptoms of RGS in animals grazing OP ryegrass commenced on 27 January in 1981 and 30 December in 1982. The mean RGS scores were severe for 1981 and moderate to severe in 1982 (Table 1). Scores for animals grazing Nui pastures were moderate and low respectively in those years. There was no RGS on Ruanui pastures. During the pre-clinical RGS period in 1981, weight gains were significantly reduced for OP pasture. In 1982 the pattern was similar. From the onset of RGS to the peak of RGS, weight gains were not significantly different between pastures. In the post peak RGS period no symptoms were evident but animal performance was inferior on Ruanui pastures.

Table 1: GROWTH RATES OF LAMBS/HOGGETS (g/DAY)

Pasture	Peak RGS Score	Preclin RGS	To Peak RGS	Post Peak RGS
1980/81				
Ruanui	0	70.8	23.0	-32.0
Nui	2.4 +-0.32	60.4	38.0	20.0
O.P.	4.3 +-0.12	0.003	54.0	no data*
SE±		30.7	45.0	10.0
1981/82				
Ruanui	0	137.0	26.5	99.5
Nui	0.83+–0.17	111 .0	16.5	142.0
O.P.	3.52+–0.25	69.0	19.5	142.0
SE±		32.3	8.2	15.4

* Lambs removed

Table 2: HERBAGE AVAILABLE IN PRE-CLINICAL RGS PERIOD (kg DM/ha)

	1980/81*			1981/82**		
	Live grass	Dead grass	Clover	Live grass	Dead grass	Clover
Ruanui	400	800	0	230	400	40
Nui	400	600	0	230	400	20
O.P.	500	700	0	210	380	30
SE+	72	136		50	60	17

* One sampling only at end of period

** Mean of four samplings over period