

The SRS® Breeding System



Figure 1: Characteristics of the SRS® Merino

SRS® Merino sheep are the result of selecting for low primary fibre diameter and high density plus high length of wool fibres. The breeding system was developed by SRS® Chief Scientist and Breeding Consultant, Dr Jim Watts, a research veterinarian who specialised in skin and fleece biology. It is based on Moore’s pre-papilla cell hypothesis of follicle formation and fibre growth.



Figure 2 (above): SRS® Merino ewes and lambs

Breeding Basics

The SRS® Breeding System has designated selection protocols and specific animal and fleece standards that are quantifiable at both genetic and phenotypic levels. By selecting sheep using this system exceptional fibre quality and quantity, processing performance and product quality are realized.

- Low primary fibre diameter ensures that more of the pre-papilla cells are channeled into producing more wool follicles on the animal’s body.
- High fibre density occurs when there are many wool follicles populating each follicle group in the sheep’s skin and these groups are packed closely together. When this happens, the wool fibres become highly aligned, evenly sized and are visible in the fleece as numerous fibre bundles.
- Increased fibre length is expressed most clearly in fleeces that have high crimp amplitude (deep crimp) and low crimp frequency (bold crimp).
- SRS® flocks are plain bodied and free of heavy wrinkle which means animals do not need to be mulesed and are naturally resistant to fly strike.

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Characteristics of the SRS® Merino

1. Open faced, long eared with a long neck and a triple wedge-shaped body (see Figure 1).
2. Bred for calm temperament, high milk production and instinctive maternal bonding to enhance lamb survival (see Figure 2).
3. Thin and loose skin – the wool on the underside of the neck drapes freely without any horizontal skin wrinkles or folds. There is no skin wrinkling over the poll, topside of the neck (no 'collar'), body trunk (no 'tiger stripes'), topline (no 'scribble'), tail (no 'fan tails') and no cross folds down the back legs (see Figure 3).
4. Unique fleece - the fleece consists of long and closely packed fibre bundles with high crimp amplitude (deep crimp), low crimp frequency (bold crimp) and exceptional softness and lustre. The fibre bundles, each of which originates from a follicle group in the skin, are very thin (approximately 1.5 mm in diameter) and remarkably uniform in size over the entire fleece. The fleece wax is essentially non-saponifiable. Suint levels in the fleece are very low, ensuring that the fleece is white (see Figure 4).
5. Follicle and fibre traits - the mean diameter of primary fibres is very fine and 2 to 6 microns finer than the fine secondary fibres. The follicle density is very high (at least 85.0 wool follicles per square mm). The wool fibres grow in length at a rate of at least 0.50 mm per day (see Figure 5).
6. Fibres – are highly aligned, uniform in diameter and length and resemble smooth surfaced cylinders. The cuticular scales are long and flat. The fibres have high elasticity.



Figure 3 (right top): Typical SRS® 2 tooth sale ram displaying body length and shape combined with good structure.

Figure 4 (right middle): Wool from SRS® Merino Sire

Figure 5 (right bottom): Opening extreme SRS® wool displaying density and length

