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*Brief communication*

THE EFFECT OF SEASON OF THE YEAR AND PASTURE ALLOWANCE ON THE GROWTH OF LAMBS FED DIFFERENT PASTURE SPECIES

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Recent work at Ruakura has shown precise, stable asymptotic relationships between liveweight gain (LWG) and level of nutrition (pasture allowance) for a given set of pasture conditions and for a range of pasture species (Jagusch *et al.*, 1979a, b, c). With legumes, maximum LWG is obtained at lower pasture allowances than for ryegrass based swards. Because these experiments were conducted during the early finishing period for lambs (December-January) it seemed appropriate to investigate the March-April situation of late finishing store lambs when ill thrift is likely (Scott *et al.*, 1976).

Suffolk x Coopworth lambs from a synchronised lambing in September 1979 were used to compare growth rates from red clover (RC), white clover (WC), ryegrass-white clover (RWC) and lucerne (L) pastures when these were fed at 5 pasture allowances (range 1 to 6 kg DM/head/d) for 28 days in December and March, to 22 and 24 kg lambs respectively (n = 20/group).

TABLE 1: COEFFICIENTS FOR EXPONENTIAL MODEL RELATING LWG AND PASTURE ALLOWANCE WHEN LAMBS ARE FED DIFFERENT PASTURE SPECIES

	<i>December</i>		<i>March</i>	
	<i>A</i> (g/d)	<i>PA<sub>90</sub></i> (kg DM/lamb/d)	<i>A</i> (g/d)	<i>PA<sub>90</sub></i> (kg DM/lamb/d)
RC	220 ± 13	2.6	183 ± 17	2.7
WC	256 ± 13	2.2	209 ± 18	2.4
RWC	207 ± 13	2.7	128 ± 15	3.9
L	177 ± 12	3.2	178 ± 16	2.8
B	0.76 ± 0.31		1.45 ± 0.43	
C	0.0055 ± 0.0016		0.0075 ± 0.0026	
RSD	24		10	

The curvilinear model with restricted coefficients as described by Jagusch *et al.* (1979b) was used:

$$\text{LWG} = A(1 - \exp[B - A.C.PA])$$

where A is the maximum liveweight gain (g/d) where further increments of pasture allowance (PA kg DM/lamb/d) give no further increase in growth and B and C are scale and shape coefficients common to all pastures.

The coefficients for each relationship are given in Table 1, together with a value estimating the level of nutrition at which 90% of asymptotic LWG was reached (PA<sub>90</sub>).

The results show the regular differences between pastures species within seasons in LWG characteristic of our previous work (Jagusch *et al.*, 1979b, c). However, there was substantial reduction in LWG during March for lambs fed RWC, due to the fact that clover contributed only 9% of the sward, compared with December when clover was 32%. This resulted in a lower PA<sub>90</sub> value for December compared with March, unlike our previous results when clover contributed 20% of the sward (Jagusch *et al.*, 1979b). Obviously variation in the proportion of clover will shift relationships for RWC. There was no ill thrift in these lambs.

#### REFERENCES

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