

ASSOCIATION OF VISUAL AND PRODUCTION TRAITS IN DORSET SHEEP

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Some sheep breeders have firmly held views on visual traits which they believe are positively (or negatively) correlated with desirable carcass traits. Some of these associations were examined in Dorset ewes at the Agricultural Research Station, Cowra, as part of the 1981/82 Central Western Dorset Production Competition (Fogarty and Harris 1975).

One hundred and fifty Dorset ewes from 9 Dorset Horn and 16 Poll Dorset Studs grazed together from four to 16 months of age, when liveweight, fat depth, fleece weight, fibre diameter and body length were measured. Body length was recorded as Length 1 (shoulder to tail butt) and Length 2 (hip to tail butt), and fat depth was measured over the loin eye muscle at the 12th/13th rib using an ultrasound probe. Data was analysed for between breed effects, and associations between traits within Horn and Poll flocks were assessed without correcting for liveweight.

There was no difference between flocks in fibre diameter (mean 31.5 micron), total length (mean 710mm) but Poll Dorsets were heavier (55.8 vs 53.6 kg, $P < 0.01$), fatter (5.36 vs 4.44mm, $P < 0.01$), cut more wool (2.56 vs 2.44 kg, $P < 0.05$) and were longer hip to tail butt (414 vs 400mm, $P < 0.01$). The associations varied in size and level of statistical significance between breeds (Table 1).

Table 1 Correlation coefficients for phenotypic associations in Dorset sheep

Variates	Liveweight	Fat Depth	Fleece	Fibre Diameter	Length 1	Length 2
Liveweight		ns	ns	-0.29*	0.32*	ns
Fat depth	0.44***		ns	0.32*	ns	ns
Fleece weight	0.32**	ns		ns	ns	ns
Fibre diameter	ns	ns	0.20*		ns	ns
Length 1	0.50***	0.25*	ns	0.24*		ns
Length 2	0.27**	ns	ns	0.22*	0.32**	

Dorset Horn above diagonal; Poll Dorset below.

*** $P < 0.001$; ** $P < 0.01$; * $P < 0.05$; ns - not significant

The differences in associations between the Dorset Horns and Poll Dorsets may be due to Ryeland/Corriedale infusions made to establish the Poll Dorset breed. Lack of any consistent association between visual and production traits indicates that when selecting Dorset sheep, traits should be considered independently.

FOGARTY, N.M. and HARRIS, D.C. (1975). *Agric. Gaz. NSW.* **86**: 945.

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