LIFETIME WOOL 10. PROGENY FAECAL WORM EGG COUNTS

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"Nutritional programming" or the provision of additional protein in early life enables animals to resist better the effects of disease and parasitism and contributes to higher production in later life (Nolan, 1999). There is also evidence that poor nutrition and stress during pregnancy can influence the development of the immune systems in the foetus and that these effects may persist for the lifetime of the animal (Cronje 2003). The impacts of maternal nutrition on an animal's resistance and resilience to gastrointestinal parasitism have not been studied. Using extra funding from Meat and Livestock Australia, the effects of ewe nutrition on faecal worm egg counts (FWEC) of the progeny in the plot-scale experiments in 'Lifetime Wool' (Thompson and Oldham 2004; *these proceedings*) were measured to ~12-months-of-age.

The animals used in this study were born in August-September and July-August 2002 for the VIC and WA sites, respectively. The progeny were from ewes fed differently through pregnancy and lactation (Ferguson *et al.* 2004; *these proceedings*), and the progeny at each site had grazed as a single flock from weaning. FWEC was monitored monthly and the sheep were drenched when flock average FWEC exceeded 500 eggs/g. When the monthly sample indicated a flock average FWEC of > 300eggs/g, samples were taken from all the progeny. FWEC data was log transformed before statistical analysis.

Ewe nutrition to mid-pregnancy did not have any significant effect on progeny FWEC at either site. At weaning of the progeny at the WA site, the average FWEC for Feed on Offer (FOO) treatments 1000, 1300 and 1600 kg DM/ha were 1000, 1190 and 1280 eggs/g, respectively. The FWEC for the 1600 FOO treatment was higher ($P<0.001$) than that for the 3000 FOO treatment (760 eggs/g). Thereafter, FWEC stayed relatively low throughout early winter but increased rapidly in the spring, but at no time were there significant differences in FWEC between the groups (Figure 1). The progeny at the VIC site were drenched repeatedly over the winter to avoid ill thrift, and there were no significant differences in FWEC between treatments at any of the sampling times. It would appear that the effects of maternal nutrition on the resistance/resilience to parasites are only minor, at least in these progeny until the age of 12 months.

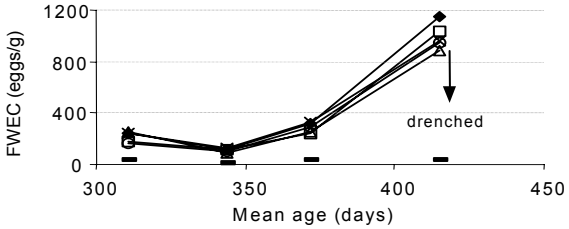

Figure 1. Faecal worm egg counts (FWEC) for WA progeny during their first post-weaning winter/spring for FOO treatments 1000 (◆), 1300 (□), 1600 (△), 2000 (✕) and 3000 (○) (Solid bars = sem).

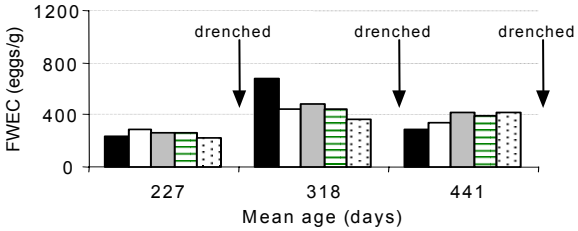

Figure 2. Faecal worm egg counts (FWEC) for VIC progeny during their first post-weaning winter/spring for FOO treatments 800 (black), 1100 (white), (1400 (grey), 2000 (stripes) and 3000 (spots).

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