PREDICTION OF **OVINE** FOETAL AGE USING REAL-TIME ULTRASOUND IMAGING

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Determination of litter size in sheep through real-time ultrasound imaging (RUI)has the potential to have a major influence on the management of sheep through improvements in nutritional and husbandry practices. Further refinement of husbandry practices would be possible if lambing date could be predicted using RUI.

We determined the relationship between foetal age and linear measurements (head width, thoracic depth) observed via RUI (Toshiba Sonolayer-L SAL 32A with 5.08 MHZ transducer) in -12 single-, 12 twin- and 4 triplet-bearing Merino ewes.

Head width or biparietal diameter was measured from a symmetrical image of the skull. Thoracic depth was estimated from. a cross-section positioned immediately posterior to the heart. Measurements were taken at weekly intervals from days 49 to 91, and then at fortnightly intervals to day 119 of gestation. Relationships between foetal age and measurements of head width and thoracic depth were determined within litter sizes using regression analysis; linear and quadratic terms were included in all models.

Table 1   Relationships of foetal head width (HW) and thoracic depth (THD) with age of gestation (A)

Foetal measurement and litter size	Regression equation	r	n
Head Width			
1 foetus	HW = −9.139 + 0.508A	0.961	107
2 foetuses	HW = −8.205 + 0.491A	0.969	212
3 foetuses	HW = −5.817 + 0.447A	0.939	90
Thoracic Depth			
1 foetus	THD = −21.377 + 0.836A	0.948	108
2 foetuses	THD = −31.523 + 1.133A − 0.00204A^2	0.948	211
3 foetuses	THD = −15.937 + 0.752A	0.938	90

n = number of observations.

The slope and elevation of the regression lines for litter sizes 1 and 2 did not differ (P>0.05) for head width, but the slopes of both lines varied significantly (P<0.05) when compared with the slope of litter size 3. Similarly, the slope of the line for litter size 1 for thoracic depth differed from that of litter size 3 (P<0.05). The correlation co-efficients between head width and age and thoracic depth and age, *were* high for all litter size categories examined (Table 1).

We conclude that head width and thoracic depth are suitable linear measures for predicting foetal age in the ovine species.

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