CRC for Premium Quality Wool

Follicle Initiation, Wool Growth and Maternal Nutrition

Produced for the CRC for Premium Quality Wool undergraduate program by;
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Effect of both prenatal and postnatal nutrition on follicle populations and fibre production

- H/H: Above maintenance nutrition during pregnancy and after birth.
- H/L: Above maintenance nutrition during pregnancy and below maintenance after birth
- L/H: Below maintenance nutrition during pregnancy and above maintenance after birth
- L/L: Below maintenance nutrition during pregnancy and after birth.

Group	No. fibres (x10^6)	Fibre weight (µg)
H/H	64.4 ± 5.53	37.1 ± 2.34
H/L	68.9 ± 2.89	29.7 ± 1.28
L/H	57.9 ± 3.53	37.1 ± 2.04
L/L	51.8 ± 4.12	36.7 ± 3.12

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Source: Schinckel, P.G. and Short, B.F. (1961)

Effect of maternal undernutrition on lifetime wool production of offspring

- Management of ewes to prevent liveweight loss results in hoggets that produce an extra 0.14kg clean wool which is 0.1µm finer (Kelly et al., 1996)

	Maint.	Sub Maint	P
	Lamb		
CFW (kg)	1.2	1.1	<0.01
FD (µm)	20.4	20.4	n.s
	Hogget		
CFW (kg)	4.24	4.10	0.1
FD (µm)	20.7	20.8	<0.05

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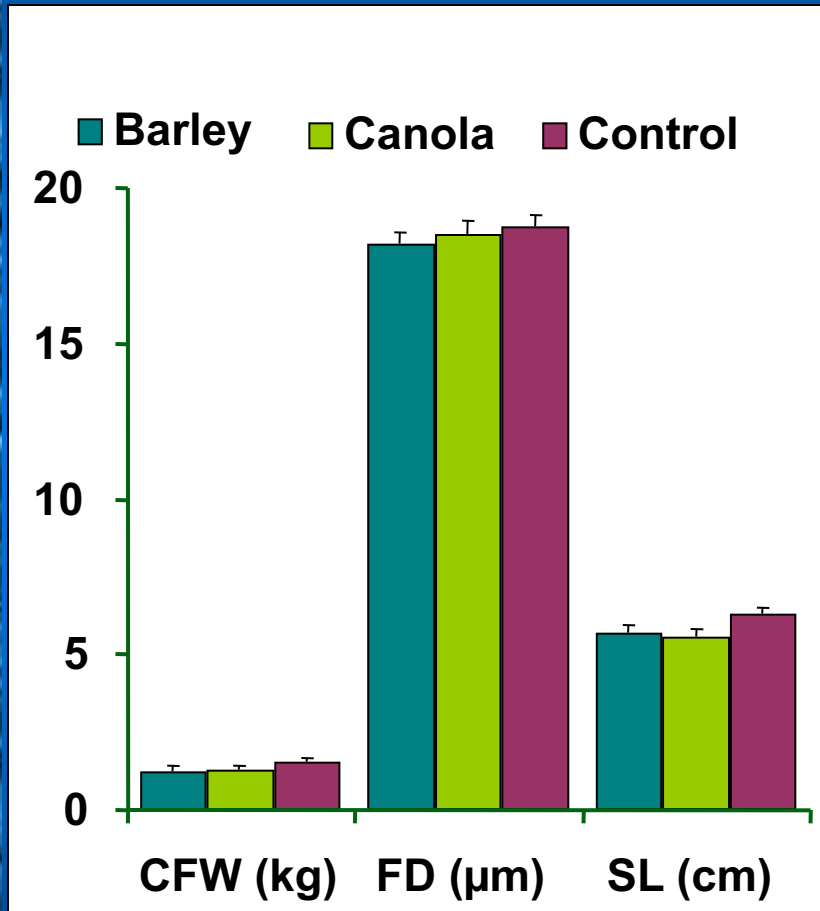
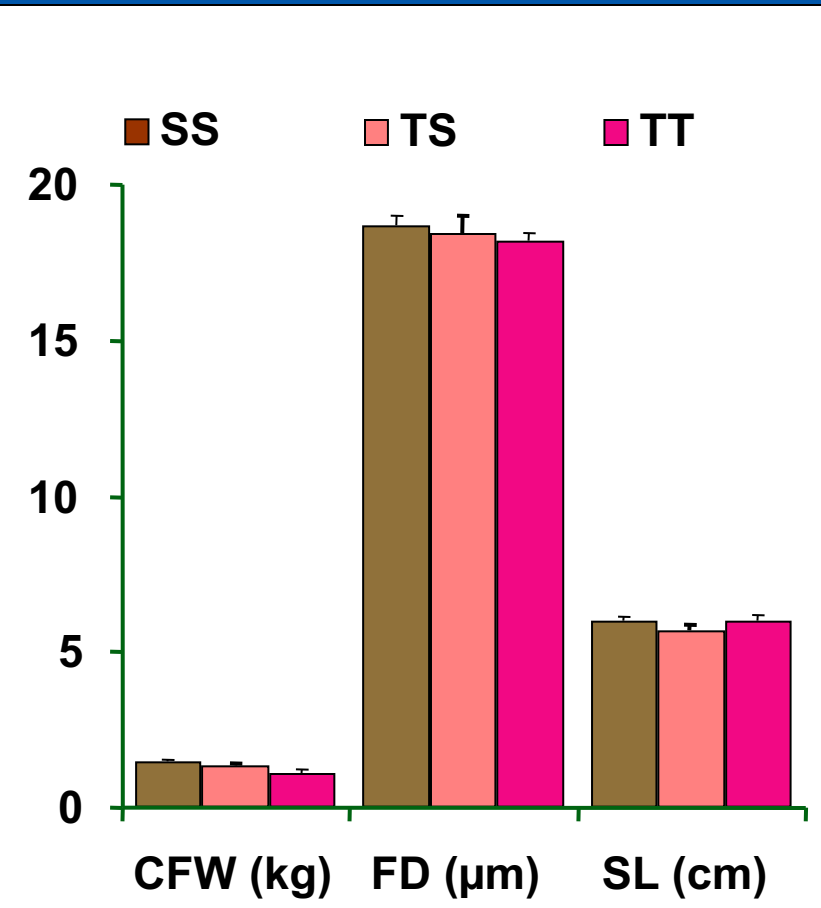
Source: Kelly et al., (1996)

Effect of ewe supplementation on lifetime wool production of offspring





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www.woolwise.com

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Source: Hocking Edwards, J.E & Masters, D.G

The effect of maternal nutrition on offspring follicles and wool production

Ewe liveweight	Lamb S:P	Wool (kg)
72 vs 60kg Kelly et al. 1996	21.5 vs 20.0 (0.4 yrs)	4.2 vs 4.1 (15 mo)
48 vs 38kg Schinckel & Short 1961	20.4 vs 18.6 (birth)	4.6 vs 4.2 (18 mo)
52 vs 44kg Everitt 1967	14 vs 10 (12 wks)	3.3 vs 3.0 (18 mo)
51, 54, 55kg Hocking Edwards *et al*. (pen)	15.7, 15.6, 14.5 (birth)	4.4, 4.5, 4.5 (17 mo)
55, 58, 55kg Hocking Edwards *et al*. (field)	15.3, 17.6, 17.9 (birth)	1.5, 1.3, 1.3 (9 mo)

- **Feeding ewes to severely lose weight depresses S:P and subsequent wool production of their offspring**
- **It is unlikely that it would be possible to feed the ewes enough above maintenance to improve follicles**

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Conclusion

Supplementary feeding ewes beyond the requirements to maintain ewe weight during pregnancy does not improve wool producing ability of their offspring.

However

To maximise wool production, it is important ewes do not lose weight during pregnancy.

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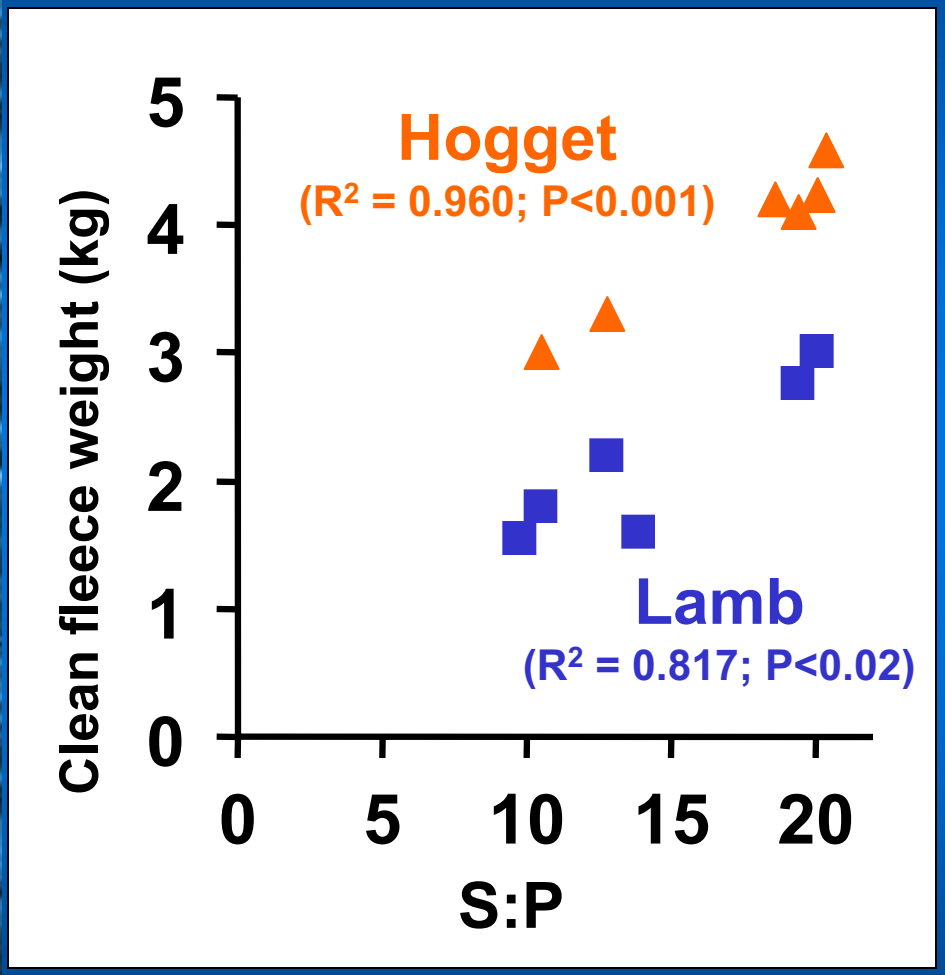
Potential effect of follicle regression on fleece production



If there is a 20% decrease in S:P, this may lead to a:

- 22% decrease in lamb fleece weight
- 16% decrease in second shearing fleece weight

Data from Short (1955), Schinckel and Short (1961), Everitt, (196) and Kelly *et al*. (1994)

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