THE NATURAL FIBRE COMPANY

Notes on Alpaca Shearing and Maintaining the Quality of Fibre

The key point: Garbage in means garbage out!

It is ESSENTIAL to ensure that the neck, leg and blanket parts of the fleece are separated properly and stored separately at shearing. It is pretty much impossible to do this adequately by hand afterwards.

Alpaca, like wool, is a high performance, sustainable fibre, which can fetch good prices in its final form – but the transport, processing, design, marketing, etc. are all expensive and take time – a really good handspinner will take an hour to spin 100 yards of yarn, which still has to be plied. Working by hand, from raw fleece to a hand-spun, hand-knitted pullover (without dyeing) will take an efficient and competent person around 100 hours. Machines are obviously quicker but need power, premises, employees and bureaucracy. None of this can begin without good fibre to start with and using these notes should help you to get the best value from your fleeces.

It is not essential to separate each animal's fleece into separate storage bags except for selective breeding and fleece analysis purposes. You could put all your white blanket together, for instance, BUT if one fleece has guard hairs and another does not you are effectively contaminating them by storing them together. IF IN DOUBT KEEP THEM SEPARATE.

Please read the notes below to help you select the best fibre and most appropriate end use.

About Fibre

1. Alpaca fibre on each animal is of **three very distinct types**:
   - **Neck hair**: characteristically fine and soft but too short for spinning (can be used for felting though)
   - **Leg hair**: characteristically long, coarse, stiff and straight – so too coarse and harsh for spinning into a yarn and not much good for felting – it is best for mulch, insulation or stuffing, though could possibly be blended with wool for a carpet yarn
   - **Body hair**, the so-called **Blanket**: longer, not as fine as neck, nor as coarse as leg – so can be suitable for spinning.

2. **Defects** in fleeces are as follows:
   - **Guard hairs**: these are coarse hairs scattered throughout the blanket – they may be concentrated on the chest and along the back or may be completely all over. If present in a cria they will only increase with age, and most alpacas develop guard hairs to some degree as they age. Guard hairs make the whole coat coarser and will also work their way out of a spun yarn, thus increasing the propensity of alpaca yarns to shed hairs and or pill in knitwear. Guard hair is very common in our experience.
   - **Vegetation**: this is particularly a problem with cria, and because of the fineness of the alpaca fleece it is more difficult to remove when processing, so a heavily contaminated fleece is not suitable for spinning however fine and soft it may be.

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- **Matted fibre**: this will be from suri alpacas left un-shorn for too long (no more than one year if you want to use the fibre) or any animal rubbing against fencing or buildings, but matted fibre also often surrounds vegetation on young animals. It is relatively rare in huacaya alpacas compared to sheep but does result in rejected fibre.
- **Other contamination**: sometimes skin flecks from skin shedding – this should wash out when processing the fibre. Please note that marker dyes and pesticide stains are possible indications that the whole fleece should be rejected. Poor shearing technique, resulting in a large amount of second cuts and short hair will spoil the fleece and resulting yarns even though much will drop out, but this will then reduce the yield as well. Vegetation and dust are common and if too much will cause the fleece to be rejected.

3. **Quality:** normally the best fibre is from cria: so-called **Baby Alpaca**. But beware! A cria may be genetically coarse haired and have guard hairs, so even though it is a baby its fleece will not qualify as baby alpaca. Conversely, some older animals with genetically fine fibre may continue to produce first quality alpaca for several years. Generally older alpacas, males and those with lower health status for whatever reason will produce poorer quality and coarser fibre.

4. **Grades of alpaca** are roughly as follows:
   - **Baby**: around 20-21 microns, if finer at 15-20 microns is called Royal Baby
   - **First/fine**: 22-26 microns on average, clean with good handle
   - **Second**: over 24 microns on average
   - **Thirds**: coarse, straight and well over 26 microns on average, or less than 7.5 cm / 3 inches long (e.g. neck)

   Generally, only baby and firsts are suitable for spinning into knitting or weaving yarns. Seconds can be usefully blended with fine, medium or coloured wools where the smoothness of the alpaca fibre will add softness and the brightness of its natural colour will enhance or add colour to the wool. Thirds are only suitable for blending with at least 50% coarse wool for carpet yarns or for insulation and stuffing. Huacaya is easier to process than suri, particularly if the suri has been allowed to become matted, so suri fetches lower prices generally and is more difficult to sell, needing good lustre and a length of 10 cm / 4 inches.

5. Although genetics provide the basic quality, **fleece quality** also reflects the health of the animal. Thus stress like birthing, lactating, worms, parasites, etc. will also affect the fibre quality – the worst cases can include the animals simply shedding the fleece, but more normally there can be staple breaks, tender fibre that just breaks if pulled, or general lower total fleece weight, lower crimp and lower quality.

6. Alpaca fibre (and wool) can be analysed in detail to establish the fineness, the standard deviation of the fineness across the whole fleece, the type and degree of crimp and many other factors. However, while the **statistical analysis** of one fleece may be very close indeed to the analysis of another, the magic combination of the characteristics of the whole fleece into the "handle" may differ, such that a statistically slightly coarser fleece may actually feel softer than a similar finer fleece.

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7. Alpaca fibre hairs are much smoother than wool. This, along with fineness (but fine wool is recorded regularly at 15-18 microns), makes alpaca fleece and yarn feel very soft to touch, giving a generally accepted 3 micron advantage to alpaca over wool. Along with the greater brightness and range of colours in naturally coloured alpaca, these attributes make alpaca both attractive alone and a useful fibre to blend with wool to create softness and add colour. However, the smoothness means that most semi-worsted and some woollen spun pure alpaca yarns may shed, although this does gradually reduce over the life of a garment. The addition of some fine wool can help to reduce this as it will hold the yarn together better. It is also helpful to blend a range thicknesses of alpaca fibre, say between 20 microns and 25 microns, as this seems to work better.

8. However, alpaca has less crimp, memory and elasticity and is considerably more dense, so an alpaca yarn will weigh more for its length and consequently there will be less yardage in a weighed ball of alpaca yarn than in one of wool. Also, due to the elasticity of wool it is likely to knit up more economically. This is important when adapting or designing patterns.

9. Suri alpaca, like lustre wool compared to non lustre, is smoother than huacaya, so is more difficult to spin. Generally alpaca can be woollen spun or semi-worsted spun and suri will usually work for this too (though not always for semi-worsted). For full worsted spinning it is helpful to add a proportion of huacaya or fine wool to hold the yarn together. Blending with wool will help reduce shedding and pilling in worsted spun yarns.

At Shearing

1. These notes are aimed at working within the normal constraints of shearing a herd. Please remember to observe bio-security – the British Alpaca Society publishes a guide to alpaca welfare, where page 34 provides guidelines on this (see http://www.bas-uk.com/sites/default/files/downloads/alpacapedia/Feb/Welfare%20Guide%20ALPACAS%20and%20LLAMAS%202015.pdf). See also Australian Alpaca Fibre Test information sheet on Shearing Protocols, which is very useful http://www.aaft.com.au/uk/uklibrary1.html
2. Unless you have plenty of experience, do not be tempted to shear your own herd: a good shearer will ensure the best welfare and the least poor quality with second cuts, etc.
3. Make sure you provide enough support and facilities for shearing, whether you do it yourself or have shearers in.
4. **Give your shearer clear instructions**: if you do not mind mixing leg, neck and blanket, then you can say so! However, if you want the blanket to be useful, tell the shearer to be careful to leave out ALL leg wool when selecting the line to make the first cut along the blanket. It is better to have less, good quality fleece than a lot of poor quality with leg hair contamination.
5. Ask the shearer's opinion about fleece quality – they see more animals than you do!
6. At shearing, ensure that the minimum of straw, hay, stubble or vegetation is present, either on the animals or in the shearing area.

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7. **Sort the herd as it goes into shearing** – keep colours, males, females and youngsters separated and this will make life easier for sorting types of fleeces.
8. **Sweep the shearing board between shearing each animal**.
9. **Keep plenty of storage sacks available**: one for rubbish, one leg hair (which can be kept together for general disposal or sale for insulation and stuffing, unless you are also working on reducing the weight of leg hair within total fleeces and need to record it), one for each colour of neck hair (which can be kept together) and one for each blanket.
10. Alpaca is best stored in paper or fabric sacks which are breathable. It can be stored in plastic bags, unlike wool, but not for too long as any dirt or damp combined with the grease content of 7-8% is sufficient to start bio-degradation. If you are storing alpaca for any length of time, keep it in light (to deter moths), dry, cool conditions and inspect regularly. Avoid direct sunlight which will bleach any fibre. Moths are the worst problem usually and if you get them it is probably best to destroy all the fleece likely to be at risk and start again. Washing fleeces significantly reduces their attractiveness to moths, so this is a good idea, and once clean and dry you can also safely store in air-tight plastic bags to prevent moth infestation.
11. Label each blanket sack with the name of the animal, and add the date if you are likely to store for more than one shearing/year – due to the moth risk it is not advisable to store for more than 2 years.
12. Shake out fleeces to reduce the amount of second cuts (which are useless as too short) – shearers tend to neaten things up to make a good-looking animal, and will go over longer bits again, but this actually reduces fleece quality: an alpaca with an uneven hairdo is unlikely to complain but your fleece customer will!
13. Do not include dags, brambles, branches, stones, bricks or the children as they are no use for making yarns and simply reduce the value of your clip. Baler twine bits should be avoided at all costs as they are almost impossible to remove and totally ruin the value of your fleece. You can use clean new baler twine to seal up bags, but this is risky too as they may be cut open in several places, which risks contamination with bits. Cable ties are cheap and simple and no worse for the environment than baler twine! Strips of old fabric are probably the most sustainable option.
14. Keep notes of the alpacas with particularly good or particularly bad fleeces and include this information when selecting for future breeding and flock management.

After shearing: skirting, grading and sorting a fleece

Start with SKIRTING to reduce the work, then move on to grading and sorting

1. It is much easier and quicker, and maintains quality better, to do this at the time of shearing rather than later, so well worth getting helpers to make this possible.
2. Shake fleece to remove dust, short bits, second cuts, and loose vegetation.
3. Lay out flat on a table. Shearers use slatted tables, and The Natural Fibre Company uses one with fine netting – a worthwhile investment if you plan to do a lot of this! If not, a plastic sheet over the table will enable the fleece to be moved around easily and should be swept or shaken after each fleece. It is best to start with pale fleeces and move through to darker ones if you have a mixture, to reduce colour contamination.

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4. Let the rejected bits just fall on the floor and collect them afterwards for use as mulch in the garden.
5. If it is a loose suri fleece in locks, you cannot shake it out and a finely slatted or netted table (see 2. above) makes things easier. However, you should be able just to pick up the bits you want and sweep up the rest.
6. Pull off all dags, and any larger pieces of vegetation and straw, etc.
7. Pull off any felted, tangled or cotted areas (if you cannot pull apart the fibres, a machine will only chop them, which will reduce the quality of yarn)
8. Pull off any very short, coarse or dirty fleece – this is less important when making felt.
9. Pull off any areas contaminated with paint, dye or other colourants – again this is less important when making felt, depending on what effect you require.
10. You will probably now have reduced the total fleece by around 10%, and have removed most of the fibre around the edges.
11. Make sure that you have removed any odd locks of leg hair which can ruin a good fleece.

Grading and sorting

1. At this stage you can assess the fleece to decide whether it is all of one type or whether there is significant variation, and you can separate finer and coarser areas or sort by colour. On a mixed colour fleece, it is usually fairly easy to sort the main dark and light and the merged boundary areas form the third colour – it is not practical to sort by individual hairs!
2. Review for guard hairs: if these are present all through the fleece you will need to decide whether to accept it as poor quality or consider de-hairing when processing. If the guard hairs are only in certain areas of the fleece: chest, spine, etc., then you can consider removing just these areas.
3. Grading is relatively straightforward at the simple level: you should be able to see what is coarser or finer and then check by feeling it – rub a few hairs from visibly different parts of the fleece between your fingers and you will begin to appreciate the variations. You can also lay them on a dark or pale surface, depending on the fleece colour, and spread them out to compare. To get a truly scientific result you need to go on a course or send the fibre away for analysis.
4. As you do more, you will begin to appreciate the variety in colour, texture, crimp, lustre, staple length, lock formation, etc. of the many different animals in each flock. However, you should also be pragmatic and decisive and not waste time choosing between individual shades of grey, or locks or hairs – that way lies madness!
5. At this stage it is possible to decide which fleeces will work to build a batch for processing or whether to keep them all separate to process or sell individually, and they can be stored accordingly. It helps to write notes of what is in each bag on a luggage label as it's easy to forget by the time you get around to acting on your plan …

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Prices

1. If you think fleece is a nuisance and only a welfare issue, it will be a problem for you as you are unlikely to have taken care to keep it at its best when coming off at shearing. At the least, you should aim for the value of the fleece to cover the shearing costs, which means you will have one welfare activity which costs nothing.
2. It generally costs around £30+ per animal (depending on numbers) to shear alpacas and the weight of fleece is generally 2-10kg. A long matted heavy suri fleece may weigh plenty but it will not get as good a price as a clean, shorter one.
3. Fleece prices will vary: just because it is from a young animal, it does not mean that you will get a high price for fibre. Good white Baby alpaca can fetch as much as £10-12 per kilogram, first quality white and baby coloured around £4-8, first quality coloured £3 and the rest pretty much has to be given away, getting maybe £0.10-0.50p in bags sorted by colour. So a really good fleece can help pay for other animals to be shorn. Sorted fleeces will achieve higher prices, and it's still worth collecting poor quality together to increase the overall return. Suri will fetch less, at perhaps £2-5 per kilogram for the best quality white and coloured and £1-2 for second quality.
4. Prices do vary from year to year, and it is worth shopping around to see what is wanted – in the UK the two leading purchasers are UK Alpaca (see https://www.ukalpaca.com/selling-your-fleece/) and British Alpaca (see http://www.british-alpaca.com/fleece-prices/). The Natural Fibre Company does also occasionally buy in fibre and will assess quality from samples sent in by post. In all cases, it is essential to contact the organisation first and check what they want.
5. Shearers will know about local buyers, spinners, etc. and a great deal of other information besides – it's worth asking and listening.
6. Even mulch has a value! Dirty fibre contains good nutrition for plants and composts quite slowly, so arguably is better than bark as a mulch. It also works well at the bottom of runner bean trenches to hold the water.
7. Processing will add value, once you take the plunge and plan your marketing campaign as well – The Natural Fibre Company can provide help and advice on this and alpaca yarns will sell at around £6 per 50g ball in the UK, which is £120 per kilogram, including VAT, compared to a processing cost of around £60-100, depending on the finish and style of yarn. Small batches will cost considerably more than larger batches.

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