

CAN SHEARING OF EWES IN MID-PREGNANCY RESULT IN LAMBS WITH FINER WOOL?

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It has been well established that shearing ewes during mid-pregnancy can increase lamb birth weight and tends to increase lamb liveweights and survival rates to weaning (Kenyon *et al.* 2003). It has been suggested that elevated maternal thyroid hormones play a role in the birth weight response observed from mid-pregnancy shearing (Kenyon *et al.* 2005). Revell *et al.* (2002) reported that in both singletons and twins the total number of secondary follicles and the secondary to primary follicle ratio was higher in lambs born to ewes shorn in mid-pregnancy compared to those born to unshorn ewes although, this did not result in significantly finer fibre diameter. A series of studies was undertaken to determine if the apparent mid-pregnancy shearing effect on the lamb's fleece was repeatable. In all 3 studies, lambs were either born to ewes shorn in mid-pregnancy or unshorn ewes (Sherlock *et al.* 2002; Kenyon *et al.* 2004; Kenyon *et al.* 2005). At 5 to 6 months of age, mid-side wool samples and skin biopsies were taken from the lambs. The wool samples were tested for mean fibre diameter using OFDA. The skin samples were used to determine primary and secondary follicle populations. The studies of Kenyon *et al.* (2004) and Kenyon *et al.* (2005) involved twin-born lambs only, while the study of Sherlock *et al.* (2002) involved both single- and twin-born lambs. The ewes were either Romney (Sherlock *et al.* 2002; Kenyon *et al.* 2004) or Coopworth (Kenyon *et al.* 2005). Kenyon *et al.* (2004) and Kenyon *et al.* (2005) also examined the effects of elevated thyroid hormones in mid-pregnancy on the resulting offspring.

Table 1. The effect of time of shearing of ewes on mean fibre diameter (MFD, microns), primary (N° Pri) and secondary (N° Sec) follicle numbers and ratio of secondary to primary follicles (Sec: Pri) in their lambs (Mean ± SE)

Study	Treatment	MFD	N° Pri	N° Sec	Sec: Pri
Sherlock <i>et al.</i> 2002	Unshorn	31.3 ^a ± 0.5	6.5 ± 0.3	52.4 ^b ± 1.9	9.8 ± 0.6
	Shorn	32.9 ^b ± 0.5	5.8 ± 0.3	46.5 ^a ± 1.9	9.7 ± 0.6
Kenyon <i>et al.</i> 2004	Unshorn	30.97 ± 0.44	6.62 ± 0.39	49.70 ± 1.75	9.28 ± 0.56
	Shorn	31.23 ± 0.46	6.96 ± 0.38	50.06 ± 1.67	8.91 ± 0.53
Kenyon <i>et al.</i> 2005	Unshorn	33.6 ± 0.4	16.80 ± 1.08	65.31 ± 2.79	4.08 ± 0.28
	Shorn	32.8 ± 0.4	17.48 ± 1.03	65.65 ± 2.66	3.95 ± 0.27

Means within studies with differing superscripts are significantly different (P<0.05).

The time of shearing of the ewe had no effect on fibre diameter or follicle populations of the lambs in the studies of Kenyon *et al.* (2004; 2005). In contrast, lambs born to ewes shorn in mid-pregnancy had broader wool (P<0.05) and less secondary follicles (P<0.05) than those born to unshorn ewes in the study of Sherlock *et al.* (2002). There were no interactions between dam treatment and birth rank. In the study of Kenyon *et al.* (2004) lambs born to ewes with elevated concentrations of thyroid hormone had more secondary fibres (53.00±1.68 v 46.75±1.76) than those with normal thyroid hormone concentrations although there were no other follicle or fibre diameter effects found (Kenyon *et al.* 2002; 2004) (data not shown). These results, in conjunction with the lack of an effect on fibre diameter reported by Revell *et al.* (2002) indicate that in strong woolled breeds, shearing of ewes in mid-pregnancy will not result in offspring with finer wool. We do not know if shearing in mid-pregnancy would alter fibre characteristics of the lambs of fine-woolled breeds where the potential for increasing secondary follicles is higher.

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