#5 Influence of liveweight gain profiles of ewe lambs between 12 and 20 weeks of age on puberty and mammary gland development

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The development of the mammary gland before puberty is important in future productivity. The literature suggests that the growth rate of pre-pubertal ewe lambs be in the order of 65 to 75% of their potential to maximise the development of the mammary gland for later lactation performance. The most critical period of life appears to be up to 20 weeks of age. If puberty is reached before this point then mammary development is significantly curtailed, while high levels of feeding may also reduce the development of epithelial tissue, while increasing the fat deposition in the gland. However, liveweight at puberty is an important factor in both conception rate and ovulation rate. Therefore there is a trade-off between attaining an appropriate liveweight for breeding, while maximising mammary development for later milk production. This presentation reports on results of feeding regimes to achieve High or Moderate growth rates of ewe lambs from weaning to puberty on exhibition of detectible oestrus and mammary gland development immediately post-puberty. Ewe lambs entered the experiment at 20.1 kg on 5 December. Liveweight gains from 70 to 140 days of age were 194 and 161 g/d on High and Moderate nutrition respectively. From 140 to 224 days of age liveweight gains were 126 and 84 g/d on High and Moderate nutrition respectively. Ewe lambs in the heaviest and lightest group were 43.5 and 39 kg at tupping in early May, and 70 and 42% were detected in oestrus in the first 17 days of mating. Mammary gland development was assessed by ultrasound image analysis and there was a trend for High nutrition ewe lambs to have a greater fat pad depth and lower parenchyma depth than ewe lambs on a Moderate feeding regime, indicating some effects of nutrition on mammary gland development.