

# Aligning Fibre

Part two – Fineness and shear weight.

By Nic Cooper, Southern Alpaca Stud, Christchurch, New Zealand.

The first part of this article examined how the mind sets of breeders of alpacas differed from those needed to be successful growers of fibre, and looked at the 'process' serious growers need to go through to align their fleece production to processor and retail needs.

Part two moves into one of the more deeply held debates of breeding for fineness or for density. One of the biggest debates amongst alpaca breeders is the concentration on fineness or shear weight, whether the two are opposed, and what is 'best' to concentrate on. Clearly, if it was easy to do, we would all breed for alpacas that throughout their life produce 7+kg of 14 micron usable fibre and there would be no debate.

We may get there in generations. However, a look at the merino industry (for example the ultra fine CSIRO herd in Australia) indicates that even this long established industry finds that ultra-fine animals are smaller in stature and shear fewer kg than their super-fine and fine cousins. That does not mean they are starvation fine – a rumour purported by those who cannot or do not wish to breed genetically ultra-fine. Size is a characteristic that appears to link with micron over a large population sample. So in (for example) a high country, low snow line environment, it may be very appropriate to sacrifice a couple of micron for

animal robustness and size (survivability).

## Peruvian fibre

The Incan mummified remains found in Peru were certainly a lot finer than what is traditionally produced in Peru right now. The average micron of Peru production is 28 micron, 50% of Peru's production is over 31 micron, and 35% is over 34 micron (Alpaca World Magazine). Mummified fibre was 10 micron less – between 15 and 18 micron.

The weight of fibre on mummified alpacas is not quoted. However, it would be reasonable to assume that the Incan alpaca was closer to the wild type vicuna or guanaco – fine, low cv, but not dense.

The recent guanaco fleece prize in Argentina was won by an excellent character guanaco fleece of 14.7 micron, 0.45kg shear weight. The fleece's commercial value would have been well in excess of US\$500.

So the concept that world alpaca production is already a super or ultra fine fibre is actually false. That it has the ability to be so if breeders wanted to go that way is clearly true, as demonstrated by some top breeders in Western countries who have made that micron journey already, consistently breeding alpacas in the mid-teen microns.



Photo courtesy of Toft Alpacas



### Shear weight or fineness?

Concentration on either shear weight or fineness is a personal breeder choice. Nor is it one or the other – there are mixes. It would be fair to say that a 100% concentration on either trait will lead to loss of control of other factors.

A breeder concentrating on producing fibre for the carpet market would not want to breed for ultra-fine alpaca. Their goals would be increasing shear weight, whilst holding micron in the band the carpet manufacturer desires for processing. This may involve making some alpaca coarser! A breeder making elite undergarments or suiting material would be trying to hold shear weight, whilst driving microns down to the ultra-fine category.

The show rings around the world have largely avoided this discussion to date. The show ring sees fineness and density as the most important commercial factors in alpaca but (commercially incorrectly) equates (in points and judge perception) fineness and density. Extremes of either density (with higher micron) – our ideal carpet alpaca – or fineness (with lower density) – our ideal suiting material alpaca – seem to fail in the show ring. 'Our fifth place alpaca is the finest in the class by some way but does not have the

density of those placed above it.'

This aligns show reward to a 'middle of the road' goal. And 'if you aim for the middle of the road, all you get is run over!' In the case of Western alpaca countries – run over by Peru.

### Pricings by micron

Some clear points are:

- The price for a given weight of fibre is driven 70%-80% by micron.
- The other determinants of price are largely a result of the shearing, sorting, skirting and marketing process – that is fleece preparation and sale – not the breeding/growing function.

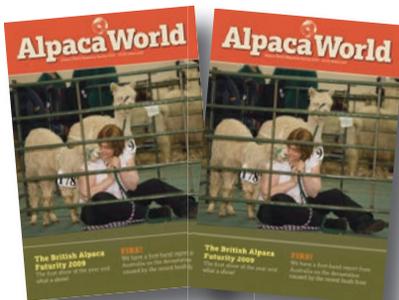
The weight of usable fibre per animal per year is also a direct determinant of price – the more you have, the more you get paid for. However, if one assumes the trade off between micron and weight that we see in merino, also holds true in alpaca, then the reward elasticities between weight and price have to be investigated.

For this exercise we turn to AGE (Australasian Breeding Values) data, and the AAFL (Australian) price list to growers.

Photos courtesy of Toff Alpacas

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Australian Alpaca Fibre Ltd			
Grade	White/LF	Black	Colours
Fine bale special	60	\$50*	n/a
< 20	27.5	n/a	20
20 - 22.9	12.1	8.8	8.4
23 - 25.9	5.95	4.4	4.2
26 - 29.9	4.4	3.85	3.5
30 - 33.9	2.8	2	2

Pricing is A\$ per kg. Fleece length, level of VM, guard hair, tenderness, style and character and handle can all downgrade fibre to a lower grade. \* = suggested pricing

The AAFL price list is appropriate as it indicates a fibre market that is maturing and getting close to commercial quantities and developing its own outlets and product manufacturer links. It vividly indicates the price escalation at finer micron, and the preference of white and light fawn fibre over coloured fibre. This is emphasised by the one-off 'fine bale' pricing offered recently by AAFL of A\$60/Kg for ultra fine fleece.

In New Zealand, a private fibre co-operative has set a price list

similar to AAFL. The finer fibre nets more than the stronger micron fibre. The grades are both micron and length dependent, and presently all colours are bought at the same price. Looking a little wider to the international wool traders, we can look at alpaca grades quoted by one of the major world processors – The Schneider Group.

Schneider Alpaca Trend Graph – Tops <a href="http://www.gschneider.com">www.gschneider.com</a>					
Grade	Micron	Price (US\$/kg) White 2004	Price (US\$/kg) White 2007	Price (US\$/kg) Colour 2004	Price (US\$/kg) Colour 2007
Baby	20-22.9	\$15.21	\$24.50	\$14.00	\$22.50
Superfine	23-26.9	\$8.06	\$17.75	\$6.93	\$14.50
Adult	27+	\$3.23	\$8.75	\$2.70	\$6.75

These are averaged prices for tops (ie, after processing) and one must deduct significantly to get back to raw fibre. However the trends per micron are clear, as is the discount for colour. Note also the different pricings by year which reflects big buyer involvement (China) in a small and susceptible specialist fibre market.

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## “Size is a characteristic that appears to link with micron over a large population sample”



Wool photos courtesy of Toft Alpacas

These pricing structures are a parallel to what is seen in sheep wool pricing. An example is shown as quoted in any NZ Rural paper.

Please note the extreme escalation at the very ultra fine micron level. This is something alpaca has yet to experience, but which clearly will be there when growers produce commercial quantities of this finer fibre.

### Sheep Wool Pricings - NZ

Grade/micron	NZ\$/Kg
14	247
18	15
21	11
25	9
27	6.5
29	5
35	3.7

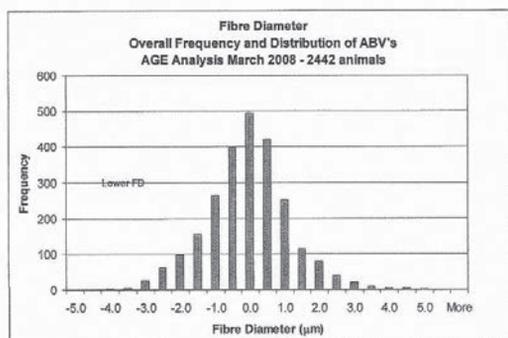
## Measurement in the Australasian herd

A profile of the Australasian herd, as entered in AGE, shows averages recorded in the industry. We will concentrate on the adult averages – the fleece produced for much of the alpaca’s life.

Averages	Yearling	Tui	Adult
Fleece weight	2.0kg	2.6kg	2.8kg
Micron	20.4m	22.1m	25.3m

AGE summaries for March 2008 show that microns of alpacas in AGE range plus and minus three microns from the FD (fibre diameter) ABV (alpaca breeding value) base. So there is a micron variation of six microns.

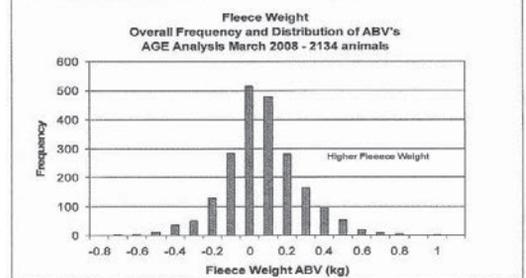
### OVERALL SUMMARY AGE ANALYSIS – MARCH 2008



Wool photos courtesy of Toft Alpacas

Looking now at AGE fleece weight summaries, we see a weight range from plus 0.5kg and minus 0.4kg, giving a range of 0.9kg.

### OVERALL SUMMARY AGE ANALYSIS – MARCH 2008



## Elasticities

Using the AGE population distributions and the AAFL fibre pricing schedules we can look at the relative effects of micron and weight upon the return you get for your fibre. Let’s assume you have a 21 micron fleece at present.

An improvement from worst in AGE weight (say 2.4kg) to best in AGE weight (3.3kg) would gain you (if you maintained 21 micron) under A\$11/fleece (an extra 0.9kg at A\$12.1/kg = A\$10.89). However if you slipped back (a band) in micron, whilst gaining the weight, there would be a net loss to your bottom line of A\$9/fleece as the micron effect more than offsets the weight gain.

Look at it from the other side of the equation – and a 2.8kg fleece weight. A gain (reduction) of six micron (from say 25.8 micron to less than 20 micron) would gain you A\$60 per 2.8kg fleece (moving from A\$5.95/kg to A\$27.5/kg). If you slipped back to a 2.4kg fleece, in doing so, the gain is reduced to \$51. But it is still a substantial gain.

It would therefore appear that, at this stage of the alpaca industry maturity, seeking micron gain (whilst holding weight constant) is a more profitable approach to the grower than seeking weight gain whilst holding micron constant. It carries more commercial gain if successful, and exposes the grower to far less risk of loss should the factor being held constant happen to slip.

This is emphasised even more when the finer micron brackets of 19 micron and below are considered because price escalates hugely as microns decrease (whereas the price per weight remains constant). Please note, I am not advocating a single trait focus here. Single-minded focus on a single trait without watching the other key traits can lead to disaster. However the commercial imperative as to what



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weighting to adopt between fineness goals and weight goals is fairly apparent from the above analysis – and it is far from an even weighting!

**Is fineness for you?**

If you are making carpets, the fineness goal is largely irrelevant and weight is king. The whole of the above price scale is irrelevant to you – you are only choosing to operate in one (micron) segment of it.

What the grower needs to learn from this is to choose the micron range you want to produce for, breed to get that range stable within your herd, then concentrate on maximising shear weight, or eliminating guard hair (whatever your secondary objective) within that micron band.

If we look at the New Zealand Merino industry, they have far more maturity. They have already fixed appropriate micron in their herd, they have conquered the fleece blow out factor by fixing an appropriate cv, they have eliminated contamination and guard hair through a strong culling policy, and so their focus now is on the ‘guts’ of the fleece (basically the weight).

That may seem obvious – but it is far away from the way most breeders see their goals, and also a long way away from the messages that the current structure of our show systems send to breeders.

Next we need to talk about the product/micron ranges that characterise the industry. The chart below is for wool. However alpaca would be similar. Given mill constraints talked about in an earlier part,

and the characteristics of the mass of fibre coming from Peru, alpaca products tend to fall into what we will call the mid-micron range (23 through 30). These products are the ones that are easier to breed for, and easier to process. They are not the high added value products however. Nor are they the products that will allow newer Western alpaca countries to gain a niche quality place ahead of the bulk of Peruvian production.

Processing finer production is not simple, especially in small quantities, as the AAFL found with the 17 micron ultra-fine bale recently collected (and bought by NZ because of the excellent NZ processing capability). It is in this ultra-fine bale end that the market niche and greater margins lie.

Mill owners talk of persistence. One has to believe that if the industry produces significant quantities of this finer fibre, mills will be found to process it – either locally or overseas. Growers need persistence too.

**Take-home points**

- If breeding for fibre – know what your customer/mill or product requires from you, and breed for it consistently.
- In most cases this will mean breeding to a tightly defined micron range across the herd (and other things largely geared to uniformity – see later articles).
- In achieving micron, do not let go of shear weight. Once micron is achieved, shift the emphasis to increasing density and improving quality without losing micron.
- Margins are significantly better for the grower with products using finer fibre.
- The show ring does not allow for differential breeding/product goals so sends fudged signals by equating fineness and density. A ‘middle of the road’ approach.

Future articles in later issues will examine the other individual characteristics of alpaca fibre, as we all know them, and relate those to the needs of processors and retailers. This will hopefully address some of the dichotomies currently faced by ‘breeders’, by changing the way we think about them – as growers.

**Figure 1: Wool usage by mean fibre diameter**

