



GOING FORWARD

by Dr Jim Watts

Having made a very good start, our group of SRS® breeders is now well placed to make significant gains with the type of fleece that will lead us to sound commercial future. I am very keen to be a part of that process.

SRS® is a breeding system that aims to perfect the dimensions and properties of the alpaca fibre so that it becomes a high performance fibre, well positioned in luxury retail markets.

The fibre reconstruction required is achieved genetically by increasing the density and length of wool fibres grown by the alpaca. As density and length increases, the fleece fibres become highly aligned and uniform in size and shape, and medullation disappears (Figure 1a). The fibres become much finer in diameter and smooth surfaced as scale height decreases and scale length increases (Figure 1b).

High density, high elasticity.

High density also imparts high elasticity to the fibre. Note from Figure 2, that fibres withdrawn from the staple of an alpaca with high density and length can be easily stretched and when relaxed, resume their normal position and shape, and reveal the deep crimp and symmetry of each fibre. There is no guard hair present as primary fibres are very fine and display no medullation.

Bred in this way, the alpaca has the potential to produce a fibre that is more prestigious and more valuable than cashmere. Equally interesting is the fact that each alpaca bred in this way has the potential to produce about 50 times more fibre than a cashmere goat. With proper marketing and promotion. Alpacas that produce this high quality fibre will be in high demand as seedstock and for the fibre the animals produce.

Alpaca fleeces with high fibre density and length consist of long and thin staples of high crimp amplitude and low crimp frequency. The wool is very soft and lustrous (Figure 3).

An increasing number of Australian alpacas with high densities like the one shown in Figure 1, and fibre length of 0.40 to 0.60 millimetres per day, are being identified at this laboratory over the last year. So it is entirely feasible to expect that we could breed alpacas with at least double the fibre density and double the fibre length of the current industry levels. If we did this, the alpaca would change from producing about 3 kgs of 25 micron wool to one producing about 7.6 kgs of 20 micron wool, or 4.3 kgs of 15 micron wool.

Fibre density (Figure 4) and length need to be measured. This is not a simple task but it gives us great precision in developing high quality fibre in our breeding programs and creating a distinct, competitive advantage in the marketplace.

Help to advance your herd.

I can help a large number of breeders produce this fibre on their animals if there is a system in place whereby a small team of SRS® breeding advisers work closely with me and are engaged by you in the planning, implementation and assessment of breeding programs.

I intend to be very visible at field level helping alpaca breeders. I am also able to provide the technical expertise and laboratory facilities for carrying out the testing that is going to be so crucial to the success of this breeding success of this project.

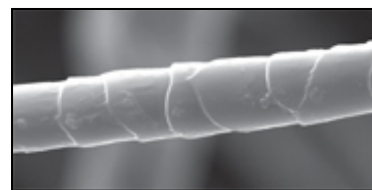
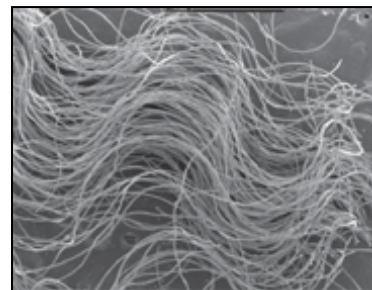


Figure 1. Scanning electron micrographs from a high density and length animal reveal that the fibres are highly aligned, uniformly sized and deeply crimped (A) and fine in diameter with smooth surfaces created by long flat scales (B).



Figure 2. A quick test for fibre uniformity and fibre elasticity.



Figure 3. This alpaca has a high density of 61 fibres per square millimetre. The fibres are 18.0 microns in diameter and grow at the rate of 0.39 millimetres per day. The average alpaca has a density of about 30 fibres per square millimetre and a fibre length of about 0.30 millimetres per day.

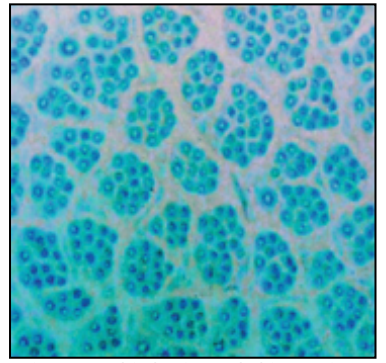


Figure 4. This horizontal skin section (magnified view) is from an alpaca with a very high follicle density of 89 follicles per square millimetre. Note that all the fibres are fine and uniform in diameter and non-medullated. This includes the primary fibres.