

CROWN-RUMP LENGTH IN RELATION TO DYSTOKIA AND SURVIVAL OF DORSET LAMBS

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Neonatal mortality in sheep of the order of 20 percent, represents an unacceptable level of reproductive wastage. The incidence of neonatal mortality in Dorset sheep in Australia is about twice this and 36 percent of Dorset lamb deaths have been associated with dystokia (George 1976). Crown-rump length has been used as a measure of ovine foetal growth by several workers such as Cloete (1939) and Stephenson (1959). This study was designed to find if a relationship existed between crown-rump length and lamb survival and dystokia.

In each of three years (1973-1975) the curved crown-rump length of Dorset lambs from ewes grazing a phalaris/white clover pasture was recorded at birth, together with birthweight, sex, type of birth and dystokia. Crown-rump length was grouped into 2 cm classes, when used in frequency tables.

Crown-rump length was found to be significantly related to birthweight, type of birth, dystokia and survival (all $P < 0.001$) in each of the three years (Table 1). However, the proportion of lambs that did not survive to weaning (703/1716 = 41%) was of a similar order to that previously recorded (George 1980). The

TABLE 1 Ratio of birthweight to crown-rump length with respect to dystokia and survival (3 year mean $\pm$ SE)

Birthweight Crown-rump length	n	Mean birthweight (kg)	Mean crown-rump length (cm)	Dystokia (%)	Survival (%)
< 0.051	35	1.72 (0.05)	38.19 (0.59)	5.7	20.0
0.051-0.071	364	2.74 (0.02)	42.36 (0.14)	9.9	54.9
0.071-0.091	910	3.65 (0.01)	45.06 (0.09)	26.5	61.8
0.091-0.111	383	4.70 (0.02)	47.82 (0.16)	51.2	60.8
> 0.111	24	5.83 (0.07)	50.26 (0.52)	70.8	45.8

difference in crown-rump length between male and female lambs (45.3 (+0.12) vs 44.8(+0.12)) was significant ($P < 0.01$). Lamb birthweight:crown-rump-length ratio, as an index of the foetal cross-sectional area, was associated with both lamb survival ($P < 0.01$) and the incidence of dystokia ($P < 0.001$). Single, twin and triplet born lambs had mean crown-rump lengths of 47.0 (+0.15), 44.4 (+0.10) and 42.9 (+0.27) respectively. The incidence of dystokia was greater in those lambs whose crown-rump length was greater than 46.1 (50%) and greater for male (34%) than female (23%) lambs. Lambs whose crown-rump length was between 44.1 and 48.0 cm had a greater survival rate than those either smaller or greater than this range. Poll Dorset lambs tended to be both longer and heavier than those of Dorset Horns but had a significantly lower incidence in dystokia. However, there were no significant differences between the breeds in respect to survival.

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