



## FLOWERDALE ESTATE ALPACAS

### SRS® Breeding delivers 'New Generation' Fibres to the Textile Industry

The valuable 'down' (secondary wool fibres) produced by fleece-coated animals like the vicuana and the cashmere goat is processed after the fleece has been 'de-haired' to remove the outer coat of 'guard hair' (primary wool fibres). 'De-hairing' is an expensive and time consuming process which textile manufacturers would like to avoid.

#### Alpacas have a two-coated appearance.

Most alpacas have a 'two-coated' appearance, although the outer coat of 'guard hair' is far less obvious than that found in the vicuana and cashmere goat. Nevertheless, this 'two-coatedness' of the alpaca requires the 'hair' grown on the apron and legs of the alpaca to be separated during shearing and fleece sorting from the valuable 'wool' grown on the animal's body. The 'wool' harvested from the body of the alpaca still contains 'guard hair' which shows as an unappealing finish to garments, especially knitwear, made from alpaca wool.

#### A new breeding pathway.

The SRS® breeding system has the potential to remove the 'guard hair' from fleece-coated animals like the alpaca, vicuana and cashmere goat. This breeding pathway uses a fleece marker system and skin follicle measurement to reduce markedly the size of the primary fibres. As a result, 'guard hair' and medullated fibres disappear. By reducing the size of the primary follicles, many more secondary follicles are laid down in the animal's skin. This increases as the fleece weight (and down weight) of the animal, whilst reducing the fibre diameter of the wool. The sequence of follicle events is strongly controlled genetically and the improvements in fleece quality and quantity are highly heritable. We have measured the marked reductions in primary follicle size and marked increases in secondary follicle number in the Coolaroo Alpaca herd of Australia. These skin follicle changes have been associated with 'hairiness' disappearing and soft, lustrous wool of deep crimp and fine fibre diameter emerging in the new breeding stock.

Alpacas can be transformed to a 'hair'- free fleece faster than the vicuana. The vicuana, with its more distinctive 'two-coatedness' has a more primitive fleece than the alpaca. However, the challenge to transform the vicuana fleece into a modern fleece composed of homogenous and uniformly grown fibres is an important one. The vicuana fibre is precious and commands an exceedingly high market price. The SRS® breeding system has the potential to increase the down weight of the vicuana several fold whilst reducing its fibre diameter and facilitating its processing performance by minimizing 'guard-hair' content of fleeces.



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