

EFFECTS OF BOVINE SOMATOTROPIN ADMINISTRATION DURING LATE PREGNANCY ON MERINO EWES FED LUCERNE

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Wool growth of dry Merino sheep has been reported to be little affected during exogenous growth hormone (GH) administration, but increased following termination of the GH (Wynn *et al.* 1988). The following experiment was designed to examine whether this effect could be used to alleviate wool growth depressions during pregnancy (P) and lactation (L).

The oestrus cycle of Merino ewes was synchronized and the ewes joined. From day 110 of pregnancy 34 pregnant single-bearing and 24 non-pregnant ewes were housed in individual pens, and from day 118 to day 137 of pregnancy half the ewes were injected subcutaneously with 5 mg/day bovine somatotropin (BST; Sometribove, Monsanto) and the other half with a placebo (75 mmol NaHCO₃). Ewes were fed a restricted level of chopped lucerne hay until parturition, or for dry ewes until the equivalent of day 21 of lactation, to provide for maintenance of the ewe and for foetal growth. Lactating ewes were fed *ad libitum* until day 21 of lactation. At day 21 of lactation all ewes were moved to a 0.5 ha paddock and fed lucerne hay *ad libitum* from hay feeders.

Table 1. Wool growth and staple strength in pregnant/lactating (P/L) or dry ewes treated with BST or left untreated (placebo)

Measurement	Pregnant/lactating		Dry		s.e.m.	Probability		
	Placebo	BST	Placebo	BST		P/L	BST	Interaction
Number of ewes	13	12	12	12				
Clean wool growth (mg/100 mm x 100 mm patch/day)								
Days 118–137P	62	59	70	59	4.5	n.s.	n.s.	n.s.
Day 137P–day 21LA	78	76	69	72	3.9	n.s.	n.s.	n.s.
Days 21L–42L	83	82	75	74	4.3	n.s.	n.s.	n.s.
Days 42L–63L	75	74	93	81	6.0	*	n.s.	n.s.
Staple strength (N/ktex)	25	18	22	24	1.9	n.s.	n.s.	*

^aLactating ewes were fed *ad libitum*, dry ewes at maintenance; n.s., not significant; * $P < 0.05$.

Plasma concentrations of growth hormone, insulin-like growth factor I (IGF I), glucose and insulin were increased ($P < 0.01$) on day 134 of pregnancy during BST administration. At day 144 of pregnancy, 7 days after termination of BST administration, plasma GH concentration was increased ($P < 0.01$) due to previous BST, but tended to decrease at days 14, 35 and 63 of lactation. BST administered during pregnancy increased plasma IGF I concentration ($P < 0.01$) at day 14 of lactation. Ewes which had received BST tended ($P < 0.10$) to have a higher feed intake during week 1 of lactation, produced more milk energy at day 42 of lactation (6.2 v. 7.8 MJ GE/day, $P < 0.05$), and tended to produce more milk energy at days 7 and 21 of lactation. This increase was associated with increased milk energy content rather than milk volume. Lamb growths to day 63 were 257 and 271 g/day for control and previously BST-treated ewes respectively. Wool growth was reduced by pregnancy/lactation; when ewes were fed at comparable levels wool growth was decreased by 12% at days 118–137 pregnancy and 20% at days 42–63 lactation. Exogenous GH did not affect wool growth in either dry or reproducing ewes, caused a reduction in tensile strength of wool in reproducing ewes.

WYNN, P. C., WALLACE, A. L. C., KIRBY, A. C. and ANNISON, E. F. (1988). *Aust. J. Biol. Sci.* **41**: 177–87.