PRODUCTION AND QUALITY OF WOOL FROM CONTEMPORANEOUS MERINO AND FIRST CROSS EWES AT THREE CONSECUTIVE SHEARINGS

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The majority of prime lambs slaughtered in Western Australia are first-cross lambs from Merino ewes. The recent introduction of the new meat, milk and dual-purpose sheep breeds has provided producers with the option to produce prime lambs from first-cross ewes. Proponents of the new breeds claim the growth and carcase characteristics of the second-cross progeny from these ewes will be superior to first-cross lambs from Merino ewes. However, little is known about the quantity and quality of the wool produced by these first-cross ewes in comparison to Merino ewes used for prime lamb production in the south west of Western Australia. This paper reports the quantity and quality of wool produced by Merino (Mer) and Merino crosses of Border Leicester (BL), East Friesian (EF), Poll Dorset (PD) and South African Meat Merino (SAMM) ewes run as contemporaries from birth on a commercial farm. The dams of all the ewes were from the same property and bloodline.

The ewes were shorn in 1999, 2000 and 2001 at 15, 26 and 38 months of age. The weight of greasy fleece (GWt) without belly wool was recorded for approximately 50 ewes per genotype at each shearing. Twenty ewes from each genotype representing dry, single and multiple bearers had mid-side samples taken to measure wool quality attributes. The measurements made were: micron (μ), CV of micron (CV), yield (Y), staple length (SL), staple strength (SS) and comfort factor (CF). The same wool buyer assigned a commercial value to the fleeces for each of the three shearings ($/hd). The ewes were weighed (L Wt) pre-shearing as maidens in 1999 and were weighed pre-shearing in 2000 and post-shearing in 2001. When weighed in 2000 and 2001 the ewes suckled lambs 14 weeks of age.

Table 1. Ewe liveweight, greasy fleece weight, micron, CV of micron and the value of the fleece wool for Merino and first cross ewes shorn at 15, 26 and 38 months of age

	1999; 12 months wool					2000; 11 months wool					2001; 12 months wool				
Breed	L Wt	GWt	μ	CV	$/hd	L Wt	GWt	μ	CV	$/hd	L Wt	GWt	μ	CV	$/hd
BL	50.2^{a}	3.2^{a}	25.7^{cd}	25.6^{ab}	8.75	48.4^{ab}	3.6^{a}	28.7^{a}	23.7^{a}	10.40	57.9^{a}	3.2^{a}	26.5^{a}	23.8^{a}	12.19
EF	51.0^{a}	3.1^{a}	26.0^{d}	26.7^{a}	7.89	49.2^{a}	3.3^{b}	28.1^{a}	23.9^{a}	9.72	56.3^{ab}	2.9^{c}	25.5^{a}	24.2^{a}	10.88
Mer	47.2^{b}	3.7^{b}	20.5^{a}	26.4^{a}	12.70	46.2^{b}	4.3^{c}	22.3^{b}	23.2^{ab}	15.37	53.5^{c}	3.9^{b}	21.8^{b}	24.3^{a}	15.99
PD	52.9^{c}	2.9^{c}	24.7^{c}	24.5^{b}	6.96	48.9^{a}	3.0^{d}	28.3^{a}	22.0^{b}	8.82	56.3^{ab}	2.7^{d}	25.5^{a}	22.2^{b}	6.86
SAMM	50.6^{a}	3.1^{a}	21.8^{b}	22.1^{c}	9.21	50.4^{a}	3.2^{b}	22.8^{b}	18.8^{c}	11.01	55.3^{bc}	3.0^{c}	21.7^{b}	20.5^{c}	11.88

Values in a column with different superscripts are different (P<0.05).

Table 2. Wool quality attributes for Merino and first cross ewes shorn at 15, 26 and 38 months of age

	1999; 12 months wool				2000; 11 months wool				2001; 12 months wool			
Breed	Y	SL	SS	CF	Y	SL	SS	CF	Y	SL	SS	CF
BL	73.1^{a}	111.9^{a}	19.0^{ab}	77.4^{a}	75.2^{a}	100.2^{a}	62.5^{a}	62.9^{a}	73.4^{a}	105.6^{a}	20.4	76.0^{a}
EF	72.9^{a}	107.1^{a}	16.8^{bc}	76.5^{a}	71.7^{a}	97.5^{a}	36.1^{c}	68.5^{b}	70.8^{a}	96.8^{b}	24.4	79.6^{ab}
Mer	67.3^{c}	88.4^{bc}	12.8^{c}	95.1^{c}	66.4^{b}	86.5^{b}	49.1^{b}	92.6^{c}	65.2^{b}	88.0^{c}	19.4	93.6^{c}
PD	70.6^{ab}	93.5^{b}	19.3^{ab}	82.6^{b}	72.6^{a}	83.3^{b}	48.2^{b}	66.1^{ab}	72.7^{a}	82.0^{cd}	23.9	81.7^{b}
SAMM	69.2^{bc}	87.6^{c}	21.9^{a}	94.8^{c}	67.3^{b}	81.7^{b}	45.6^{b}	94.6^{c}	66.1^{b}	76.9^{d}	24.3	96.7^{c}

Values in a column with different superscripts are different (P<0.05).

In each of the three years the Merino ewes weighed the least, produced more greasy wool that was finer and with a higher comfort factor than that of the BL, EF and PD cross ewes. In 2000 and 2001 the SAMM cross ewes had wool of similar micron to the Merino ewes, but with a significantly lower CV of micron. The wool of the BL and EF cross ewes had a higher yield and longer staple than that of the Merino or SAMM cross ewes. The low staple strength of all wools produced in 1999 and 2001 reflected the poor seasonal conditions. Over this three-year study the wool returns from the Merino ewes were the highest and that from the Poll Dorset cross ewes the lowest.

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