

INTERACTIONS BETWEEN SELENIUM AND HAEMOGLOBIN TYPE IN THE REPRODUCTIVE PERFORMANCE OF EWES GRAZING OESTROGENIC PASTURE

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Some ewes grazing oestrogenic pasture consistently produce viable offspring and are therefore considered to be resistant to Clover Disease. In a search for factors associated with this resistance Obst, Seamark and McGowan (1971) reported a significant association between ewe fertility and haemoglobin type (Hb) in a small flock of Merino ewes grazing Yarloop clover pastures. Low fertility and high lamb mortality on these pastures may also be associated with selenium (Se) deficiency (Godwin, Kuchel and Buckley, 1971).

Investigations are in progress to determine the effect of Hb and Se on the fertility and lamb mortality of sheep grazing oestrogenic pastures on Kangaroo Island and in the South East of South Australia. Preliminary results from 3 separate flocks with similar responses are combined in the Table. Flocks consisted of 124 Bungaree Merino ewes of mixed ages mated at random in 1971; 161 Bungaree ewes mated at 1½ years of age in 1972 and 574 Peppin Merino ewes mated at 2½ years of age in 1973. The last two flocks were mated to Hb AA rams. Ewes within each Hb type were divided equally into 2 groups, a control (Nil) and a Se group which received oral doses of 25 mg of Se as sodium selenate at pre-mating, post-mating and pre-lambing.

Table Haemoglobin type, selenium and reproductive performance

Ewe Hb type	AA		AB		BB	
	Nil	Se	Nil	Se	Nil	Se
Treatment	Nil	Se	Nil	Se	Nil	Se
Ewes mated (no.)	84	84	212	214	133	132
Lambs born (%)	86.9	75.0	90.1	79.9	71.4	92.4
Lamb deaths (%)	21.9	30.2	23.6	22.8	21.2	38.5
Lambs marked (%)	67.9	52.4	68.9	61.7	56.4	56.8

Without Se, Hb AA ewes produced 15.5% more lambs and 11.5% more lambs were marked than Hb BB ewes. Selenium administration, however, reduced the percentage number of lambs born to both the Hb AA and AB ewes by at least 10%. The advantage of a 21% increase in lambs born to Hb BB ewes given Se was nullified by the significant ($P < 0.01$) increase in lamb mortality (21.2 to 38.5%). Other mortality differences were not significant ($P > 0.05$). The results are interpreted to suggest that when selenium is administered, the superiority in reproductive performance of Hb AA and AB ewes grazing Yarloop clover is eliminated.

REFERENCES

- OBST, J.M., SEAMARK, R.F. and MCGOWAN, C.J. (1971). Nature, Lond. 232:497.
 GODWIN, K.O., KUCHEL, R.E. and BUCKLEY, R.A. (1971). Aust. J. exp. Agric. Anim. Husb. 10:672.

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