

Common Threads to Luxurious Yarns

By Paul Vallely, AAFT

Vanity Fair, Vogue and InStyle have been packed with images of this year's Fashion Weeks, with zig zagging models revealing the latest trends from the big names such as Versace, Prada and Gucci, while alpaca secured its position on the catwalks as this year's fibre of choice.

Perhaps we won't see this imaginary quote in this year's fashion round-ups, however, a number of determined and talented people within the world's alpaca community are making progress within the luxury garment trade whereby we may find such quotes in the not too distant future.

Supplying fibre for the potentially lucrative luxury apparel markets does not just make sense in terms of increased returns to alpaca breeders, but gives alpaca fibre global recognition as a prestige product, recognition it rightfully deserves.

There is, however, an age old saying in the fibre processing industry of 'garbage in – garbage out'. In other words, processing outcomes are constrained by the quality of raw fibre being used. With regard to alpaca fibre, the jury presented the verdict many years ago – excessive fibre variation and prevalence of contamination has obstructed alpaca fibre being used for the luxury apparel market.

As already mentioned, however, there are some who are carving their mark into the luxury trade. It is therefore worth taking on board what they regard as the key areas that need to be addressed when pursuing these top-end markets.

Frank and Anya Walkington from Shamarra Alpacas, New Zealand, who buy alpaca fibre for luxury knitwear retailing stated "Uniformity of fibre diameter was crucial for processing performance and consistent handle of the end product", while Emma Taylor of UK's East Anglia Alpaca Mill stated that based on their experience, mills aiming for the top end market should be seeing a superior product if batching is correct and SD of fibre diameter is low.

Further, Adagio Alpaca Mills in NSW stated uniformity of fibre diameter is critical for their processing performance towards high quality end product, while Great Ocean Road Woollen Mill in Victoria stated "From a processing perspective, we are more concerned with consistency of fibre including micron, SD, length and cleanliness" and "...that a large variation of individual fibres ...will lead to an uneven yarn and therefore, an inferior product".

Fibre Naturally in Victoria stated they look for evenness in length and micron, and little or preferably no medullated fibres. They also look for narrowing of type between secondary and primary fibres. Fibre Naturally pursues 'next to skin' wear products.

This feedback is remarkably similar to the feedback we received during our market analysis in 2005 before we commenced the Ultrafine Bale Scheme which achieved world record prices for commercial bales of alpaca fibre.

We can summarise the feedback as falling into five areas of concern.

High quality garments made from alpaca that has been graded using objective measurement assisted classing image courtesy of Shamarra Alpaca, NZ



Fibre Diameter

As with merino wool, luxury garments require fleeces that exhibit fibre diameter low enough to allow a soft handle on the skin. For merino wool, the maximum average fibre diameter for fleeces to allow 'next to skin' wear is generally around 18.5 microns. For alpaca, it is generally around 22 microns, although unlike merino, the handle according to micron can be very much influenced by the variation in diameter within the fleece. This brings us to the next area of concern.

Variation of fibres

To repeat the words of luxury knitwear retailers, Anya and Frank Walkington "Uniformity of fibre diameter was crucial for processing performance and consistent handle of the end product".

In fact variation of fibre diameter was the most mentioned point during both the recent market evaluation and the one conducted in 2005. Low variation of fibre diameter within fleeces has repeatedly shown to achieve greater predictability of processing outcomes, reduced wastage and result in a far superior product in terms of appearance, and in particular, possessing a soft handle.

Uniformity of fibre type

Apart from fibre diameter, fibres within consignments need to be even in length and colour.

Coarse fibres

Another area of concern when processing alpaca is the risk of extremely coarse fibres within fleeces. These fibres can be referred to as 'guard hair', 'medullated fibres', 'primary fibres' or whatever term takes your fancy. The main point is that these very coarse fibres, although relatively few in number, will turn a potentially luxurious fleece into doona stuffing. When carrying out fibre testing, it is not uncommon to identify a couple of individual fibres that could be 30 to 50 microns above the sample's average diameter. Although few in number, their severe prickly effect on the skin (and unpredictability with dyeing) can be an absolute game changer in terms of how the fleece can be used.

Contamination

When AAFT were coordinating the Ultrafine Bale Scheme and the Premium Alpaca fleece grading days, we would often witness all types of contamination coming over the skirting tables. These would range from fibres from different coloured fleeces to foreign material such a baling twine, socks and threads from feed bags. Not only did these contaminating articles play havoc with attempts to process the fibre, it also sent a very negative message to those we were trying to sell the fleece to. The interesting thing is that when we informed the breeder of the contamination, they had difficulty in accepting the contamination had occurred – and I am quite sure they were genuinely surprised.

With the benefit of many years' experience with marketing and selling alpaca to luxury garment markets, there is resounding proof

that if the above five issues have been adequately addressed, then doors of opportunity start to open. For instance, we have seen alpaca used in garments under labels such as Ermenegildo Zegna, Giorgio Armani and Loro Piana – and they don't have to be ultrafine fleeces as they have used 22 micron fleeces and even higher.

We can categorise these areas of concern into two main themes: Breeding, and Management.

Breeding

In terms of breeding towards luxury fibre, the aims are abundantly obvious – reduce fibre diameter variation and incidence of coarse fibres while controlling average fibre diameter.

While this might sound like an onerous task, Mother Nature has dealt us a winning hand in this regard in that these happen to

be the fleece traits with the highest levels of heritability. In other words, these traits offer us our best chances of achieving genetic gain in a shorter period compared to pursuing other fleece traits.

The breeding strategy of reducing fibre diameter variation within fleeces as well as removing the excessively coarse fibres is found with the fibre trait of Standard Deviation of FD (SD). I have written extensively on this breeding strategy, and will refer readers to my paper 'Should alpaca breeders use SD or CV when evaluating fibre traits?'

Vallely, P. 2016, (www.aaft.com.au/uk/uklibrary1.html)



Luxurious shawl made from suri fibre that was collected using objective measurement assisted classing - image courtesy of Rumpelstiltskin Project, NZ

Management

The other group of strategies aimed at pursuing the luxury garment industry lies in how we manage alpacas and, in particular, how we harvest their fleeces.

Crucial to meeting the demands of top-end markets is the need for breeders and collectives to adopt fleece collection protocols or standards that effectively address the five above-mentioned key areas of concern.

Therefore, to maximise the price paid for alpaca fleeces, producers or suppliers of alpaca fibre need to put together consignments that consistently exhibit high levels of uniformity with fibre diameter, colour and length with no contamination in order to attract and retain demand from 'high end' markets. I stress, this applies for any consignment of alpaca – single fleeces or commercial bales.

The fleece classing system referred to as Objective Measurement assisted Fleece Classing (OM) was initiated in 2006 specifically with the high end markets in mind. These standards were developed in consultation with alpaca breeders and a range of people regarded as experts in relevant fields, including a large number of mill operators, manufacturers and retailers. OM is now widely used by breeders, including those involved in the Alpaca Fibre Network (Australia), AFN(AUST), Premium Alpaca networks and the Suri Rumpelstiltskin scheme, all of whom command the highest prices currently paid for alpaca.

In terms of fleece harvesting, OM requires all breeders who participate in the scheme to have successfully completed a

training session that covers conduct of shearing, fleece skirting and an introduction to fleece classing. An important aspect of the concept is that all fleeces need to be skirted immediately after shearing, and before being bagged.

Participating breeders contribute fleeces at group collection days where skirting standards of fleeces are re-checked before a subjective appraisal of the fleece is made for traits such as colour, length and tensile strength. Importantly, three samples are taken from each fleece that meets the minimum standards. These three samples, referred to as grid samples, are tested either on-site or sent to a fibre testing laboratory for subsequent advice on average fibre diameter and SD. The fleece is then allocated to the appropriate classing line (or rejected) based on the grid test results.

The current price for this grid testing is about AU\$1.65 per fleece (AAFT May 2017).

In Australia, the best method to evaluate the effectiveness of fleece classing systems is to have core samples taken from the consignments and tested at the Australian Wool Testing Authority (AWTA). The cored samples are tested for traits such as average fibre diameter, variation in fibre diameter, staple (fibre) length and strength and yield. Given the thoroughness of the sampling method, these core test results are accepted by the industry as providing a true indication of the fibre traits within the bales or consignment lines.

As Standard Deviation (SD) is the statistic that indicates the true level of variation (of fibre diameter), we look at the core test SD to reveal the extent of variation that exists throughout the respective consignments.

It should be remembered there are three levels of fibre diameter variation throughout a fleece consignment. There is the variation between fibres within fibre bundles (as reflected in normal midside fibre tests for SD) which is mainly influenced by genetics and environment. Then there is the variation across each fleece which is influenced by skirting technique as well as genetics. Finally, there is the variation between the fleeces within the consignment which is influenced by fleece classing technique.

Table 1 provides core test results for indicative fleece lines classed using OM and lines classed solely using subjective appraisal. That is, classing fleeces using only tactile and visual assessment. The table represents all available data at the time of writing. For effective comparison, only white huacaya fleece lines were considered.

Table 1 showing core test results for various alpaca and wool consignments.

Serial	AFD (microns)	Consignment SD	* Classing method
1	22.8	6.8	Subjective appraisal
2	23.7	6.3	Subjective appraisal
3	22.1	5.9	Subjective appraisal
4	19.5	4.9	Subjective appraisal
	Variation avg's	6.0	Subjective appraisal
5	20.2	5.0	OM
6	23.6	5.4	OM
7	23.5	5.2	OM
8	17.8	4.1	OM
9	17.9	4.4	OM
	Variation avg's	4.8	OM

Note: All core test information is derived from AWTA certified test data as presented in AWEX or Australian Wool Handlers catalogue sheets.

The above table suggest the consignments supported with grid testing of fleeces (Serials 5 to 9) had significantly lower degree of fibre diameter variation than the consignments classed purely with subjective appraisal (Serials 1 to 4).

This observation is reinforced by the following comment from luxury knitwear retailers, Frank and Anya Walkington.

“We have commercially processed 5 batches of alpaca over the past 5 years. The first three batches were classed by eye and hand. The last 2 batches were classed based on fleece test results (3 samples taken from each fleece) and then classed into lines of 2 micron bandwidths. We did experience a higher degree of fluffing, pilling and a lower level of durability from the first 3 batches using eye/hand classing.

By classing fleeces using micron testing, the most noticeable improvement is the increased comfort factor and reduced SD. This gives us an assurance and confidence that the quality of our yarn/knitwear will be consistent which translates into customer satisfaction.”

To further reinforce this point, the following comment from Andrew Hulme of Adagio Alpaca Mill should be noted. “Based on my technical experience, I struggle to see how anyone can class fleeces to effectively reduce micron variation without the use of a fibre testing computer.”

Furthermore, Fibre Naturally stated they preferred consignments that had been classed with the support of objective measurement, preferably classed to within 2 micron bands.

In bringing all the above information together, there is resounding evidence that alpaca fibre possesses obvious potential to develop a position within the lucrative luxury apparel market, although the evidence also points to this being achieved only by way of addressing the previously mentioned five areas of concern. Furthermore, while the above information relates to large volumes collected in Australia, the principles covered above apply equally for alpaca communities with much smaller volumes available.

Note of disclosure:

This paper is limited by the narrow scope of enquiry and, therefore, it is suggested that further, ongoing evaluation be conducted to validate the above information. The writer also acknowledges the possibility of some bias towards OM as the owner of fibre analysis laboratories (AAFT).



About the Author

Paul Vallely is owner and manager of AAFT, the world's largest fleece analysis service specializing in alpaca fibre. Their laboratories in Australia and the UK provide comprehensive testing, consultancy and information services to the global alpaca community. Research projects that have involved AAFT include the relationship between skin traits and fibre characteristics, evaluations on the use of wool testing programs for measuring alpaca fibre and market analysis for alpaca fleece in the 'luxury' garment industry. Paul is continually involved in the marketing of alpaca fleeces, particularly for the premium textile trade. Paul is well known throughout the alpaca world for his presentations on fleece analysis, breeding techniques towards quality fleece production and fleece marketing. He has presented topics at five international conferences, four national conferences and numerous fleece and marketing workshops around the globe. He has written a number of papers relevant to alpaca fleece analysis and genetic improvement towards fleece quality. Paul owns and operates a superfine/ultrafine merino wool growing operation in Australia. The operations runs about 2800 sheep with a current flock average of 16.0 microns. His university qualifications industry experience cover the areas of fibre metrology, statistical analysis, economics, animal husbandry and genetics.